

**Knowledge Interfaces:**  
***Kruiekenners, plants and healing in Genadendal***

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**Figure 1: Genadendal Valley (Author photo)**

**Thesis presented for the degree Doctor of Philosophy in the Faculty of Arts and Humanities, Department of Anthropology, University of the Western Cape.**

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## Abstract

This thesis was informed by what I perceived to be a tense relationship between Western biomedical science and, for example, “traditional” or “indigenous” ways of producing knowledge about medicinal plants used to manage a pervasive condition like Tuberculosis (TB) in South Africa. Hoping to reimagine this relationship and its possibilities, I follow medicinal plants collected from Genadendal through three research spaces with disparate but intertwined knowledge heritages to investigate these tensions but also to tease out how knowledge about locally used medicinal plants is generated and “done” in practice. The first space was at the South African Herbal Science and Medicines Institute (SAHMI) as part of an experiential science project led by scientists who were interested in studying medicinal plants which could potentially provide new sources of safe, affordable, and sustainable medicine for communicable conditions such as TB. The second was at the Genadendal clinic and Home-Based-Care Unit (HBCU) where I examined TB as a disease that is diagnosed, defined and “done” in and through medical practice. Thirdly, I collected medicinal plants and spent time doing long term ethnographic fieldwork with *kruiekeners* and medicinal plant users in Genadendal to explore how TB, as an illness, is understood, managed, and handled differently in and through local knowledge and daily socio-material practices, such as through lay diagnostics and the use of plant medicines.

As the project and my own ethnographic research progressed, there were certain parallels and points of divergence to be drawn from the ways in which different “actors” produce knowledge about medicinal plants (*kruie*). This was especially evident in practice when I followed medicinal plants, and to a certain extent TB, through their various entanglements with humans, technology, experiential techniques, TB tests, etc. In the thesis, the aim is not to make comparisons but to foreground the complex relations that exist between scientists, *kruiekeners*, plant users and plants by offering an account of the kinds of conversations which occurred between these groups and their respective plant practices. Drawing on the seminal work of Latour and Mol, and on trends in the literature on more-than-human or other-than-human approaches to studying plants, I argue for an alternative configuration of knowledge objects such as *kruie*, TB, and experiential science; one which is conscious of the authority of science and medical practice, but which is also inclusive of *kruiekeners* knowledge and sufferer’s figurations of illness, aetiologies, stigma, treatment and healing. I also argue for a critical rethinking of the way plants have been approached as objectives of the natural world.

**Key words:** Medicinal plants, TB, knowledge, *kruiekeners*, Genadendal.

## Acknowledgements:

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I am indebted to several people at the Faculty of Arts at UWC. It would be imprudent of me to single out specific people because my journey at UWC was a long one and involved many people along the way. I would like to thank former colleagues in the Arts Faculty recruitment office, Faculty administration and dean's office where I spent most of my undergraduate years as a student assistant.

A special vote of thanks must go to the staff in the Department of Anthropology at UWC for their academic support, collegiality, and friendship through my postgraduate years. It was here where I was taught about the nitty-gritties of anthropology and honed my research skills. I am also grateful for the part of my teaching career which began here, first as a professional tutor and then occasional lecturer. I appreciate and will cherish my time there forever.

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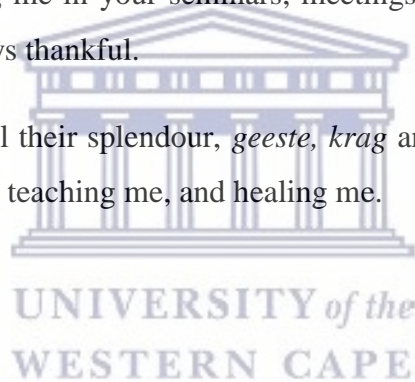
I wish to express my gratitude to my family: Marlene Davids, Leon Davids, Sasha Davids, Allan Davids, Helen Engel, Martin Engel and my wife Samantha Davids. I also want to commemorate close relatives that have passed on during this research. All impatiently waited for me to finish this thesis. They have all been overly supportive and influential, and I thank every one of you.

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To my Genadendal friends and family: The *kruiekenners*, gardeners, elderly knowledgeable people, healthcare staff and other *Genaalers* who gave of their time, propagated plants for me, spent time in the *veld* with me, brought and prepared *kruie* for me when I was ill and displayed genuine care and concern for me, I sincerely thank you.

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And finally, to the plants; in all their splendour, *geeste, krag* and lively potentialities. Thank you for captivating my interest, teaching me, and healing me.



## **Dedication**

*In loving memory of Eileen Davids and Theresa Engel.*



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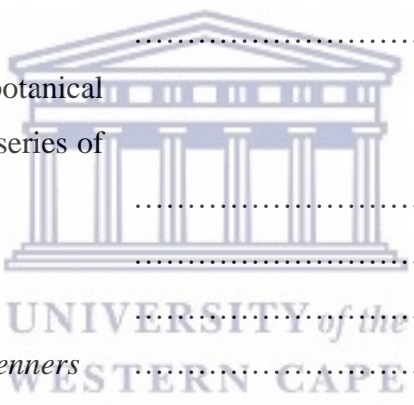
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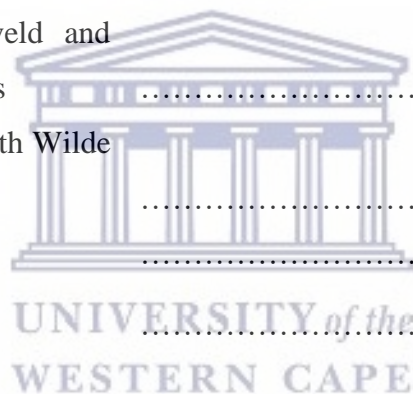




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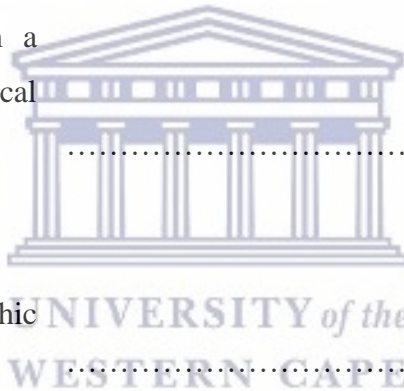
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## List of acronyms and frequently used Afrikaans words

|                  |   |
|------------------|---|
| <b>ABS</b>       | Access and Benefit Sharing Agreement                                      |
| <b>ADL</b>       | Activities of daily living  |
| <b>AHS</b>       | Anthropology of Herbal Science  |
| <b>AIME</b>      | An inquiry into modes of existence  |
| <b>Amagrirha</b> | Diviner or traditional healer   |
| <b>ANT</b>       | Actor-network-theory  |
| <b>ARV</b>       | Antiretroviral treatment for HIV  |
| <b>CDC</b>       | Centre for disease control  |
| <b>COPD</b>      | Chronic Obstructive Pulmonary Disease                                     |
| <b>DOH</b>       | Department of Health  |
| <b>FGDs</b>      | Focus group discussions   |
| <b>GERD</b>      | Gastroesophageal reflux disease   |
| <b>HBCN</b>      | Home based care nurses  |
| <b>HBCU</b>      | Home based care unit  |
| <b>HDC</b>       | Hester Dorethea conference centre   |
| <b>HPLC</b>      | High Performance Liquid Chromatography                                    |
| <b>HIV/AIDS</b>  | Human immunodeficiency virus  |
| <b>HPS</b>       | Human-plant-studies   |
| <b>IKS</b>       | Indigenous Knowledge Systems  |
| <b>Insmeer</b>   | Rubbing and massaging the body with kruie mixed with ointments or salves  |
| <b>IP</b>        | Intellectual property   |
| <b>Inyanga</b>   | A traditional healer or diviner, especially one specializing in herbalism |
| <b>Kruie</b>     | Medicinal plants  |

|                         |  |
|-------------------------|--|
| <b>Kruiekenners</b>     | Plant knowers/people knowledgeable about plants including the elderly, Rastafari bush doctors and bossiesdoktors |
| <b>LTBI</b>             | Latent TB infection  |
| <b>ME</b>               | Margin of error  |
| <b>MOU</b>              | Memoranda of understanding   |
| <b>MTA</b>              | Material transfer agreement  |
| <b>MUTHI</b>            | Multi-University Traditional Health Initiative   |
| <b>NMR</b>              | Nuclear magnetic resonance   |
| <b>OI's</b>             | Opportunistic infections   |
| <b>PIC</b>              | Prior informed consent   |
| <b>RCT</b>              | Randomized controlled trials   |
| <b>RTO</b>              | Retrospective Treatment Outcome  |
| <b>RNAs</b>             | Ribonucleic acids  |
| <b>SAHSMI</b>           | South African Herbal Science and Medicines Institute   |
| <b>SANBI</b>            | South African National Biodiversity Institute's  |
| <b>SPSS</b>             | A statistical software programme   |
| <b>STN</b>              | Bioassay-guided fractionation  |
| <b>TB</b>               | Tuberculosis   |
| <b>TST</b>              | Tuberculin skin test   |
| <b>Veld<sup>1</sup></b> | The field  |
| <b>Wilde als</b>        | Artemisia afra   |
| <b>WHO</b>              | World Health Organisation  |

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<sup>1</sup> All Afrikaans words used in-text have their English translation in parenthesis.

## Declaration

I Denver Martin Davids declare that *Knowledge Interfaces: Kruiekenners, plants and healing in Genadendal is my own work*. It has not been submitted for any degree, for examination or for publication at any other university. All the sources I have used and quoted from have been acknowledged and appropriately referenced.

Denver Davids

Signed:..........

Date:.....9 November 2021.....





## Chapter 1: Introduction

### Prologue

As long as I can remember *kruie* (medicinal plants) has been a part of my life. I grew up in Elim, a small, rural mission station in a sparsely populated area of the Western Cape, South Africa. At the time there was still minimal access to formal health care services. A mobile clinic visited the area twice a month. There was a hospital at the closest town, Bredasdorp, accessible by a deeply rutted gravel twin track. Up until the late 1990's most households in Elim did not have electricity or telephones, and many people, including my family, could not afford to buy and maintain a car. The customary form of transport was by donkey cart, which was time-consuming and uncomfortable for a very ill person. Instead, minor ailments, such as the common cold, influenza, headaches and so on, were treated with combinations of *kruie* decoctions, Dutch medicine, strengthening food such as soup, *insmeer* (rubbing and massaging the body with *kruie* mixed with ointments or salves) and prayers.

The knowledge and use of *kruie* and Dutch medicines are still common in Elim and many rural and semi-rural areas throughout South Africa (Abrahams, 2002; Van Wyk, 2011). *Kruie* are often used as remedial and preventive medicines or to support health (Thring & Weitz, 2005). In Elim, such knowledge and use of *kruie* is entwined with the history and medical knowledge of European missionaries and prospectors who settled there and which have over time evolved, transformed and integrated with the knowledge of local Khoi people, to become what is commonly referred to today as Khoisan medicine (Low, 2007) or "Cape herbal medicine" (Van Wyk, 2008; Lindeboom, 2012; See also Gibson, 2018).

As a child in Elim I often walked in the *veld* with my grandmother to collect *kruie*. She showed me where to find specific *kruie*, made me attentive to their shape, leaves, areas where they grow, their smell and texture, their local names, what they are used for and how to prepare them as medicine. In her endeavours to teach me *kruie*, my grandmother would call out the vernacular names of *kruie* such as *wilde als* (*Artemisia afra*), *aalwyn* (*Aloe ferox*), *kattekruie* (*Ballota africana*), *kopieva* (*Bulbine abyssinica*), *suurvy* (*Carpobrotus edulis*), *buchu* (*Agathosma betulina*), *dawidjie* (*Cissampelos capensis*), *karmedik* (*Dicoma capensis*) etc. as we walked in the *veld*. I had to touch, smell and taste them and, afterwards, to find and identify them again. When we returned to the farm-house she rolled the collected plants in bundles to hang up and dry. Later the *kruie* were put in brown paper bags or jars and stored along with

small bottles of Dutch medicines<sup>2</sup> in a cupboard in the kitchen. I also remember the bitter taste of *kruie* my grandmother prepared for me to relieve whatever symptoms I had. When I was eight I became very ill. I developed very high fever and was sweating profusely. My grandmother wiped me off with a damp cloth, tried to feed me soup and even asked the minister of the Moravian church to pray for me. My condition worsened, and my grandmother asked a neighbour to sit by my bedside while she went to the *veld* to collect *kruie* and prepare a decoction, including *wilde als*, for me. She also cut and put potato (*Solanum tuberosum*) slices in layers on my chest and forehead and covered it all with a damp cloth. Later she bathed me in a steamy bath of yellow *wilde als* infused water. By morning my fever had dissipated, and I recovered.

Many of the plants my grandmother used, taught me about and treated me with appeared again when, years later, I immersed myself in fieldwork first in gardens in a suburb of Cape Town, then with traditional health practitioners (*amagrirha* and *inyanga*) in Strand, Western Cape and in the Eastern Cape (Davids, 2010; 2012; Davids et al., 2014). For my doctoral fieldwork, and because it was also the research site of the projects I later participated in, I chose another former mission station, Genadendal. It was here I settled for a time to do my doctoral research on medicinal plant use and worked closely with *kruiekenners* (plant knowers/people knowledgeable about plants).

### 1.1 Precipitating Research Interests

My youthful encounter with *wilde als* and its transformative healing power thus influenced my later choices in research. In 2010 for my honour's research, I explored the knowledge and use of *kruie* as medicine in the gardens of elderly residents in Bonteheuwel, Cape Town. Many of these elderly residents happened to be migrants from rural farming communities such as Elim and Genadendal who had settled in Cape Town. At the time, I was interested in medical pluralism that is, the concurrent use of *kruie*, Dutch medicine and allopathic medicine (Chhaya, 2009; Tugendhaft, 2010). My analysis of *kruie* and aesthetic plants grown in gardens was grounded in the anthropology of material culture and thing theory (Appadurai, 1986; Brown, 2001). In the gardens, I explored the histories, meaning, symbolic value, exchange and sociality

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<sup>2</sup> Dutch medicines originated in Holland and were brought to South Africa before the nineteenth century by early settlers (Cranko and Sleggs, 1960). These small, coloured, usually bitter tasting bottles of tinctures are used to treat a variety of common ailments such as cough, colds, pain, fever, stomach ache, to name a few (Davids, 2010). These unregulated medicines are widely available throughout South Africa and relatively cheap.

of plants as “objects” or “things” which are intricately entangled in human social relations and notions of (un)well-being (Cohen, 2008; 2009; Hsu, 2010; Davids, 2010).

In 2011, I took part in a then new module, Anthropology of Herbal Science (AHS), at the University of the Western Cape (UWC). The AHS module focused on debates around the transformation of knowledge, the assumptions, rituals, and practices around traditional African phytomedicines and the processes of studying it scientifically, as well as its scrutiny during (pre)clinical trials (Gibson, 2011; Gibson and Killian, 2013). In addition, the AHS module introduced me to contestations and connections (or lack thereof) between traditional plant medicines, practices, practitioners and their knowledge, and scientific ways of knowing and doing research in relation to these traditional plant medicines (Cohen, 2009; Green, 2012; Laplante, 2014). The AHS module took place at the South African Herbal Science and Medicines Institute (SAHSMI).

SAHSMI was<sup>3</sup> a multi-disciplinary research platform which included scholars from disciplines such as biochemistry, botany, ecology, pharmacology, medical physiology, and epidemiology. All looked to investigate traditional plant medicines from different disciplinary perspectives with the aim of promoting interdisciplinary research and improving public health care through plant research. Many of the staff and all the students at SAHSMI participated in the AHS module.<sup>4</sup> The AHS module thus brought science and social science students who were studying plants from different viewpoints, epistemologies, and practices into dialogue with one another. In seminar discussions, I was made aware of and became attentive to how disciplines such as pharmacology and botany approach and work with plants from different perspectives to anthropology.

In 2011, SAHSMI became a participating institute for the Multi-University Traditional Health Initiative (MUTHI). The initiative aimed to build research capacities on the African continent that would set good standards for development of improved health security and health systems in the future. The objective was to create sustainable plant research and research networks between partner institutes in Africa (Mali, Zimbabwe, South Africa and Uganda). At the time,

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<sup>3</sup> The institute has since dissolved and assimilated into other departments within the life sciences at the University of the Western Cape.

<sup>4</sup> Some participated as guest lecturers, others as students and all would later, in some way or another, become participants in what was then called the “plant-healer” or MUTHI projects.

I was a student researcher for a capacity building project which trained traditional health practitioners on HIV/AIDS prevention and care. This project was also concerned with studying medicinal plants used by traditional health practitioners to treat and/or manage HIV. Because the MUTHI research entailed working with traditional health care practitioners and studying medicinal plants, and because of my interests and, albeit limited, experience in both subjects, I was asked to take part as an anthropologist.

As part of capacity building and outputs for the MUTHI research, I did training modules in medical anthropology, ethnobotany and ethnopharmacology, which taught me how to design and conduct ethnobotanical studies of medicinal plants used to treat and/or manage communicable and non-communicable diseases – as defined biomedically- in the Western Cape. The training also focused on matters concerning ethics, intellectual property (IP), memoranda of understanding (MOU), prior informed consent (PIC) and how to apply for and obtain plant collection permits through Cape Nature, an institution responsible for biodiversity conservation in the Western Cape. All are essential for working with and addressing issues concerning traditional health practitioners, indigenous knowledge, and traditional medicine.

My master's research in 2011 and 2012 was therefore enhanced and honed by experiences from the AHS module; training received at SAHSMI and participation in the MUTHI research project. This research had a twofold objective:

Firstly, I explored traditional health practitioner's perceptions about and disease/illness aetiologies of HIV (Davids et al., 2014). I then focused on traditional health practitioners' plant knowledge and practices (Hughes et al., 2015). I did an ethnobotanical survey of medicinal plants used to treat and/or manage HIV and related opportunistic infections (OI's) among traditional health practitioners in the Western Cape. I learnt that traditional health practitioners collect and/or order plants from the Eastern Cape because they were trained there, and they argued that the plants from that area are more potent. I subsequently went to the Eastern Cape and worked with traditional health practitioners to collect plants and brought them back to the Herbarium at the University of the Western Cape to prepare them as reference specimens.

Secondly, at SAHSMI, biochemists, botanists, ecologists, pharmacologists, and epidemiologists wanted to study the plants collected in the Eastern Cape. These SAHSMI scientists, including student scientists, were broadly interested in the analyses of plant extracts. In the laboratory, I followed the work of two groups of students. One group was concerned

with the chemical aspects of my collected plant specimens and focused on extraction, purification, isolation, structure, identification, and synthesis of bioactive compounds derived from plant extracts as well as mixtures of plants reported by traditional health practitioners. The second group focused on the bioactivity of the isolated plant compounds for potential leads against HIV or any of its reported opportunistic infections.

As an anthropologist working on the MUTHI project, my role was to serve as the linkage between the SAHSMI scientists and the research they were doing on plants and with traditional health practitioners. This included studying traditional health practitioners' plant and healing knowledge. Inspired by and wanting to build on the work of Bruno Latour (1993; 1999) on Actor-network Theory and material semiotics (Mol, 2002; Law, 2008a&b), my observations and questions were primarily focused on medicinal plants and how scientists construct knowledge about plants; how they do and practice plant knowledge in the laboratory at SAHSMI. At times, I was less concerned about the socio-cultural context in which the plants are collected, prepared, and used. Latour's (1999) work, however, reminded me that medicinal plants and scientific knowledge cannot be neatly separated from traditional health practitioners' knowledge, their use of and plant practices, as if the latter were constrained or divisible. Several additional themes and questions subsequently emerged. These included the different ways in which knowledge is produced about plants as objects by different subjects i.e. traditional health practitioners and SAHSMI scientists<sup>5</sup> (Latour, 1993; 1999); the partial connections (or not) between such knowledge(s) and between subject-object (Strathern, 2004); and to explore the possibilities of multidisciplinary work in a setting like South Africa where discourses about the historical tensions between "traditional" and scientific knowledge are still widespread (Verran, 2001; Green, 2012; 2013; Cohen, 2013).<sup>6</sup> These were all themes and questions raised during the research and I had hoped to explore them later in my doctoral research.

## **1.2. A multi-disciplinary project on plants and the making of my PhD research**

In 2013, I took up doctoral studies with the support of an NRF (Department of Science and Technology) innovation scholarship. Wanting to build on the themes and questions from my previous research, and with a specific interest in medicinal plants, subject-object relations and multiplicity of knowledge(s), I was searching for another project which involved and/or aimed to study all the above mentioned. I was told about the continuation of the MUTHI project at

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<sup>6</sup> I will return to this debate later in the chapter and throughout the thesis.



SAHSMI. This time it involved a Retrospective Treatment Outcome (RTO) study, which included working with medical professionals and statisticians, and would entail gathering data about medicinal plants, treatments, and health outcomes in Genadendal, Western Cape. I thought that the RTO study was an ideal opportunity to do empirical research on human-plant relations and to follow how knowledge is produced in two seemingly disparate spaces such as SAHSMI and Genadendal. I decided to participate.

### **1.2.1 The Retrospective Treatment Outcome (RTO) study**

The RTO study is a pre-clinical experiential model of ethnomedical and statistical research which aims to document specific medicinal plants traditionally and historically used as medicine. The goal is then to measure a medicinal plant's "effect" in relation to the users' reported health outcomes (Graz et al., 2005; Diallo et al., 2006; Willcox et al., 2011; 2015). Conventional ways to identify plants for pre-clinical screening are through ethnobotanical surveys (Verpoorte et al., 2005). Ethnobotanical surveys provide important information about medicinal plants traditionally used for specific diseases or ailments; including local knowledge about plant collection, preparation, administration and dosage (Martin, 2007). All are important data and provide a starting point for screening locally used medicinal plants for potential biological activity (Willcox et al., 2015). Graz et al (2005), however, point to several empirical and analytical challenges faced with ethnobotanical surveys and identifying plants for clinical research. Ethnobotanical surveys, for example, report expansive lists of medicinal plants for a singular disease/illness condition, many of which may not be specific to treating the ailment under examination. Ethnobotanical surveys do not comprehensively define the disease – as defined biomedically- under scrutiny and do not involve medical professionals or provide sufficient information about patient profiles and perceived health outcomes. All of which could aid future clinical research on plants and health outcomes.

The RTO as a method was developed by Bertrand Graz, Merlin Willcox, Drissa Diallo, Jacques Falquet and Sergio Giani (Graz et al., 2005). All have backgrounds in medical physiology and botany, and all have done research on African phytomedicines. Drawing on their collective research and collaborations, the RTO was conceived as part of an attempt to refine and possibly produce more stringent plant selection criteria for clinical screening, as well as to include patient health information; in other words, to fill the gap between plant collection and identification (Graz et al., 2005; Diallo et al., 2006; Willcox et al., 2011; 2015). The RTO study adds two steps to the conventional ethnobotanical method namely, gathering clinical

information and statistical analyses. Clinical information such as the diagnosis, treatment and progression of a target disease is collected retrospectively. Plant users are simultaneously interviewed about medicinal plants and their reported health outcomes, and the side-effects of both prescribed allopathic medicine and medicinal plant remedies are documented. Information about medicinal plant use, preparation techniques, dosages, period of use, reported health outcomes, including improvement, cured or perceived side-effects are then statistically analysed to determine whether there are significant correlations between them. This could serve as potential leads for further scientific research (Graz et al., 2005; Willcox et al., 2011; 2015).

An RTO study is not entirely methodologically new. Comparing the effects of allopathic medicine with health outcomes, patient (non)adherence to treatment and relapse has historically been used in medical research, public health, and epidemiology (Johnson et al., 2007; Mlangeni and Senkubuge, 2016; Cassim et al., 2017). Steps involved in RTO research has also been proposed in reverse pharmacology approaches<sup>7</sup> to drug discovery (Johnson et al., 2007; Ntutela et al., 2009; Wilcox et al., 2011). Measuring and comparing the reported effects and health outcomes of medicinal plants, however, is novel. The benefit of conducting RTO studies, before clinical studies, is that plants screened in this process are correlated with a specific disease and its reported health outcomes. The RTO study can also help identify plants which are ineffective, for instance, plants which reportedly do not bring about an improved health outcome and can then be eliminated from further scrutiny. The information derived from RTO studies such as the dosage, mode of administration and reported side-effects may also be useful in further toxicology studies (Wilcox et al., 2011).

Part of the objectives of the MUTHI-RTO study was capacity building through training on how to do an RTO study. The training was done in Kampala, Uganda and was facilitated by Bertrand Graz, Merlin Willcox and Drissa Diallo. The training included; how to design and administer an RTO survey; background on how to ethically do research on health; an overview of concepts such as disease, symptoms, patient medical profiles; and how to work with medical professionals during the design and administration of an RTO survey. Back in Cape Town, a SAHSMI scientist with a background in biostatistics trained me on how to do statistical tests and use computer software such as “SPSS” and “R,” which was needed to do the RTO study.

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<sup>7</sup> Reverse pharmacology is an interdisciplinary method of identifying pre-existing clinical data (e.g. about proteins or compounds) and then exploring this data as experiential leads for identifying potential drugs for further clinical studies (Bachmann et al., 2009; Lee et al., 2012).

I also designed the RTO survey with the help of a medical professional employed by SAHSMI. The second part of the MUTHI-RTO project was to do an RTO study. Since an RTO study involves measuring the effect of medicinal plants on a single disease and/or its symptoms retrospectively, the target disease had to be one which was curable and/or manageable over a period. Staff at SAHSMI, who I would also be working with, were interested in and already doing research on Tuberculosis, and because of the pervasiveness of Tuberculosis in the Western Cape (See for example Fourie, 2011; Claassens et al., 2013), the focus of the RTO study and my PhD research became Tuberculosis.

The MUTHI-RTO project was led by scientists from disciplines such as biochemistry, botany, ecology, pharmacology, medical physiology and epidemiology. They were focusing on issues of health and plant research but were equally interested in the “traditional” knowledge of *kruiekenners* in Genadendal. In her seminal work in West Africa and later amongst Australian aborigines, Verran (1998; 2001) proposes an alternative configuration of knowledge objects—an approach involving participatory ethnographic inquiry which is cognisant of the authority of science, but which is inclusive of indigenous knowledge and communities. Like Verran’s (1998; 2001) work, the RTO project would thus, albeit momentarily, bring scientists and scientific methods of knowing and doing research on plants into dialogue with the practical plant knowledge of *kruiekenners* in Genadendal. In relation to my own anthropological research, I thought that this would be an opportune space to investigate the different perspectives and practices involved in producing and negotiating knowledge about plants. It would also enable me to scrutinize and possibly subvert some of the epistemological traditions, assumptions, tensions and dualisms, such as nature-culture and subject-object, which have historically defined scientific knowledge, “indigenous” knowledge and research in South Africa and the global south (Latour, 1993; Gibson, 2011; Green, 2012; 2013). I follow Verran’s (2011: 21) lead to understand how such heterogenous knowledge traditions can “go on together” or not.

### **1.3 Justifications, research problems and aims**

Latour (1987; 1993) and others (Ingold, 2000; Mol, 2002; Law, 2004; Trevaas, 2005) have argued that knowledge (scientific or “traditional”) are not distinct, bounded or static entities. Latour (1999), for example, followed the work of soil scientists studying lactic acid in the Amazon and then in a laboratory. He descriptively articulates the numerous steps by which local knowledge of soil, plants and so on, are translated into scientific knowledge such as facts,



data, reference collections and publications, etc., using technology. Latour (1999) illustrates how human and non-human; subject-object interlace and are mutually shaped and altered in this process. The key point that Latour raises here and in his seminal work (1987; 1993; 1999; 2004) is that knowledge is much too ambiguous, fragile, fluid and relational to be described through a singular perspective; that is from the viewpoint of science. As Law (2004; 2007; 2009) confirms, knowledge is materially heterogeneous; a combination of the social, economic, political, material, human, natural/ecological, and technical.

Therefore, in this study, I will consider the diverse knowledge(s) of SAHSMI scientists and the *kruiekenners* in Genadendal on their own terms, and not in a way that views knowledge(s) appositively or only from one perspective surpassing all others. In this thesis, I aim to provide a symmetrical analysis (Latour, 1999) of my two study sites; the SAHSMI laboratory and Genadendal, and my subjects of research; SAHSMI scientists and *kruiekenners*, where knowledge about the same objects, that is medicinal plants or Tuberculosis, are constructed, practised and done in different ways (Mol, 2002). A symmetric analysis does not only conceptualize a scientific or “traditional” perspective of medicinal plants, but also subjects them to scrutiny (Latour, 1993; 1999). Since SAHSMI scientists and the MUTHI project relied on medicinal plants and the local knowledge of *kruiekenners* for plant specimens, data and so on, the progression of the project was largely reliant on the intermixing of diverse knowledge(s). Thus, in my thesis, I also consider the ways in which diverse knowledge(s) inform and shape one another (Latour, 1999).

Law (2004; 2007; 2009), Mol (2002) and Turnbull (2007; 2009; 2013) point out that knowledge is multifaceted, situational, spatial, and constitutive of practices. Mol (2002), although writing about a different knowledge object i.e. the disease atherosclerosis, uses a symmetrical analysis to describe how a disease is enacted differently through different spaces and medical practices in the same hospital. Mol (2002: 2) shows how different realities and constructions of knowledge interface, for example, she writes;

A patient information leaflet might describe atherosclerosis as the gradual obstruction of the arteries, but in hospital practice this one medical condition appears to be many other things. From one moment, place, apparatus, specialty, or treatment, to the next, a slightly different “atherosclerosis” is being discussed, measured, observed, or stripped away.

In these practices, different realities of atherosclerosis are made to cohere and at other times, they are held in contention.

Because the MUTHI-RTO project was an experiential study, knowledge objects were not yet made. There was, for example, uncertainty about which medicinal plants would surface in the research; which statistical test to use when correlating the reported health outcomes or side-effects with specific plants; or if any of the collected plant specimens would show anti-Tuberculosis activity in subsequent chemical analyses. Although such uncertainty exists in the RTO study, Laplante (2015: 3) reminds us that it also serves as an opportunity to investigate the unfolding of knowledge objects through practices;

The beauty of the preclinical moment is that the medicine is not yet made; it is the very process of making an object of study, in this case that will seek its orientation within *muthi* (South African traditional medicine) multiplicities...

The MUTHI-RTO study thus offered an important juncture in which to examine the making of knowledge objects and to follow their various entanglements with humans in two research spaces. My relationship/position with the MUTHI-RTO project since its inception meant that I could follow in detail the practices involved in producing scientific knowledge at the same time I could become closely involved in the knowledge practices of *kruiekenners* related to plants in Genadendal. Mol's (2002) work is particularly useful because she highlights the performative, relational and multiplicity of knowledge formation through practices. Therefore, in this study, I will pay close attention to how knowledge practices and objects such as Tuberculosis and medicinal plants are defined and 'done' in different ways by various groups (Mol, 2002). In different practices, social, physiological, and botanical definitions and descriptions may be intermingled, and perceptions of e.g. plants may be different. The politics of different knowledge practices- which include exploring the differences and connections (or not) between them- will be explored in this thesis (Strathern, 2004).

In the context of my research, it is not only scientific or traditional knowledge under scrutiny but, as Green et al. (2015) call attention to, is also about medicinal plants and the sociocultural and socioenvironmental settings in which they are used. In the literature, plants have historically been studied and documented for their significance in human and animal health (Ryan, 2012; Atlas and Maloy, 2014), as food (Bennett et al., 2002), for their role in healing rituals and witchcraft (Thornton, 2010; Gibson, 2010; Sobiecki 2008; 2012, Cohen, 2015) and

as potential sources of chemical compounds for new, safe and affordable medicine (Johnson et al., 2007; Gibson & Killian, 2013; Hanson 2005; Bussman 2013; WHO 2000). Research on plants are broad and spread across numerous disciplines including; ethnobotany (Martin, 2007; Van Wyk et al., 1997; Sobiecki, 2012; 2014), medical botany (Lewis and Elvin-Lewis, 2003; van Wyk 2008; van Wyk et al., 1997), ethnopharmacology (Balick and Cocks, 1996; Etkin & Elisabetsky 2005; Iwu 2014), anthropology (Langwick 2011; Low 2007; Geissler and Prince 2009), history (Gänger 2015; Low 2007; Osseo-Asara 2014; Schiebinger 2004), geography (Raup, 1942; Carter, 1950), philosophy (Hall, 2011; Moyle, 2017) and others.

In the literature, plants have been approached as objects, things, or material entities (Ryan, 2012; Gibson, 2018). This approach to medicinal plants and plant knowledge is very westernized and reductionist, or as Donna Haraway (2008: 11, 244) calls it “exceptionalist,” and stems from historical knowledge tensions and dichotomies between western sciences and, for example, “traditional” or “indigenous”<sup>8</sup> ways of producing knowledge about non-humans such as plants. In this regard, contemporary trends in the literature and scholarship have problematized subject-object, human non-human relationships and have served to destabilize scientific or western frameworks of description in relation to non-humans such as plants (Kohn, 2013; Viveiros de Castro, 2014; Haraway, 2008; 2016). This includes, for example, research on plant agency (Ryan, 2012), multispecies ethnography (Haraway, 2008; Kirkskey and Helmreich, 2010) and human engagements with nature in the anthropocene (Stengers, 2010; Latour, 2014; Haraway, 2016). An important aim of this thesis is thus to interrogate the complexities of how knowledge concerning medicinal plants are made or done in practice in three research settings related to each other through the study of medicinal plants in Genadendal and at SAHSMI.

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<sup>8</sup> I realise that “traditional” and “indigenous” are terms with contentious intellectual histories which are still pertinent today (Green, 2012). Under the apartheid administration, the terms traditional and/or indigenous medicine was used to refer to materials and forms of treatment which fell outside the scope of Western biomedicine (Mokgobi, 2014). Traditional or indigenous medicine and practices also connotated and were associated with static and bounded imageries of religion, witchcraft and divination (Cohen, 2015). Traditional medicine was frowned upon but persisted in non-white communities. While I am aware of these debates, I use the term traditional (medicine and/or healing) to refer to materials, practices and knowledge used in traditional healing as is defined in the Traditional Health Practitioners Act 22 of 2007. I also understand it as dynamic knowledge which is perpetually evolving and, at times, can overlap with western biomedicine.

### 1.3.1 Specific objectives:

In addition to contributing to the above literature, the objectives of this thesis are threefold:

Firstly, I will unpack an ethnobotanical survey done to collect and document medicinal plants locally used to treat and/or manage Tuberculosis in Genadendal. The ethnobotanical survey also explored participant's plant practices: including knowledge histories of plant use, methods of collection, preparation, dosages, and mode of administration. South African traditional plant knowledge is not very well documented (Sobiecki, 2012; 2014). Historical research on plants is often vague and even opaque about their uses and socio-cultural contexts, and are scattered in older literature such as ethnobotanical studies (Laidler, 1928; Lichtenstein, 1812–1815; Paterson, 1789; Shapera, 1930; MacPhail et al., 2002; Sebit et al., 2000; Zachariah et al., 2002; Fennel et al., 2004) and the South African National Biodiversity Institute's (SANBI) electronic database. Several authors (Ellen, 2006; Hsu and Harris, 2010) have argued that anthropologists have not taken seriously the agency and materiality of plants in their past research. By doing an ethnobotanical survey, I attempt to lessen the gaps in research and knowledge in this regard.

The second objective is analysing a retrospective treatment outcome (RTO) study of medicinal plants used to treat and/or manage Tuberculosis in Genadendal. The RTO study was administered using a survey to collect information about participants' medical profiles, disease progression, and to document medicinal plants and allopathic medicines used as well as their reported health outcomes. At SAHSMI, the collected data was transcribed and analysed using computer software to test correlation and association of medicinal plants with reported health outcomes. As mentioned earlier, the RTO study is a relatively new form of research, and this thesis seeks to ethnographically follow, describe and understand its development and outcomes.

The third objective is to enhance the above studies with qualitative information about “traditional” practices related to medicinal plants. This includes an ethnographic exploration of *kruiekenners*' local knowledge of plants, their plant practices, aetiologies of Tuberculosis, perceptions of medicine and health care services, their healing practices, and their feelings about the research. Part of this objective is to better understand how different knowledge practices are brought into existence, described and done through the involvement of scientists and local people as well as statistical software, graphs, tables, tests, surveys, medical histories of participants and medicinal plants, in two research settings (Strathern, 2004).

The main focus of my thesis is on how knowledge about medicinal plants is done in and through practices. In other words, I use the above research spaces, i.e. the ethnobotanical study, the RTO study, and time spent with *kruiekenners*, TB sufferers, and consumers of medicinal plants as lenses through which to examine plant practices and knowledge. By taking seriously the relationships between knowledge objects, practices, non-humans and human actors, the focus is not only about epistemology, but raises questions about ontology and materiality. In this regard, this thesis explores the following questions:

1. What types of realities are being enacted in both research spaces and how do they converge?
2. How is “traditional” knowledge translated when it enters the academic or scientific domain?
3. How can medicinal plants be studied or knowledge about them be produced in ways that do not subject them to western/scientific frameworks of representation or in a reductionist way?
4. What are the types of conversations and opportunities that emerge through interdisciplinary research?

#### 1.4 Study area: Genadendal

Genadendal is the first and oldest mission station in southern Africa, located in the Theewaterskloof municipal district, Overberg, Western Cape (**Fig. 2**). Information about Genadendal’s socio-demographics and population health is sparse (Parker, 2016). Local government reports and municipal strategic plans such as, IDC Agency, Development and Support reports (2013) and the Theewaterskloof municipality Annual Report (2016/17), provide broad overviews of the socio-economic and health situation in the greater area, but are not specific to the level of individual communities.

Genadendal has a total population of about 5700 people living in the village proper (966 plots) and the small outstations of Bereaville (237 plots), Boschmanskloof (161 plots) and Voorstekraal (175 plots) (Census, 2011; Agency development and support, 2013). The few studies conducted at Genadendal report that residents live in relative deprivation (Roberts, 2003). Many of Genadendal’s residents work as seasonal farm labourers on adjacent commercial farms or find work in the tourist industry in and around Genadendal and Greyton



(five kilometres from Genadendal). **Table 1** below characterises the socio-demographics of Genadendal, derived from the retrospective treatment outcome study conducted in 2014.

Genadendal is serviced by the Genadendal clinic, which is moderately equipped. The clinic provides for the basic primary healthcare needs of the village as well as treatment for chronic conditions such as Hypertension and Diabetes Mellitus, and communicable conditions such as HIV and TB. The clinic, together with the Genadendal home-based care unit, offers proactive health screening, support counselling for HIV and TB sufferers, as well as maternity services. Treatment for serious illness or injury is referred to the Caledon Hospital (thirty-seven kilometres away). In addition, a diagnostic mobile laboratory from the Fraunhofer Institute for Biomedical Engineering in Saarland, Germany, has been operating as an extension of the Caledon Hospital for the past two years.<sup>9</sup> Tests done at the mobile laboratory include HIV rapid tests, TB, full blood count, cholesterol, blood glucose, liver functions, urea and electrolytes.



**Figure 2:** Genadendal, Theewaterskloof municipality, Western Cape.  
Source: <https://municipalities.co.za/map/146/overberg-district-municipality>

<sup>9</sup> As of 2013

| Characteristics                 | Frequency  | Percentage (%) |
|---------------------------------|------------|----------------|
| <b>Age group (years)</b>        |            |                |
| (18-29)                         | 40         | 11.63          |
| (30-39)                         | 63         | 18.31          |
| (40-59)                         | 137        | 39.83          |
| (60-90)                         | 104        | 30.23          |
| <b>Gender</b>                   |            |                |
| Male                            | 90         | 26.16          |
| Female                          | 254        | 73.84          |
| <b>People/household</b>         |            |                |
| (1-2)                           | 96         | 27.91          |
| (3-5)                           | 195        | 56.69          |
| (6-8)                           | 48         | 13.95          |
| (9-12)                          | 5          | 1.45           |
| <b>Religion</b>                 |            |                |
| ATB*                            | 2          | 0.58           |
| Christian                       | 342        | 99.42          |
| <b>Level of education</b>       |            |                |
| Primary (Grade 1-7)             | 105        | 30.52          |
| Secondary (Grade 8-12)          | 206        | 59.88          |
| Tertiary (University/College)   | 22         | 6.40           |
| Post-grad                       | 2          | 0.58           |
| None                            | 9          | 2.62           |
| <b>Employment</b>               |            |                |
| Full-time                       | 64         | 18.61          |
| Part-time                       | 40         | 11.63          |
| Self-employed                   | 14         | 4.07           |
| Unemployed                      | 100        | 29.06          |
| SFG*                            | 126        | 36.63          |
| <b>Monthly household income</b> |            |                |
| 0-R1999                         | 201        | 58.43          |
| R2000-R4999                     | 119        | 34.59          |
| R5000-R10999                    | 15         | 4.36           |
| R11000-R14999                   | 1          | 0.29           |
| R15000+                         | 5          | 1.45           |
| DND*                            | 4          | 1.16           |
| <b>Total:</b>                   | <b>344</b> | <b>(100%)</b>  |

**Key:**

ATB: African Traditional belief

SFG: State Funded Grant

DND: Did not wish to disclose

**Table 1:** Socio-demographic characteristics of Genadendal. Data derived from the RTO study (2014-2015)

Genadendal is part of the Fynbos biome and of the greater Cape Floristic region. Surrounded by mountains and rooibos farms, Genadendal is known for its rare *Erica* species (*Erica oakesiorum*) which grows on lower mountain slopes and which can only be found in five other locations in the Western Cape (Turner et al., 2008). The town and surrounding mountains are similarly known for its medicinal plants such as honey bush (*Cyclopia genistoides*), *wilde als*, *aalwyn*, *buchu*, etc. Numerous plants traditionally used as medicine, and which are presently commercially marketed and traded, including, for instance, *rooibos* (*Aspalathus linearis*), *buchu* (*Agathosma betulina*) and *wilde als* (*Artemisia Afra*) are found in fynbos biomes, and are naturalized in Genadendal (Van Wyk, 2008; Loundou, 2008; Mintza Mi Nzue, 2009). The honey bush species *Cyclopia macuata* is endemic to Genadendal and is one of only two regions in the Western Cape where the species occurs naturally (Slabbert, 2016). Although medicinal plants are readily available and easily accessible for collectors and users, much of the commons of Genadendal is threatened by the diminishing productivity of agricultural land, wildfires and water scarcity (Regional Development Profile, 2012). This is closely monitored by Cape Nature which operates from a satellite office in Greyton.

As a case study area, there have been many studies done on Genadendal. These studies have drawn attention to Genadendal's archaeology (Clift, 2001), issues around land tenure (Le Grange, 2002), the degradation of agricultural land and water resources (Noemdoe, 2006), the history and migration of Khoi people in Genadendal (Viljoen, 2007), the entomology of insects found in communal gardens and local farms (Slabbert, 2016), and medicinal plants used to manage Diabetes Mellitus (Parker, 2016). Travellers and missionaries to Genadendal have noted a highly visible plant presence in the area (Campbell, 1815), and the ethnobotany of early plant "discoveries" is recorded in historic literature (Harvey et al., 1894; Gun and Codd, 1981). As far as I am aware, there have been no studies which focus on TB, medicinal plants used to manage TB and its associated symptoms, or human-plant relations, and I wanted to fill a gap in the literature on research in Genadendal.

I also chose Genadendal as a study site for a variety of other reasons; for my research on the MUTHI project, a study site where people are known to use medicinal plants and had easy access to it was selected. This was because I had to personally collect plants with participants for the ethnobotanical survey and RTO study. I had previously done research on the plant knowledge and practices of traditional health practitioners (diviners) and *nyangas* (herbalists) and wanted to focus on *kruiekenners* which include elderly knowledgeable people and



Rastafari bush doctors that are found in Genadendal (van Wyk, 2008; Parker, 2016). The latter are comparatively understudied in South Africa (van Wyk et al., 2007; Philander, 2011; Nortje, 2011; Parker, 2016; Pasquallie, 2016, Nathan, 2017). I was also interested in Genadendal because it is geographically and socially similar to Elim, the mission station where I grew up and it had, since I came to Cape Town, been my intent to conduct research in a similar area.

### **1.5 A Note on Indigenous Knowledge Systems (IKS), *kruie* and *kruiekenners***

South Africa has a pluralistic health care system (Levine, 2012; Wreford et al., 2006). Several studies show that traditional medicine co-exists, and sometimes overlap, with allopathic medicine and biomedical healthcare services (Walwyn and Maitshotlo, 2010; Ross, 2008; Tugendhaft, 2010). According to van Niekerk (2012) and Bateman (2010), many South Africans first attempt to self-diagnose and self-treat or seek advice from traditional health practitioners, *bossiesdoktors/kruiedoktors* (herbalists) and Rastafari bush doctors before consulting biomedical health care services. Many also turn to traditional medicine to prevent or alleviate the side effects of allopathic medication. There is also demand for traditional medicine because it increases immunity or improves general health and well-being. Such demand is reinforced by the availability of inexpensive alternatives to allopathic medication in traditional medicine, such as medicinal plants (Millan et al., 2008).

In the literature, the usage of what is referred to as “traditional” medicines are often reported to be as high as eighty percent (80%) in South Africa, although the frequency of use fluctuates from one province to another and between rural and urban areas (Dold & Cocks, 2002; Nxumalo et al., 2011; Davids et al., 2014; Hughes et al., 2013). Despite the contestations and epistemological dilemmas surrounding traditional medicine in South Africa (Thornton, 2010; Gibson, 2011; Levine, 2012), the reality of pluralistic healing systems is accepted. Traditional medicine is in the process of being formalized and is increasingly seen as part of the national health resources of South Africa (van Niekerk, 2012). South Africa’s traditional health practitioners act (2008: 6) defines traditional medicine as:

“... an object or substance used in traditional health practice for—

(a) the diagnosis, treatment or prevention of a physical or mental illness; or

(b) any curative or therapeutic purpose, including the maintenance or restoration of physical or mental health or well-being in human beings, but does not include dependence producing or dangerous substances or drugs.”

Medicinal plants fall under the framework of traditional medicine in South Africa (Sobiecki, 2014). It is estimated that South Africa has between 200 000 and 350 000 registered traditional health practitioners, *bossiesdoktors/kruiedoktors* and Rastafari bush doctors operating informally who utilize plant medicines (Street, 2016). The aforementioned healers are arguably geographically, economically and culturally accessible (Nxumalo et al., 2011). South Africa’s health care services are strained; it is only available to roughly 80% of the population and there is a shortage of biomedical doctors in relation to the number of patients (Nxumalo et al., 2011; SAInfo, 2012). Traditional health practitioners therefore fill an important gap in the primary healthcare market (Truter, 2007). The South African Traditional Health Practitioners Act (2008:6) recognizes diviners (*Amagrirha: isangoma*), herbalists (*Inyanga*), traditional birth attendants and traditional surgeons. In the Western Cape, Philander (2011) found that people also consult *bossies* or *kruiedoktors* (bush doctors) and Rastafari bush doctors, who fill a “gap” in the healthcare system and help to cope with healthcare needs in their local communities.

In this thesis, I draw on the above-mentioned debates to define traditional medicine as local knowledge, mainly orally transmitted, and which is common practice for users in South Africa. Traditional medicinal knowledge is pragmatic, but it is also transformative; it is produced and reproduced and can be lost. The knowledge is widely-distributed and broadly holistic (Gibson, 2011:5). In relation to Genadendal, and for clarity, I will from here on refer to medicinal plants as *kruie*. *Kruie* (medicinal plants) is a colloquial Afrikaans term used by locals to describe plants that have traditionally been used as medicine. In Genadendal, *kruie* are collected, prepared, and administered individually, by family members, friends or neighbours, but are often administered by *kruiekenners* who are consulted for advice about illness and disease or for *kruie*. The designation, *kruiekenner* (herbalist), has over time been used as a term which refers to older, knowledgeable people, herbalists and Rastafari bush doctors who actively grow, collect, prepare, and administer *kruie*, (Philander, 2011; Nortje, 2012; Parker, 2016; Pasquallie, 2016, Nathan, 2016).

## 1.6. Structure of the thesis and overview of chapters

By examining the practices of scientists, health care providers, botanists, *kruiekenners* and other actors, I explore the notions of multiplicity, knowledge translation and intersections. I argue that knowledge “objects<sup>10</sup>” in my research, including medicinal plants and TB, are understood and done in different ways, through different technologies and assessments of science, in the laboratory, the clinic in Genadendal, and amongst my participants who draw on their own diverse knowledge and frameworks of interpretation in relation to disease such as TB and how it should be treated biomedically and/or with medicinal remedies. In this way, medicinal plants or TB are not only objects of research, but can be seen as inscriptions of knowledge, data, facts and so on (Latour, 2004; Law and Mol, 2002). They become entangled as actors in complex networks involving humans, laboratories, equipment, technology, inscriptions, movement, and spaces (Turnbull, 2007).

The thesis consists of eight chapters and is organized in the following way:

In Chapter 2, the literature review, I critically discuss historical research and debates around medicinal plants. I argue, following Hsu and Harris (2010), that plants have not received sufficient scholarly foci from anthropologists in the past. Where such literature does exist, it is often reductionist, has focused on the materiality or use value of plants (agriculture, food and symbolism) and has been studied from an anthropocentric point of view. I then scrutinize some of the extant literature and theoretical approaches to plant studies. These include studies on plants as traditional medicine in South Africa; interdisciplinary research on plants; and more recent trends on more-than-human or other than human research. This will be helpful for rethinking knowledge and practices around medicinal plants, and for shaping my own approach.

The methodological framework in Chapter 3 discusses the research approaches and instruments I employed in this study. The chapter discusses gaining entry to the field site and complexities involved with finding and building rapport amongst participants. In addition, the chapter illustrates the ethics involved in working with and doing research on medicinal plants.

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<sup>10</sup> I draw on Hitchings’ (2003) ideas about the material presence of “things” such as plants in relationships with humans, other knowledge “objects” and non-humans such as TB, computer software, scientific practices, and so on, as a lens through which to examine the production, performance, movement and translation of knowledge in different spaces.

Chapter 4 is the first of four empirical chapters reflecting the core “findings” of the research. In it, I discuss the process of collecting plants in Genadendal with *kruiekeners* and then the intensive procedures involved in preparing an ethnobotanical reference collection for scientific classification and scrutiny. The chapter also focuses on plant practices, that is, the medicinal uses, collection, preparation, modes of administration, dosages and plant parts used; but is also concerned with how knowledge about medicinal plants are done through such practices (Latour, 1999; Mol, 2002). In these practices, plants acquire various regimes of meaning, value and form part of social relationships as they are collected in the *veld*, prepared as medicine, administered, and translated into reference collections.

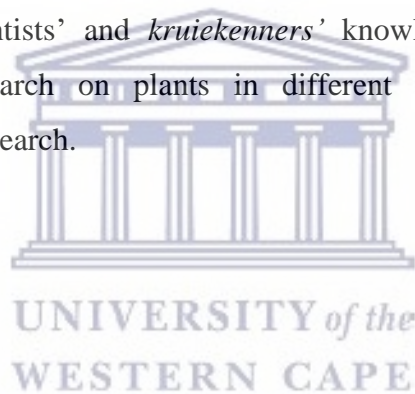
In Chapter 5, the Retrospective Treatment Outcome (RTO) study, I attend to the quantitative administration of the RTO survey, ethnopharmacology of significant plants, potential anti-Tuberculosis activity of plants and the overall outcomes of the study. The greater part of the RTO study involved analysing plant data and patient health outcomes at SAHSMI. At SAHSMI, I followed plants through the laboratory and observed different forms of scientific assessment being applied to them, for example, through statistics, epidemiology, botany, medical bioscience and so on, by different actors. I describe these processes, technology, computer software and other implements, to theorize translation and the process of scientific knowledge production (Latour, 1987; 1999; 2004). The chapter also raises inquiry about the types of realities that are brought into existence in making scientific “facts” and the relationship between scientists and plants.

In chapter 6, I draw on Mol (2002) to focus on the ontological multiplicity of disease, which is TB. I examine TB as a disease which is identified, diagnosed and managed in the Genadendal clinic and by home-based-care staff. I then look at a different reality of the disease by articulating the stories of TB sufferers. In the case of the later, I draw attention to the following themes; perceptions of Tuberculosis, its aetiologies, living with the disease and treating it. Finally, I conclude the chapter with a discussion on treating and/or managing TB with medicinal plants, and at times, in combination with prescribed allopathic medicine.

Chapter 7 is an attempt to do what Myers (2015) calls a “planthropology.” I attempt to become more intimate with plants, specifically with *wilde als* (*Artemisia afra*), to develop attentiveness to the plants’ “liveliness” (Myers, 2016). To do so, I reflect on three encounters I had with plants during the final six months of my long-term fieldwork in Genadendal. The first is a period of personal sickness followed by a healing experience which involved *wilde als*

(*Artemisia afra*) and *kruiekeners*. Secondly, this experience leads me to hone in on *kruiekeners*' plant practices and understanding of plants again to gain insight into the lively potentiality and sociality of *wilde als* by learning from *kruiekeners* as plant experts (Head et al., 2012; Pitt, 2014; Myers, 2017, Gibson, 2018). Thirdly, I then spent time in the *veld* with *wilde als*. Using some of the sensory and perceptive methods proposed by more-than-human studies (Plumwood, 2002; Pitt, 2014; Gibson, 2018), and the ecological knowledge and skills of *kruiekeners*, I was able to see, learn about and encounter *wilde als* in a different way which made me rethink the objective and insensitive ways in which I approached plants in earlier chapters.

Chapter 8 concludes and brings together the themes and overall argument of the thesis. The chapter offers an account of the kinds of conversations which appeared during the research as well as their possibilities and limitations. I consider other modes of understanding practices surrounding plants, TB, scientists' and *kruiekeners*' knowledge. Drawing on my own experiences with doing research on plants in different spaces, I also make some recommendations for future research.



## Chapter 2: Approaching plants differently

### Introduction

Since the beginning of my fieldwork at SAHSMI and Genadendal, a question was beckoning for me about how I should approach plants in my research. The question appeared time-and-again in conversations with participants and its complexity became increasingly more perplexing as the research progressed. I will return to the question later in this chapter, but first reflect on three short conversations I had with participants in my research to contextualize the question:

#### #1:

In a conversation with Professor Quinton Johnson, a medical physiologist, and the former director of SAHSMI, I told him about my healing experience involving *Artemisia afra* as a child in Elim. He told me that *Artemisia afra* reduces inflammation of the lungs and lowers fever. The plant has compounds with antibacterial, anti-inflammatory, immune-modulatory and antioxidant activity, and an ability to protect the liver called hepatoprotective effect, and that it is thus safe to use in large and small doses over a prolonged period. He also told me about his upbringing with plants. He intimated that as a child his grandmother was known in the community in which he was raised for harvesting *kruie*, preparing them as decoctions and healing people. Now, he postulated, “We (scientists) are simply trying to show how they (*kruie*) work, that’s all.”

#### #2:

In a small conference room at SAHSMI, Samuel, a biostatistician, tried to explain the principals of statistics to enable me to calculate a sufficient sample size for the RTO study and later code and analyse the data. Samuel was accustomed to working with SAHSMI students who had a relatively good background on statistics. On a white marker board, Samuel wrote down a few concepts such as; p-value, association, correlation, t-test and Pearson's chi-squared test ( $\chi^2$ ). He then explained them to me before asking me to, under his supervision, do simple tests using a fictitious data set containing plant names and codes (in this case plant names which were numbered 1 to 5).



Because of my background training in anthropology, I initially struggled to understand the statistical concepts or theory Samuel presented to me. On one such an occasion, he explained what he was trying to teach me about statistics and their relationship to my plant research for the RTO study:

Look, statistics is nothing more than a fancy way of counting. It makes working with a lot of numbers easier. All we are doing is using SPSS to make counting large numbers easier. They (numbers or codes) represent the plants or diseases you are going to investigate. In Genadendal or wherever it is that you are going to do research, plants are plants. Think about it like this, here, plants are codes. I can't take a picture of all the plants you are going to collect and count them, but if I say plant one, plant two, plant three, we can do that, SPSS will understand a code like "plant one"

### #3:

At the UWC herbarium, the then curator Mr Frans Weitz, describes the process my collected plant specimens would undergo to prepare them as reference collections. As we walk through the building, he shows me a room near the entrance where incoming plants are dried in an oven at 40°C. This serves two purposes. First it removes excess water from the plant to prevent discolouration and second it kills off any fungi and insects which travelled with the plant from its place of collection. This process is as much about the preservation of a specimen as it is about protecting existing reference collections against possible contamination. Mr Weitz then introduces me to two doctoral students seated at a workstation with plant specimens and large books, "They come in to help with classifications and mounting." We walk to the main storage room. A square room with dossiers of yellow envelopes (containing dried plants) from floor to ceiling. "This is where your plants will end up, but if they don't cut it, we also have a section there for storing student collections (if plants have incomplete information or are physically damaged)."

### #4

In Kroneberg street, Genadendal, Uncle V shows me a mature *wilde als* bush in his garden. He plucks a bunch of leaves from the bush two to three times a week and makes a tea that he drinks twice a day to manage blood pressure and sugar. At the Victoria centre for the elderly, aunty W tells aunty H that her Marigold daisies are in flower; "...they remind me so of my mother. If she were alive, they would be on the coffee table, in the kitchen... she even put them in the

bathroom... You must come get some seeds...” On the outskirts of Genadendal, uncle AB, a *kruiekenner*, and I walk along a stream in search of *buchu* which he plans to prepare as a tea for his wife to drink in the hope that it will alleviate her chest pain and chronic cough. As we walk, we pass through various ecosystems; from the sandy river-bed, to open grasslands, quartz-fields and then finally to the foot-hill of a mountain range where uncle AB stops and points, “that’s where it (*buchu*) likes to grow.”

## 2.1. How to approach plants in my research?

The conversations sketched out above seem to have very little to do with one another, but at the centre of all of them are plants. In conversation one, Professor Johnson reflected on his relationship with plants as a child, but also alludes to the scientific practices and forms of assessments used at SAHSMI to understand plants, for example; how they “work,” their compounds, synergies and, in some cases, potential toxicity. In conversation two, Samuel explained to me the process of translating plants into numbers, codes, data sets and then analysing them by using technology such as computers and statistical software to produce tables, graphs and configurations of plants which later serve as points of reference in, for example, the herbarium as reference collections, funding reports or publications. Mr Weitz describes another translation. This time, the processes my collected plant specimens will undergo so that they conform to the standards of existing collections yet do not threaten these specimens. Plants must include as much information about its place of collection, soil, weather conditions, and so on, to be classified and stored as complete reference collections in the herbarium. The latter information is important because future researchers will use this data for comparative study. The final reference collection also serves as an “intermediary” (Latour, 1999: 36) between the *veld* and the final reference collection which stands for the “entire whole.” In conversation(s) four, participants from Genadendal articulate the aesthetics of plants, their alluring effect, healing power, modes of preparation and administration, plant histories and meanings.

In each conversation, plants are represented, understood, spoken about, acted upon and, borrowing from Mol (2002), done differently. My thesis is situated in South Africa, where the objectification of plants is quite a strong discourse in science (Green et al., 2015; Gibson, 2018; Cohen, 2018). The above conversations also draw attention to relationships and distinctions between nature-culture and subject-object. The question that became prominent in my research was: how to approach plants in a way that is respectful to the perspectives of all my



participants? A second interlinked question is: how to attend to the agency of plants in my research? To account for the diverse conversations, viewpoints and approaches to plants, the seminal work of Bruno Latour on Actor-Network-Theory (here on referred to as ANT) and material-semiotics is particularly important for me.

ANT was developed by Bruno Latour, Michel Callon and John Law in the 1980s. It can be described, in a broad sense, as a practical-theoretical approach to scrutinize social phenomena which includes humans and non-humans in a perpetually changing but homogeneous network of relations (Latour, 1996). ANT or material-semiotics follows “actors” through relations that are simultaneously material (relations between objects/non-humans) and semiotic (relations between concepts) (Law, 2004; Gibson & Kilian 2013). ANT proposes that non-humans (plants, computers, technology, sputum tests, etc.) or “actors” have capacity to act or participate in relational networks and should be considered equally in the construction of knowledge (Latour, 1996; Law, 2004; Cressmann, 2009). Actants – like medicinal plants or plant medicines take a form/character, are influenced by, and influence other actors because of relations (Cressman, 2009). Callon & Law (1997: 168) for example contend that,

Often in practice we bracket off non-human materials, assuming they have a status which differs from that of a human. So materials become resources or constraints; they are said to be passive; to be active only when they are mobilized by flesh and blood actors. But if the social is really materially heterogeneous then this asymmetry doesn't work very well. Yes, there are differences between conversations, texts, techniques and bodies. Of course. But why should we start out by assuming that some of these have no active role to play in social dynamics?

In other words, ANT/material-semiotics purports that we should employ the same analytical and descriptive framework when faced with human subjects, medicinal plants, statistics, texts, or machines. In the case of my research, disease, illness, treatment, medicinal plants, the Tuberculosis mycobacterium, and local and scientific practices cannot be presupposed as autonomous things that exist outside of the social world. They have political, social, and economic diversity as well as the histories of these practices (Cressman, 2009). ANT/material-semiotics thus seeks to examine the relational process whereby ideas, practices, protocols, institutions, the mycobacterium and other actors negotiate and delimit interaction in networks but is still cognizant of their socio-environmental contexts (Cressman, 2009).

ANT, especially the contentious concept of “actors” or “actants,” has been critiqued for attributing intentionality or agency to non-humans (Winner, 1993; Dreyfus, 1993). Because of the inherently descriptive nature of ANT, it has been accused of lacking critical inquiry of actors, in particular; when describing social processes, powerful institutions and heterogeneity (Collins and Yearley, 1992; Shapiro, 1997; Whittle and Spicer, 2008). Scholars have also called for closer scrutiny of the exacting processes involved in network formation (Mol, 2002; Cresswell et al., 2010). Latour has responded to many of these criticisms over time. In relation to actors and networks, he argues that these are not to be understood representationally, but in a semiotic sense (Latour, 1988:35). Latour (1988) emphasizes that semiotic relations cannot be explained by “social factors” alone. These, he argues, have become theoretical categories without meaning (1991; 2013). Rather, Latour (1991) suggests that students who wish to follow an ANT approach should follow their actors at a basic level through the network. In ANT, networks are processual, “built” activities, performed by the actants out of which they are composed. Each relation and link are semiotically derived, making networks local, variable, and reliant. Perhaps the most important response from Latour (2005) in the context of my own research is that ANT/material-semiotics should not be considered a theory but a method.

Notwithstanding these critiques, a material-semiotic approach is still instructive because it allows me to follow, without appropriation, material and meta-concepts (such as “traditional,” “nature,” “society,” “subject” or “object”) and their dispersed agencies through associations in networks. By tracing the kind of work and knowledge formation at SAHSMI, and the lived reality and practical knowledge of plant users and *kruiekenners* in Genadendal, the above approach allows for an analysis of the relationships between diverse actors without reducing them to traditional labels such as subject, object, human, non-human. In this way I can presuppose that actors and the plethora of elements involved in networks all have the capacity to act and be acted upon by other actors or elements.

In relation to my questions, and including diverse viewpoints and understandings of plants, Latour (1991; 1993; 1996; 2004) offers a useful framework because it enables me to consider the role or agency of non-humans such as plants and do not limit their involvement in networks only to human meanings, symbols, materiality, or relationality. Following Latour (1996: 20) and his many responses to ANT criticisms, I chose to employ ANT in this thesis as an analytical tool rather than a social constructionist theory, as a “method to learn from the actors without imposing on them a priori definition of their world building capacities.”

## **2.2. Anthropology and plant studies**

Anthropologists have historically shown interest in the relationship between people and plants. However, a specific focus on plants in earlier anthropological literature is limited (Hsu and Harris, 2010). In a systematic review of available literature, much of the older studies were found to focus on anthropology's role in ethnobotany and ethno-ecological knowledge (Conklin 1954; Ford, 1985; Ellen, 1996; Nazarea 1999), or draw attention to the economic, aesthetic, cultural practices, symbolism and the role of plants in witchcraft (Malinowski, 1922: 1935; Leach 1965; Lévi-Strauss 1968; Geertz 1973; Descola, 1986; Conan, 1999). Others show anthropology's interest in materiality and the relationships between people, animals, plants, and other objects (Leeds and Vayda 1965). Apart from for the more recent trends in the literature on more-than-human or other-than-human studies (Kirksey and Helmreich, 2010; Ryan, 2012; Tsing, 2017; Myers, 2015; 2017a&b), many of the past anthropological discourses pertaining to plants have followed an anthropocentric view. By contrast, more recent scholarship has attempted to rethink approaches to studying plants by shifting the focus from humans to plants as "agentive beings" (Ogden et al., 2013: 6). The latter body of work is vast, perpetually expanding and constitute, or at least fringes on the boundaries of, many disciplines (Kirksey and Helmreich, 2010; Ryan, 2012).

In what follows, I outline some of the main approaches and theoretical developments in relation to plants and plant studies. As shown above, human-plant studies have grown exponentially as a field, and it is not within the ambit of this review to focus on all the contributions made. Instead, I draw attention to key areas and themes. I have arranged these into roughly three themes and not in the form of one historical outline, because the literature on plants is diverse; each has its own wide-ranging histories. The themes are; materiality, sociality and meaning; more-than-human approaches to plants and South African discourses related to plants. Where possible, I link these themes to, but also focus on, South African literature and debates. Lastly, at the end of each theme, I draw on the literature to critically discuss my own view and approaches to plants.

## **2.3. Materiality, sociality and meaning**

Much of anthropology's earlier discourses on plants seem to approach plants in parentheses that is, as a side issue to human activities (as food, for shelter, status and so on). A common thread in earlier studies and their thematic focus areas is the study of horticultural societies;

their gardens, material culture and cultural exchange (Conan, 1999). Bronislaw Malinowski's (1922; 1935) accounts of Trobriand Islanders and their gardening practices, for example, are perhaps some of the first recognized investigations of the relationships between people and plants in anthropology. Although not an ethnography about plants or gardens, in *Argonauts of the Western Pacific*, Malinowski (1922: 58-59) observed the extensive amount of time and labour dedicated to planting fruit and vegetables and the aesthetic pursuits of Trobriand Islanders through observations of their gardens. In *Coral Gardens and their Magic*, Malinowski (1935) describes the social, economic and cultivation practices of gardens as well as the role of language and magic in the mythologies of Trobriand Islanders. Most notable from both studies is the importance of gardens to their keepers, which Malinowski observed in the attention lavished on gardens to keep them orderly and aesthetically appealing. Malinowski (1935: 80) refers to gardens and certain plants as more than just agrarian, likening them even to "works of art" from which satisfaction, pride and collective appreciation is shared (Conan, 1999).

Malinowski's work was advanced by several other early successors who drew on similar thematic traditions of that time, that is, to focus on the economic, aesthetic pursuits of local people, cultural practices, and symbolism by examining their subsistence practices. Some of these included, for example, Firth (1939), a student of Malinowski, who discusses the economic and agricultural practices of Tikopian people of the southwestern Pacific. Firth's work associates landownership (gardens), agriculture and rudimentary practices of economic (and gift) exchange with cultural practices. Carneiro (1957) outlined the role of gardens for subsistence as well as social structures of gardens amongst Kuikuru Indians in Amazonian forests. Popisil (1963) studied Papuan gardens and their economic activities. Kerridge (1968) followed the aesthetics of the agricultural revolution against the backdrop of the rising middle classes in England and their gardening practices. Godelier (1984) examined gardening as a form of material culture amongst the Baruyas of New Guinea.

Although approaches varied, the small body of historical literatures have in common the view of plants as artefacts or objects (Ford, 1985). In part, this is attributed to the professional capacities and interests of early anthropologists. Ford (1985: 400) contextualizes the work of earlier anthropologists from the west to show how the focus on plants in ethnobotany has shifted at the turn of the 20th century. He critiqued the objectivist way in which botanists approached people's knowledge about plants and the decontextualized way in which plants

were collected and prepared as reference collections in ethnobotanical studies. Ford (1985: 400) argued for more anthropological input in ethnobotany,

Most anthropologists worked in museums where exotic artefacts were displayed besides cabinets of curious animals and pressed plants. Others worked for the United States Government and only a very few were in nascent academic departments of anthropology. Although emphasis varied, most anthropologists as a matter of professional competence engaged in all activities of cultural description...

Studies from the latter part of the 20th century on the other hand represent a body of work that transformed the modes of inquiry and issues raised in both garden studies and approaches to plants. Investigations during this period drew attention to the significance, role and affect of plants in human social relations. They explored, for example, the semiotic dimensions of turning plants into artefacts or things (e.g. gardens, pot plants, food, medicines etc.) which later serve as symbolic signifiers of people, status, meaning, memory and so on (Boster, 1985; Sillitoe 1993; Rival, 1998; 2001; Ewert, 2000; Descola, 1986; 2013). Others accentuated the materiality and sociality of things themselves (Appadurai, 1986; Law and Mol, 1995).

Although he does not write about plants, Appadurai (1986) promoted the idea that material “things” have social lives. Material objects or ‘things’ acquire meaning and value through a process of production and translation as they are exchanged between human actors. Reynolds Whyte et al. (1996; 2002), drawing on Appadurai, subsequently showed that, e.g. pharmaceuticals and medicines, as well as compounds, laboratory equipment etc., acquire meaning and value through complex processes of translation which link scientists, technology, lab equipment and protocols in a network of relations. Reynolds Whyte et al., (2002: 3) emphasize that medicines are the material ‘things’ in treatment. These ‘things,’ are also valued for the transformative power that is accorded to them by social actors and perform various functions that are not restricted to the act of healing, for example, taking or giving care and bringing relief (Reynolds Whyte et al., 2002). Hsu & Harris (2010) takes these ideas further to focus on the materiality and relationality of plants and argue for an understanding of the continuum between humans and plants, rather than understanding them in a pragmatic way of detached observer and object.

In the present literature, the concepts materiality and relationality are used in wide-ranging focus areas in anthropology. Most notably has been the attention to plants in health and



medicine. Studies have attended to the materiality of the relationships between people, plants, and medicine (Lock and Farquhar, 2007; Hsu, 2010), the effect of herbal medicines on the body (Geissler and Prince, 2010), and the materiality of plant-people relationships as complex networks (Cohen, 2009: 2013; van der Veen, 2014). Geissler and Prince (2010), for example, unpack an interdisciplinary research project in a Kenyan village involving children's knowledge of medicinal plants. The authors argue that relations and meaning are produced through practices involving plants: such as collecting, preparing and administering herbal remedies and caring for others. In this way, the materiality of plants mediates relationships, but also reinforces them through practice. Geissler and Prince stress that plant knowledge is not objectively known and cannot be cast onto the realm of belief. Rather it is acquired through social relations and by "trial and error." The authors argue that this sort of trial-and-error knowledge acquisition differs markedly from the objectivist empirical knowledge of science or psychometrics, and it advances growth, healing and "life-affirming sociality" (Geissler and Prince, 2010: 604-605).

Closer to home, Cohen (2008; 2009) explores the plant knowledge and practices of *kruiedoktors* in Namaqualand, Northern Cape, South Africa. He argues that *kruie* (medicinal plants) are intricately entwined in *kruiekdoktors'* and plant users' understandings of plants, the environment, their relationship to God and *toor* (witchcraft). Plants are perceived as "gifts" from God, which locals use to combat illness and to overcome the life-sapping effects of *toor*. Plants are also seen as material culture from which social relationships are created and maintained, and which are closely linked to notions of un(well) being. Drawing on Cohen (2009), Pasqualli (2016; 2018) examines the relationship between plants and elderly residents in the Matzikama Municipal district, Western Cape. She argues against previous representations of the elderly as frail, withdrawn and dependent. Instead, the elderly display vitality through their health, community upliftment activities and as sources of authoritarian knowledge and care for younger people. The elderly attribute their vitality to plants, which they use to manage common chronic conditions such as Hypertension and Diabetes Mellitus, to build their strength and preserve health, and to grow relationships through their gardening practices, and sharing plants with others.

Davids (2010) explored the knowledge and use of *kruie* as medicine in the gardens of elderly residents in Bonteheuwel, Cape Town. He examines the use of *kruie* as a form of *oumensrate* (lit. old people's advice, care, and knowledge) and against the backdrop of medical pluralism

in South Africa that is, the concurrent use of *kruie*, Dutch medicine and allopathic medicine. Grounding his analyses of *kruie* within the anthropology of material culture and thing theory, he also examines *kruie* and aesthetic plants grown in gardens. He argues that plants invoke memories, acquire meaning and symbolic value as they are used and administered in reciprocal relations of care, and further become entangled in human social relations.

In the contemporary literature, studies have also drawn attention to the affective relations between humans and plants by examining the materiality and aesthetics of plants in daily life (Marisol de la Cadena, 2010; Archambault, 2013: 2016). Hill (2011) for instance, outlines the many ways in which meaning, and materiality are utilized in producing, consuming and understanding artefacts derived from plant materials among people in the upper Rio Negro region of Venezuela. Three groups of naturalized plants are used to produce different categories of artefacts namely, food containers, sacred flutes which mimic the sound of animals and ceremonial trumpets. Hill emphasizes the semiotic extents to which plants are “fashioned” into such artefacts, which serve as symbolic interpretations of and negotiations between men and women, kin and affine, and insiders and outsiders (Hill, 2011: 3).

Lodwick (2017) uses material culture to evaluate the movement of plants and plant items into Roman Britain as well as their meaning and materiality in the context of human-plant relations in ornamental gardens and ritual activities. Drawing on contemporary understandings of plant materiality, she considers the visual appearance, smell, physicality, and temporality of introduced evergreen plants and plant items to better understand human-plant relations. Hill (2017: 139) also considers how plants and trees “affect” and “act on” humans through such movement.

In her exploration of the relationships between gardeners and their gardens in Inhambane Mozambique, Archambault (2016) describes how gardeners come to love their plants, how they encounter new plants, and their affectionate relationships with specific plants in gardens. Despite dire social and economic circumstances, and in many instances a lack of physical space to plant, gardeners, which include both younger and older people, find a sense of belonging and attachment in gardening and in their relationships with plants. Many gardeners describe their relationships with plants as guided by “the love of plants” (Archambault, 2016: 245). Archambault’s analysis of human-plant relations in Inhambane, Mozambique, is grounded in affect that is, “the transformative potential of everyday engagement with the material world” (Archambault, 2016: 246). While she acknowledges the contribution of more-than-human

ethnography, Archambault advocates for an anthropocentric analysis in her study. She argues that gardeners have no desire to interpret their relationships with their plants from the plants' point of view (Archambault, 2016: 248). Although concepts such as love, intimacy, care, beauty, and attraction are used to describe the relationship between gardeners and their plants, Archambault (2016: 256) offers “affect” as an alternative mode of interpretation for the agency of plants,

If plants were invested with any form of agency, it was their power to elicit wonder, their capacity to seduce—in a word, their affect—that gardeners emphasized, rather than the idea commonly found among gardeners in England, for example, that plants have a mind of their own.

In a broad sense, the earliest literature described above attempted to provide a materialist perspective of plants by examining them as products of the environment. Many of these studies focused on gardens and have investigated the way a population moulds its environment (communal allotments, subsistence gardens, artefacts, and so on) and the consequent ways in which these relations shape, but are also a by-product of, the population's social, economic, and political systems (Conan, 1999; Hsu & Harris, 2009; Hsu, 2010). The studies outlined above also demonstrate the significant investment of time, creativity and effort into creating gardens and growing food, which become aesthetically pleasing “works of art.” Plants therefore become more than objects or artefacts which can elicit affect, sociality and movement. Hallam and Ingold (2014) posit that material culture and the act of “making” gardens has taken precedence over “growing” which has undermined the agency of plants as living things. In my research, I draw on the above literature to define and explore the materiality of plants but want to do so in a way that does not objectify or reduce plants to material “things.” I employ concepts such as materiality, relationality and meaning to better understand the manifold relationships and networks that are produced through human-plant interactions, rather than reducing plants to artefacts or objects.

#### **2.4. More-than-human approaches to plants**

The catchword “multi-species” ethnography can be traced to earlier research that examined the connections between people, animals, plants and other life forms in anthropology and in disciplines such as geography, history and philosophy to name a few (de Ruiter et al. 2005; Kirksey and Helmreich, 2010; Ogden et al., 2013). In the current literature, multi-species



ethnography serves as an umbrella term, which includes more-than-human (Myers, 2017) and beyond-the-human (Kohn, 2013) approaches. Multi-species ethnography represents research, modes of writing about, descriptions and approaches to non-humans (i.e. plants, animals, fungi, and so on.), which attempt to broaden ethnography by moving beyond human modes of interpretation and representation (Kirksey and Helmreich, 2010; Ogden et al., 2013). Several online sources, special issues, and monographs (e.g., Ingold and Gíslí, 2013; Kohn, 2013; Kirksey, 2014; Ellis and Gibson, 2018) emerged in recent years and strengthen the relatively new interdisciplinary field that is multi-species ethnography. These contributions have investigated social, cultural, scientific, and linguistic phenomena concerning non-humans such as plants (Pollan, 2001; Pitt, 2015; Myers, 2017), animals (Whatmore 2002; Plumwood 2002; Haraway, 2008; Kohn, 2013), fungi (Tsing, 2017) and microbes (Helmreich, 2009).

At the core of multi-species ethnography is the acknowledgement of, and attentiveness to, the significance or agency of “other” species as well as how they act upon or affect humans (Locke and Muenster, 2015). This includes plants, which, in the past, were represented as “passive” or “sessile” (Ryan, 2012: 101; Rival, 2016: 147; Gibson, 2018: 92). By examining plants as “agents” or “actants,” more-than-human approaches have begun to explore the possibility of plant-centred research, which problematizes conventional ethnography and human-centred epistemologies. The idea of a more-than-human or plant-centred approach to research is still developing, but the small body of emerging literature (e.g. Hall, 2011; Myers, 2017) critiques and attempts to move beyond ontological binaries such as human/non-human, nature/culture and subject/object (Pitt, 2015). In the literature, more-than-human studies of plants have broadly attempted to provide new ways to think about plants and our relationships with them, challenge conventional forms of representing plants and suggest potentially new methodologies for engaging with plants (Ryan, 2012; Marder, 2013; Pitt, 2015; Gibson, 2018).

Michael Pollan (2001), for example, comments on forms of representation in relation to plants. He examines the symbiotic relationship between humans and plants. Pollan’s argument stems from the plant histories of four species namely; the tulip, marijuana, the apple, and the potato, which he contends, have co-evolved alongside humans throughout history and domestication. Plants are valued not only for their utilitarianism, but as things that satisfy basic human desires that is, the tulip for beauty, marijuana for intoxication, the apple for sweetness and potato for control. Drawing on these case studies and his experiences with gardening, Pollan (2001: xv)

argues for a re-imagining of the relationship between humans and plants and between subject and object,

All these plants, which I'd always regarded as the objects of my desire, were also, I realized, subjects, acting on me, getting me to do things for them they couldn't do for themselves.

Matthew Hall (2011) also examines the relationship between people and plants. He calls for a reconsideration of the moral standing of plants as “other-than-human persons.” Hall observes two opposing human views of plants namely, philosophies of inclusion and exclusion that are set up against a dualistic backdrop of, on the one hand, analysing western streams of thought and, on the other hand, presenting new possibilities for thinking about plants differently. Part of the problem with previous views of plants as “passive” or “insensitive beings,” he argues (2011: 29), is the language used to describe human-plant relationships, “I choose the plants, I pull the weeds, I harvest the crops. We divide the world into subjects and objects, and here in the garden, as in nature generally, we humans are the subjects...” In response, Hall shows that plants possess capacities such as sentience and intentionality; characteristics that were previously used to discuss the agency of animals and relegate plants to a lower status. Hall calls us to consider plants in a more inclusive way by viewing human-plant relationships as constitutive of one another in a shared world.

The botanist Anthony Trewavas devoted much of his recent work to better understanding plant communication or “signaling” (see for example Trewavas, 2002; 2003; 2005; 2009; 2015; 2016). Trewavas departs from human-centric approaches and focuses on the physiognomies (molecular features or characteristics) of plants. He demonstrates how plant hormones, proteins, peptides, ribonucleic acids (RNAs) and other molecules act in synergy to make up plant communication: which plants use to chemically respond to environmental conditions (Trewavas, 2014). The physiognomies plants display through signalling, he maintains, can be understood as representative of plant intelligence, albeit, this differs markedly from the kind of intelligence we associate with, for example, animals. Although Trewavas approaches plants from a scientific perspective, his seminal work has been used in social science to challenge human and animal-centred approaches to understanding and researching plants (Ryan, 2012).

Several authors from the social sciences have drawn on biological sciences to consider the distinctive capacities and potentialities of plants in relation to human perception, practices, art,

ecological interconnections and interspecies relations. John Ryan (2012), for instance, draws on Trewavas and Hall to reconsider plants in research, including their role in society and their representations in social sciences. Ryan (2012) examines diverse research and approaches to plants from the social sciences and biological sciences, which he captures as human-plant-studies (HPS). HPS, he contends (2012: 106), marks out an interdisciplinary research framework “which would regard plants as intelligent, conscious, and capable subjects, rather than mechanical accessories—as —passive flora.” Head et al., (2014) argues against the lower status of plants compared to animals. The authors advocate for “the shared capacities of plants,” which is imperative to establish research that considers plants on their own merits (Head et al., 2014). They examine an invasive species in Australia, *Cryptostegia grandiflora*, to demonstrate the liveliness of plants. Examining plant liveliness in the context of subjectivity, agency and the killing of invasive species, the authors offer a sense of plant worlds “in which distinct but highly variable plant forms have their own lives, interacting with humans and others in contingent ways (Head et al., 2014: 399). Marder (2013) explores the lively topographies of plants. He foregrounds vegetal life to reconsider plant agency by demonstrating the distinctive temporality, freedom, and material knowledge of plants. In other examples, studies have also attended to the peculiarity of non-human difference and the ethical implications of plants as living beings (Hitchings and Jones, 2004; Ogden et al., 2013; Myers, 2014; Head et al., 2015; Tsing, 2015).<sup>11</sup>

In addition to multi-species studies, monographs have also emerged. These have directed attention to the semiotic and material agency of non-humans (such as plants, animals, spirits and so on) in an attempt to move beyond anthropocentrism i.e. post-humanism (Latour, 2004; Ingold, 2011; Viveiros de Castro, 1998; 2004; Kohn, 2013; Descola, 2013). Many of these monographs propose an ontological shift from binary ontologies to relational perspectives. In the case of the later, some have stressed the importance of the junctures between environmental relatedness (Viveiro de Castro, 1998: 2002: 2012; Kohn, 2013; Ingold, 2011: 2013), political economies (Latour, 2004; Bennett, 2010), and cultural representations in and between human/non-human relations (Latour, 2011; Descola, 2013). This body of work draws on two distinct intellectual heritages, which have significantly contributed to multi-species ethnography and theory:

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<sup>11</sup> I will discuss methodological approaches to plants in Chapter 3.

On the one hand is the move away from a social constructivist approach in favour of a material semiotic approach, which somewhat decentralizes the supremacy of humans in relational networks with non-humans. In this approach, studies (e.g. Hayden, 2003; Rocheleau, 2016; Nathen, 2018) have found the seminal work of Bruno Latour (1979; 1987; 1991; 1999; 2002; 2004; 2005) useful to analyse the relationships between people and plants, specifically, the utility of actor-network-theory (ANT) for analysing what Ogden et al., (2013: 10) call the “multibeing contact zones.” In most of his work, Latour has articulated obvious pessimism towards the human-centric approaches that view humans as the only actors, and the nature-society asymmetry it hinges on. He puts forth actor-network-theory to explain non-humans in a non-hierarchical manner (Latour, 2004). Latour (1999; 2004; 2005) has also argued for a consideration of the agency of other-than-human species in a symmetrical way to give them “voice” in political assemblages.

On the other hand, is the heritage linked to Viveiros de Castro (1998: 2004) and Descola (1986: 2013), with Amerindian cosmology as the focus. Viveiros de Castro (1998: 2004) shows how humans and non-humans share the same reality but use different perspectives to understand it amongst the Avila Runa of Amazonian Ecuador. Amerindian cosmology advocates that different beings share an inter-subjective state (or metaphysical body) and, through it, can communicate with one another. These beings (plants/animals/people/spirits) are believed to have once been human and then transformed or “became” non-human (Viveiros de Castro, 1998; Kohn, 2013; Descola, 1986: 2013). This ontological “becoming” in Amerindian cosmology relates closely to what Friedrich Nietzsche (1878) called “Perspectivism,” a concept which was later encapsulated by Viveiros de Castro (1998) as “Amerindian Perspectivism.” Viveiros de Castro (1998) used the term Amerindian Perspectivism to define the unique relationship between humans and non-humans (“subject-persons”), both with distinct views of the world they inhabit (Viveiros de Castro, 1998: 469-476).

Amerindian Perspectivism also assumes relationism (Viveiros de Castro 1998; 2004; Harvey, 2006; Sahlins, 2014; Descola, 2010; 2013) which has been theorized to discuss ontological conceptions of human and non-human relations. The aforementioned have also formed the bases for analyzing post-humanist ideas about naturism. Descola (2013: 5), for example, examines the Avila Runa’s cultural and linguistic view of plants as “persons,”

...they declare that most plants and animals possess a soul (wakan) similar to that of humans. This constitutes a faculty that classifies them as “persons” (agents) in that it

provides them with a reflexive awareness and intentionality that enable them to experience emotions and exchange messages with both their peers and also members of other species, including humans.

Descola (2013) explores these relationships with plants and between hunters and hunted animals' spirits to tease out a question that has burgeoned in anthropological and philosophical discourses namely, what is the relationship between nature and culture? Descola demonstrates the narrowness of western dualist thought and the naturalist approach that has plagued and contributed to the distinction between nature and culture. He proposes an alternative epistemology for anthropology- the "four ontologies" namely, Animism, totemism, naturalism, and analogism- to explicate the myriad of ways humans relate to nature in Amerindian cosmology and to think beyond dichotomies.

Drawing on, but also departing from Viveiros de Castro and Descola, Kohn (2013) also investigates the Avila Runa of Amazonian Ecuador to show how other than-human-encounters with plants, dogs, jaguars and spirits open possibilities for imagining the shared world these actors occupy differently. Kohn critiques anthropology and the limited ways in which scholars have explored the question: what does it mean to be human? He comments on exceptionalist ideas about representation and language used to understand non-humans, and further, acknowledges the inarticulate communication systems that exist between humans and the world of non-humans in the forests of lowland Ecuador. His study is purposefully directed at the non-human world which, he argues, may provide better understanding of what it truly means to be human (Shields, 2018). Amidst the many conceptual tools Kohn (2013) proposes in his monograph, perhaps the most provocative in the context of my own research is his response to the ways in which non-humans are represented (such as plants, spirits, dogs, dreams and so on) in, for example, the works of Viveiros de Castro or Descola (c.f. Turner, 2009; Latour, 2009). Kohn's approach is to attune our ethnographic attention to how we relate to other kinds of beings by reviving and supplementing iconic and indexical signs in anthropological interpretation (or reintroducing ethnographic concepts back into and affecting analytical ones). Because icons and indexes are the symbols that non-humans use to view the world and communicate between one another; their scrutiny proposes a way to associate humans and non-humans within a less reductionist semiosis and it provides a basis for an anthropology "beyond-the-human" (Kohn, 2013: 54).



One of the reasons I chose to focus on Amerindian Perspectivism is because it provides one unique way to think about plants. In line with the ontological turn in anthropological theory, post-humanist research and writing (including, for example multi-species ethnography or Amerindian Perspectivism) counters previous anthropological discourses on plants. This is especially useful for rethinking plant research and approaches in South Africa, where plants are often cast onto the realm of or become the objects of, for example, the objectivist realities of science (Green, 2012), “belief” (Thornton, 2010) or as “traditional” medicine (Sobieki, 2012). In my research, Amerindian Perspectivism may offer a generative way for thinking with rather than about the role of plants in my participant’s lives, the concepts they use to define plants, their relations, and affective encounters with plants.

However, the research on Amerindian Perspectivism such as Kohn’s (2013) “anthropology beyond-the-human” is meant to understand a specific set of relations or communication between beings (humans, forests, jaguars, spirits and so on) in a certain setting; the forests of Amazonian Ecuador. I agree with Descola’s (2014: 270) review of Kohn’s approach; that it is not attuned to other social and environmental contexts such as my own setting, Genadendal,

...the Runa do not live in the taiga forest of Northern Siberia, in the oak forest of temperate Europe or in the pine forest of middle-eastern mountains, they live in a very particular environment, the montane forest of Eastern Ecuador, with ecological features that are uncommon elsewhere in Amazonia, and I doubt that many of Kohn’s analyses would apply in other types of ecosystems.

In sum, more-than-human approaches make an important contribution to describing and proposing novel ways for engaging with the diverse organisms that make up worlds (Ogden et al., 2013). Up until now, much of the multi-species literature focused on animals with limited extension to plants. This is partly because of the complexity of theorizing plants as autonomous agents or actants (Head and Atchison 2009; Kirksey and Helmreich, 2010). It is also because plant-centred methodologies are still developing and lack the necessary conceptual and descriptive tools needed to engage critically with plants as agents or actants (c.f. Whatmore, 2006; Ryan, 2012; Gibson and Killian, 2013; Pitt, 2015; Gibson, 2018).

In the context of my own research, my participants (scientists, kruiekeners and medical professionals) all have different perspectives on plants. Some, for example, may describe the physical structure of plants or the plant’s compounds, while others, the social relationships that



plants bring about through exchange or gardening practices. Here, multi-species ethnography offers an opportunity for me to describe and engage with such perspectives, but may not allow for an understanding of contextual, spatial, environmental and political differences in such descriptions (Latour, 2008; Smart, 2014; Kopnina, 2017). Therefore, in this thesis, I follow the multi-species trend as far as it allows for an understanding of the role of plants in my participant's lives; the concepts they use to define plants, their relations, affective encounters, and then to tease out whether these relations afford plants agency or not as well as the knowledge made or done in practice through and by such conceptualisations and materialities.

## **2.5. South African discourses on and conceptualizations of plants:**

### **2.5.1 A brief outline of South African plants: Pre-colonialism to present**

It is widely acknowledged in the literature that South African healing systems, including the diverse plant knowledge and healing practices of the Khoisan people (Low (2004), isiZulu (Bryant, 1966; Hutchings et al., 1996), Sotho (Moffett, 2010) and IsiXhosa (Smith 1895), are not very well recorded before, and even after, European exploration and settlement. Because such plant and healing knowledge rely on oral traditions across ethnically defined groups and regions in South Africa, and Southern Africa in general, much of this knowledge is fragmented, dispersed and partially lost (van Wyk et al., 1997). Historical (c.f. Smith, 1966; Muller, 1981; Klein, 1984; Low, 2004) evidence provide a sense of the healing traditions and plants used in the pre-colonial period, however, much of this knowledge relies on, and has been critiqued for, the normative history and euro-centric observations of early explorers (c.f. Schapera, 1970; Low, 2004; Cohen, 2015). Archeological research and physical discoveries of plant drawings and remains dating back to pre-colonial South Africa, point to the potential use, healing and trade value that plants might have had during this period (Wilman, 1968; Reynolds, 1950; Wells 1965; Parkington and Poggenpoel 1971; Deacon, 1976; Robbins and Campbell 1990; Cunningham 1988). For the most part, unfortunately, traditional plant use is poorly documented or non-existent in pre-colonial South African literature.

The mid-17th century onwards was marked and is bitterly remembered in South African anthologies on the history of colonization, by significant European exploration and conquest. It was also a period of colonization<sup>12</sup> for plants (c.f. van Wyk, 2011; Victor et al., 2016). Early

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<sup>12</sup> In biology, plant colonisation or colonization refers to the process where living organisms are moved to new areas to study their taxonomy (c.f. Wilson, 1962; O'Toole et al., 2000; Livezey, 2009a&b).

travellers, including missionaries and prospectors, explored, documented and transferred plants as items of trade and as botanical specimens to European countries (Smith and Figueiredo, 2010). Botanical and Proto-ethnobotanical studies such as, Burchell (1822), Campbell (1822), Kay (1834), Pappé (1847: 1850: 1854: 1857: 1862: 1868), and Harvey and Sonder (1860: 1862: 1864), characterized the 19th century. These studies described and documented the traditional uses of medicinal plants to produce inventories, but as Smith (1895) debated, were likely also used as information by European officials to identify plants for trade.

Figueiredo and Smith (2010) argue that colonial subjugation in Southern Africa has profoundly influenced local plant taxonomy. The emergence of formal classificatory systems and biodiversity inventories in South Africa is linked to colonization, which has also influenced the global flow and exchange of plant knowledge (Figueiredo and Smith, 2010; Gänger 2015; Victor et al., 2016). Important examples include native species such as, *buchu* (*Agathosma betulina*), aloe (*Aloe ferox*), *rooibos* (*Aspalathus linearis*), devil's claw (*Harpagophytum procumbens*), pelargonium (*Pelargonium sidoides*), milk bush (*Xysmalobium undulatum*), buttonweed (*Diodia flavescens*) and hoodia (*Hoodia gordonii*), which have been exported, appropriated and commercialized for their economic and medicinal value since the early 20th century (van Heerden, 2008; Street et al., 2008; van Wyk, 2008: 2011; Figueiredo and Smith, 2010).

Since the mid-20th century, South African plants have attracted the attention of the pharmaceutical industry as potential sources of medicinal products. "Bioprospecting" for potentially useful plants (Makhubu, 1998; Reihling, 2008) were done through ethnobotanical studies, which have produced a few drug discoveries such as the appetite suppressing P57 compound derived from *Hoodia gordonii*. Hoodia, as it is known locally, has since been developed as a dietary supplement across the world and has also been investigated for potential anti-diabetic properties (Van Heerden et al., 2007). Plants and plant-derived products such as hoodia are also utilized in the form of traditional medicine (Dold & Cocks, 2002; Nxumalo et al., 2011; Davids et al., 2014; Hughes et al., 2013). Several studies have documented the magnitude of medicinal plants that are used in traditional healing (Dold and Cocks, 2002; Street et al., 2008) and for trade as part of informal markets in South Africa (van Wyk, 2008; Loundou, 2008; Thornton, 2010; Street and Prinsloo, 2013). Since the 1990's, scientists and pharmaceutical industries have drawn on traditionally used plants already in the market; in other words, where health benefits of plants are already in the public domain (Johnson et al.,

2008; Aboyade et al., 2014), as sources of compounds for new drug development. Attempts to clinically study, commercially brand and market plant-derived medicine are ongoing (Johnson et al., 2008; Laplante, 2015).

In the present discovery-development-drug era (Geissler, 2011; Pollock, 2014), a number of scientific publications have highlighted local medicinal plants as potential sources of new drugs, explored their chemical make-up, synergy and potential activity and effects against diseases such as Human immunodeficiency virus (HIV) and Tuberculosis (TB) (Light et al., 2005; Johnson et al., 2008; Liu et al., 2008; Prinsloo et al., 2010). Anthropologists on the other hand have raised concerns about bioethics, biopolitics and the preservation of “traditional” knowledge (Green, 2007, 2012; Gibson, 2011; Oloyedi, 2011; Geissler, 2011; Gibson and Killian, 2013; Laplante, 2015). The present period has also seen the introduction of legislation and policy documents (e.g. Biodiversity act of 2004 and IKS policy 2004) to protect local biodiversity and traditional knowledge, and to ensure parity in relation to the distribution of benefits derived from plant-drug development. For South Africa, the development and transformation of local plants into marketable medicinal products represents hope for the bio-economy (Foster, 2017), but also places strain on natural resources. As part of this process, new regimes of meaning, value, agencies and knowledge movements are produced, but it is yet to be seen how this may benefit the economy or effect local plant users (Dold and Cocks, 2002; Green, 2008; 2012; Reihling, 2008).

### **2.5.2. Indigenous plants and healing**

A lot has been written about traditional healing and traditional medicine in South Africa. Ethnobotanical studies extensively documented the use of medicinal plants by traditional healers (*amagqirha*: diviners) and herbalists (*nyanga*'s) for a range of conditions (van Wyk et al., 1999; Loundou, 2008; van Wyk, 2011; see also van Wyk, 2002 for a review). Anthropologists have comprehensively studied the healing practices, disease aetiologies, diagnoses and treatments of traditional healers (Richter, 2003; Truter, 2007; Thornton, 2009; 2010, Dold and Cocks, 2012, Wreford, 2005a&b; 2008; Davids et al., 2014). Ethnobotanical and anthropological studies have also focused on the significance of plants in divination practices, spirit possession, trance, and in ceremonial rituals (Hutchings, 1989; Dold and Cocks, 1999; Sobiecki, 2008). The literature on traditional healers is extensive; however, the plant knowledge, use and healing practices of elderly knowledgeable people (*kruiekenners*), *bossiesdoktors/kruiedoktors* (herbalists) and Rastafari bush doctors are comparatively

understudied. Despite this, several studies have shown that the use of plants as healing agents is common throughout South Africa's diverse healing traditions and amongst its practitioners (Sobiecki, 2008; Philander, 2011, Nortje, 2012). Since such a lot has been written on traditional healers and traditional medicine in South Africa, my focus in the following is on conceptualizations of plants in the literature.

Traditional healers<sup>13</sup> have an array of specializations (c.f. Thornton, 2009; Dold and Cocks 2012). The commonality across South African black traditional healers is the belief in and practice of *ngoma* (Janzen, 1992: 1995; Campbell, 1998; Richter, 2003), a way of life based on the belief in ancestor spirits that play an active role in the lives of the living. In the literature (Sobiecki, 2002; 2008; 2012; Wreford, 2008; Thornton, 2009), the general conception is that *sangomas* (*amagqirha*: mostly women) are normally those that draw on divination to diagnose and treat their clients, while *nyanga's* (herbalists: mostly men) are thought to work with *muti* (medicinal plants, but can also compose of other mineral and animal material). Because of urbanization, relocation, colonial suppression and other reasons, the specialization and understanding of healers have become blurred, and in the present time, both men and women practice divination (van Wyk et al., 1999; Richter, 2003; Thornton, 2010: 2017). All traditional healers prescribe medicinal plants which are imbued with symbolic and spiritual significance and meaning (Sobiecki, 2014).

The first conceptualization of plants in traditional healing is its symbolic significance in divination practices (Dold and Cocks, 1999: 2012; van Wyk, 2011). Traditional healers burn *imphepho* (*Helichrysum petiolare*) as incense to summon their ancestors and those of their clients. In the absence of *imphepho*, snuff (smokeless tobacco) may also be used as an alternative. The plants, together with other sacrificial offerings such as alcohol, candles and animal slaughter, are used to communicate with ancestors that are called to give advice about a diagnosis, cause of illness and, the necessary cleansing rituals to be performed or plants to be collected by the healer for treatment.

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<sup>13</sup> I am aware that the term traditional healer is an umbrella term for diviners and herbalists. It can also include Rastafari bush doctors, *kruiekenners* and Khoi/San healers. The latter group see themselves and are known for practicing healing and herbalism. The definition used in the Traditional Healers Act of 2007, however, refers only to diviners and herbalists who are registered as such, and normally, does not include this latter group who remain largely unregistered.

Plants such as *iindlela zimhlophe* (*Silene undulate*) or *incotho* (*Boophane disticha*) and poison bulb/*incwadi* (*Boophane disticha*) to name a few, are also used as psychoactive agents to induce different states of consciousness (Sobiecki, 2008). During ritual ceremonies, traditional healers use a combination of plants, drumming, dancing and invocation to enter a state of trance and allow ancestors to possess them. Ancestor spirit(s) can thus communicate directly with the surrounding group. The ancestors may also communicate with the living through dreams or waking mediumship, which often involves the ingestion or burning of psychoactive plants. The knowledge and use of psychoactive plants are common throughout healing practices in South Africa, but requires extensive training and apprenticeships, without which, many of the plants used may be toxic (Sobiecki, 2008; Thornton, 2009; 2010).

Disease and illness<sup>14</sup> are understood to be the result of a state of imbalance resulting from malevolence or ancestral dissatisfaction with the living (Xaba, 1998; Nkosi, 2012). The task of traditional healers is to restore balance through the necessary rituals and plants. Ancestor spirits guide traditional healers as to which plants to use, where to collect them and how to use them. Plants are not only intended to treat physical illness but are also meant to be spiritually curative. The ancestors imbue plants with healing power which can be actuated by traditional healers through the necessary rituals. Plants are linked to and thought of as part of nature and are also entwined with spiritual significance. The literature has shown that the place of origin is important when collecting plants. Healers from the Eastern Cape, for example, believe that plants collected in rural areas in that province are stronger and more efficacious than those grown in gardens or in polluted cities (Davids 2012, Davids et al., 2014; Laplante, 2014).

In other Southern African healing traditions, Low (2002: 2004: 2007: 2009) and Gibson (2009: 2010) have in detail documented the plant conceptualizations of San people in Namibia. Plants have deep-seated social and cultural meaning but are also extensively relied on for their healing properties. Low (2009) elucidates on San healer's understandings of plants as alive. Plants have spirit or a life force that is linked to nature (máq - air, breath, wind). Gibson (2009: 57) argues

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<sup>14</sup> Illness, disease, and sickness are well established terms in Medical Anthropology and have been extensively discussed by authors such as Kleinman et al., (1978), Helman (1981), Ross et al., (1982), and Farquhar (1994) to name a few. These terms are loosely used to describe the signs, symptoms, physiological effect of symptoms on the body, aetiologies of disease, and doctors and sufferer's understandings of these from a naturalistic or personalistic view. In this thesis, I use the terms illness, disease, and sickness to examine the way in which people (medical professionals, kruiekenners and sufferers) ascribe meaning and make sense of their illness experiences, understanding of disease and treatment, but also to the social dimensions involved in growing kruie, collecting and preparing kruie remedies, and offering advice and showing concern for others.



that San traditional healers talk to plants, thanking them for their healing power (“n/um”), which is interwoven with understandings of máq,

...plants breathe, live, reproduce, feed, poison, defend against or hide themselves from predators. They ‘drink’, ‘eat’ and move in the air. They can travel across distance; can affect the environment, the kind of animals that may live there etc. Plants can be stronger or weaker, depending on where they grow. Through the movement and sharing of máq, i.e. essence/wind/ air, people, animals and plants interpenetrate and transform each other.

In Paulshoek, Northern Cape, South Africa, Cohen (2008; 2009; 2015) unpacked the work of *kruiedoktors* (herbalist: plant/bush doctors). He raises the possibility of other modes of understanding plants in the lives and healing practices of *kruiedoktors*. He argues that plants are intricately linked in webs of relations with people, illness and *toor* (witchcraft). Plants serve, not only as material mediators for social relationships, but also as “antidotes” for strained relationships which often involve jealousy (*toor*). Cohen draws on Low’s (2002: 2004: 2007: 2009) work to discuss the link between people, plants and the environment. Plants reportedly have spirits which are interconnected with nature, are affected by and move through wind, smell, sight and touch. Plants appear in dreams and through meditation to *kruiedoktors*, and direct them to new healing uses (Cohen, 2015: 14).

In the conceptualizations of plants above, plants are revered in ritual ceremonies and healing practices for their symbolic, psychoactive and spiritual significance in healing. The relationship between people and plants or subject and object is, however, not clear-cut, because many of the South African conceptualizations and discourses refer to plants for health, as opposed to, part of broader cosmology.

### **2.5.3. Interdisciplinary research: On the interface of science and indigenous plants and knowledge**

I agree with Joshua Cohen (2015: 14: 54: 60) when he argues that it is difficult to emphasize and comprehend the extent to which science has subjugated traditional medicine in South Africa. This is also true for the global South in general. Under the apartheid government, traditional medicine and knowledge were ostracized based on the colonial-scientific viewpoint that traditional healers, herbal medicines and healing practices were primordial, dangerous and affiliated with witchcraft (Cohen, 2015; McFarlane, 2015). In the past colonial authorities



attempted to control the use and sale of traditional plant medicines. The colonial government did however allow for a kind of knowledge-healing-pluralism on condition that, what they considered non-western medicine and practices, were restricted to certain spaces and people that is, non-white South Africans (Cohen, 2015; McFarlane, 2015). Nonetheless, traditional healers continued to practice and use medicinal plants as part of a clandestine system.

In post-colonial South Africa, traditional healers have gained in popularity and are perceived as important resources. As several studies show (Peltzer et al., 2006; Nxumalo et al., 2011; Davids et al., 2014), traditional healers fill an important gap in South Africa's strained health care system, especially concerning treating and/or managing diseases such as HIV/AIDS and TB. Traditional healers are widely consulted for common and more serious conditions. They are perceived to be more easily accessible, culturally sensitive and to offer holistic treatment, which counters some of the barriers sick people experience in accessing western allopathic medicine (Tugendhaft, 2010). Scientists have also stressed the significance of traditional medicine (medicinal plants) as an important source for identifying bioactive ingredients which can be used in the development of synthetic medicine (Light et al., 2005; Sobiecki, 2012). Traditional healers and traditional medicine are in the process of formalization, and the last three decades have seen a few policy documents (South African Traditional Health Practitioners act of 2007; Draft Policy on African Traditional Medicine for South Africa 2008) implemented in an attempt to recognize and regulate both (Street, 2016).

Although the literature on traditional healers, traditional medicine and, the potential benefits of both in relation to health, have increased exponentially in post-apartheid South Africa, the relationship between traditional medicine and western biomedical science is still strained. This is because of previous colonial divisions and tensions and, as several studies argued (Agrawal, 1995; Nyika, 2007; Green 2008: 2012), to longer standing discourses on the divisions between science and traditional knowledge. The aforementioned studies have attempted to explore this relationship in the hope of producing generative interchanges between traditional knowledge and western biomedical science, and bridge the historical divides between them, or attempt to rethink the relationship.

Lesley Green (2008: 2012), for example, explored the challenges of decoloniality and the indigenous knowledge movement for science and for anthropologists in South Africa. She analyzes the dualisms of indigenous knowledge and science with a focus on the Indigenous Knowledge Systems policy of 2004. While the policy is meant to put in motion steps to

integrate, or at least encourage collaboration between, indigenous knowledge and science, Green (2008: 147) argues that the policy's epistemological assumptions in relation to identity, power and scientific reductionism may not adequately address the question of knowledge diversity,

...The dualisms with which western scholarship struggles, then – nature-culture; mind-body; person-environment – are heavily invested in scientific data gathering strategies. The result: many a scientific data gathering strategy could collect the content of IK, but the collection will inevitably be partial, and may well be destructive of the structures and epistemologies that make the content meaningful.

Joshua Cohen (2015) explored the “tense relationship” between traditional healing and biomedical science in South Africa. In an attempt to rethink this relationship, he examines an interdisciplinary project involving molecular biologists and *kruiedoktors* in Paulshoek, Northern Cape. The molecular biologist sought to understand plants and plant knowledge from one point of view, while, in the lives of local medicinal plant users, a different reality of plants became apparent. Examining the relationship between different realities and knowledges, Cohen (2015: 13) argues, is one imaginable way to “carry out future, non-reductive collaborations between biomedicine, plant science, and ‘traditional’ medicine.”

Green et al., (2015) similarly explored knowledge plurality in relation to medicinal plants. Drawing on the work of molecular biologists, an anthropologist and local participants in Paulshoek, Northern Cape, the authors offer an account of the kinds of dialogues that emerge in generating knowledge about medicinal plants by different actors. Noting the historical divides between science and humanities and between indigenous knowledge and western biomedical science, the authors advocate for recognition of a transdisciplinary approach to researching plants and plant knowledge that is mutually respectful and accepting of various perspectives.

Attending to the randomized controlled trials (RCT) of two medicinal plants in South Africa, two anthropological studies explored the interfaces and interconnections between science and traditional knowledge involved in the testing and development of phytomedicine. Gibson (2011) and Gibson and Killian (2013) examined the Phase I, II(a) and II(b) randomized controlled trial of *Lessertia frutescens* against HIV/AIDS. Gibson and Killian (2013) articulate the trial as a disputed and uncertain process, which implicates the plant in unexpected and

perhaps unrelated ways. The authors highlight the ontological politics and multiplicity of the plant as a botanical entity, a trial product, a regulatory object and as an interconnected assemblage. In each instance, for example, as a traditional medicine which is used by locals to combat the side-effects of ARV medication or as a botanical entity in the clinical trial or scientific literature, the plant is enacted differently and shown to be multiple and relational. The authors argue for the recognition of the material agency of the plant, which exists through assemblages involving traditional healers, local plant users, scientists and the trial itself.

Laplante (2014: 2015) scrutinized the preclinical trial of *Artemisia afra* against Tuberculosis. Her research focused specifically on the preclinical period, which she sees as an important intellectual moment to examine the conjunction of traditional and scientific ways of knowing medicine and making it work in the face of uncertainty. In her analyses, Laplante oscillates between a phenomenological approach to examine the local use of the plant by traditional healers against Tuberculosis, and an actor-network-approach to make sense of the scientific practices in the preclinical trial. Laplante argues that there are similarities found in the disparate knowledge and practices of scientists and traditional healers- both share the desire for healing. The trial aimed to study and subsequently develop biopharmaceuticals to combat the Tuberculosis epidemic in South Africa, while also recognizing traditional medicine and local knowledge. The preclinical moment also served to, albeit shortly, bring together the practical knowledge of traditional healers and scientists who were interested in the work of traditional healers and their methods of “making the plant work.” However, as Laplante (2015: 205-207) shows, in practice similarities, or points of convergence, often diverge. During the trial, for example, the plant is sanitized of any kind of situated context and is translated into objects of scientific scrutiny. Ultimately, Laplante contends that despite the more advantaged position of science and molecular biologists throughout the trial, there are many ways in which medicine is made to work.

As can be seen from the above, interdisciplinary research on plants implicates and transforms them in a myriad of ways. Plants become entangled in networks of association with humans, science, knowledge, trials, tests and technology. In the process, they are moved, translated, tested, transformed, discussed, and acquire new regimes of meaning and value. Interdisciplinary research and approaches thus allow for an understanding of plants as more than botanical entities or culturally situated knowledge. Yet, as the studies outlined above point out, historical knowledge divisions burden interdisciplinary research, which can hinder

productive dialogues across disciplines (Verran and Christie, 2011). This is especially the case in a country like South Africa with its history of colonial subjugation.

### **Conclusions: thinking through approaches**

In this chapter, I highlighted some of the prominent discourses and theoretical approaches to plants and plant research. The literature shows several ways in which plants are represented, for example, as material or botanical entities. The literature also draws attention to the “multipleness” of plants, as they are discussed, translated, enacted through practices and movement, in different spaces and by different actors. In these diverse human-plant interactions, plants acquire different regimes of meaning and value and, different realities of the same plants (objects) are brought into existence and sometimes wane (Laplante, 2014). Furthermore, the ontological turn in anthropological theory and writing made me attentive to alternative ways of relating to, understanding and defining plants and plant “worlds” (Myers, 2016) beyond western-anthropocentric approaches and outmoded dualisms- even though such approaches may not always be compatible with my research.

To return to my opening questions, my participants’ viewpoints of plants differ markedly. The focus of this study is also broad; it includes two study sites and participants from disparate disciplines and knowledges heritages. Ultimately, the study, irrespective of the differences, revolves around plants and knowledge related to them. In an attempt to bring together, for the sake of the research, the viewpoints, conversations and possible points of convergence of my participants and their respective plant knowledge and practices, I examine plants from a hybridized standpoint. Drawing on Bruno Latour’s (2005) material-semiotic approach, I argue for a kind of intersectionality, which is sensitive to and inclusive of diverse knowledge and practices. Rather than subscribing to one or the other viewpoint or understanding plants from only one dominant perspective (e.g. science) paying less attention to others, the study is concerned with how plants appear and practices involving them are done in different ways. I explore this further in the chapters that follow.

## Chapter 3: Methodology

### Introduction

In this chapter, I discuss the research approaches used for my study. I utilised a multidisciplinary-mixed-methods approach because it draws on research methods from natural science and social science. This approach is suited to real-life and contextualized insight, layered perspectives, but also has sensitivity to culturally informed contexts (Greene 2007; Bryman 2006). According to Greene (2007) mixed-methods-research tries to bridge or at least establish dialectics between, for example, post positivist, social constructivist, pragmatic, transformative, and in the case of my research, material-semiotic viewpoints (Latour, 1993; Greene, 2007). Mixed-methods-research also creates possibilities for the transformation of tensions between various knowledge paradigms and research approaches into new understandings and knowledge (Greene 2007; Bryman 2006; Creswell & Plano-Clark 2011; Hesse-Biber 2010).

A multidisciplinary-mixed-methods approach combines quantitative and qualitative research methods (Greene 2007; Bryman 2006; Creswell & Plano-Clark 2011; Hesse-Biber 2010). I used quantitative methods to do an ethnobotanical survey and a retrospective treatment outcome (RTO) study. Both studies involved quantitative questionnaires which I used to ascertain the level and incidence of plant use, frequency of use, and to compare health outcomes. I also had to use SPSS, a statistical data analyses programme, to analyse the survey data. Using ethnographic qualitative methods such as participation and observation, focus group discussions (FGDs) and in-depth open-ended interviews, I explored the meanings and understandings of Tuberculosis, aetiologies, symptoms and the plant practices of *kruiekenners*. In this way, I used and integrated multiple methods to combine their various strengths and insights and found the multidisciplinary-mixed approach to be very useful for me.

In the following sections, I begin with an outline of the methods and analyses of the ethnobotanical survey and retrospective treatment outcome study. I then turn to my long-term fieldwork in Genadendal. In the case of the latter, I discuss gaining entry to the field site, doing anthropology ‘at home,’ building rapport, methods used and ethical issues such as obtaining Prior Informed Consent (PIC), drawing up memorandums of understanding (MOU), material transfer agreements between collector and receiver of medicinal plant specimens and plant collection permits.



### 3.1 Ethnobotanical survey and plant collection

For the ethnobotanical and retrospective treatment outcome surveys, I used a cross sectional descriptive data collection method to obtain information about medicinal plants used to treat Tuberculosis and its associated symptoms. The ethnobotanical survey (See Appendix 1) was designed in collaboration with SAHSMI scientists and a botanist. Ordinarily, an ethnobotanical survey is carried out with a specific goal, for example, to identify and collect plant species used to treat and/or manage one or more illness conditions in a given location. Plant specimens are then prepared as reference collections to be stored in an herbarium (Martin, 2007). The goal is generally informed by available literature and on the premise that certain variables about the study site, such as the size of the population or the prevalence of the target illness condition in the area is known (Ibid). However, for my ethnobotanical survey in Genadendal, the design of the survey was intended to be exploratory and semi-structured. This was necessary because I first did a systematic review of the literature and established that certain parameters about Genadendal, such as the overall prevalence of plant use, incidence of Tuberculosis and other socio-demographic information such as the specific number of people or households in the area, were unknown.

Most of the reported high-risk Tuberculosis areas in the Western Cape fall within larger regional profiles such as the Cape Metropole, Overberg and the Theewaterskloof Districts (Provincial Strategic Plan on HIV/AIDS, STIs and TB 2012-2016, Overberg district plan, 2012, Census, 2011). Information such as the epidemiology of Tuberculosis and the socio-demographics of sufferers are not always well represented in semi-rural areas, such as Genadendal and in people living on farms, where access to medical services and testing facilities are limited (Fourie, 2011; Overberg district plan, 2012). The ethnobotanical survey was therefore designed to include information about the socio-demographic characteristics of participants, the prevalence of plant use, the number of medically diagnosed cases of Tuberculosis, its symptoms, perceived symptoms and unconfirmed cases of Tuberculosis (not medically diagnosed). I also wanted to document ethnobotanical knowledge about plants, plant parts used, collection sites and so on.

Before I commenced with data collection, I visited Genadendal to inform officials there of my intentions to conduct research and to obtain informed consent from community leaders. All community leaders were given an information leaflet (Appendix 2) which was verbally explained to them and gave their consent by signing the informed consent document (Appendix



3). Once consent this was obtained, I conducted a small pilot study to test the ethnobotanical survey. Then I adjusted the survey for formal data collection. The survey was administered by me and two MA students. We all have background training in medical anthropology and ethnobotany. All the households (approximately 1500) in Genadendal were screened by asking the following questions: Has anyone in the household been medically diagnosed with TB? Do you use medicinal plants? The aims and objectives of the study were explained, an information leaflet (See Appendix 2) was provided and informed consent (See Appendix 3) recorded if the person was willing to participate in the study. If a participant did not wish to sign a consent form, verbal consent was audio-recorded. Interviews were conducted in the preferred language of the participant (English or Afrikaans).

After the interviews were completed I returned to SAHSMI where the survey data was checked for quality, transcribed, coded and analyzed using SPSS V.22.0 (a statistical software programme). From this data, the number of medically diagnosed cases of Tuberculosis and suspected cases as well as the plants reportedly used to treat and/or manage the disease was established. Further in-depth semi-structured interviews with twelve key participants (*kruiekeners*) were subsequently done. These *kruiekeners* had been identified through the survey data and prior interviews as having extensive knowledge of medicinal plants. This group comprised seven (7) men and five (5) women who also assisted with plant collection in the *veld*. Informed consent was once again obtained, and participants were made cognisant of, as well as completed, an Access and Benefit Sharing Agreement (ABS: See Appendix 4) and Material Transfer Agreement (MTA: See Appendix 4) which stipulated that the plants collected were for research purposes and not for profit.

Plant specimens were collected during several field visits. Because I visited Genadendal during all seasons, the plants were observed in drought conditions and rainy season, when they were flowering, bearing seeds and/or fruit. Plants were collected three-fold, numbered and dry-pressed in the field. Together with plant pressings, I also noted vernacular plant names, plant locality, GPS coordinates, habitat, soil type, plant distribution when collected, plant parts used, preparation and modes of administration. Each collected specimen included leaves, stems, flowers and fruits. For small herbaceous plants, the whole plant was collected. The specimens were deposited at the Herbarium of the University of the Western Cape (UWC) together with collection/field notes and a comprehensive reference collection with representative specimens.

The plant names were updated using Kew's plant list <http://www.theplantlist.org/> (accessed and updated: 28.02.2016).

### **3.2. RTO study**

When the ethnobotanical survey and plant collection was complete, I had built up an inventory of plant species reportedly used to treat and/or manage Tuberculosis and its associated symptoms. The goal of the retrospective treatment outcome study was then to hone in on specific plants or combination of plants that reportedly has the best/desired “effects,” by way of measuring treatment outcomes such as improved symptoms or possibly a cure for Tuberculosis within a period of time. This was done in collaboration with biomedical doctors and local health care providers. The previous ethnobotanical survey data revealed that there is a relatively low incidence of Tuberculosis in Genadendal. However, many participants in the ethnobotanical study reported that they have or had in the past many of the symptoms of Tuberculosis which included chronic cough, cough with blood, fever, night sweats, wasting and chest pain, but they did not seek medical diagnosis. The retrospective treatment outcome survey (See Appendix 5) was therefore designed in collaboration with biomedical doctors to also assess suspected Tuberculosis based on reported symptoms and to measure those symptoms against activities of daily living (ADL) to later measure the severity of symptoms after treatment.

The interviews were conducted by me, two MA students and a medical doctor employed by SAHSMI. The same protocols for interviews were used as the ethnobotanical survey, except interviews were arranged with house visits and telephone calls rather than screening all households as before. The retrospective treatment outcome study involved three steps. The first was to calculate a representative sample of households based on the estimated prevalence of TB in the area and previous data derived from the ethnobotanical survey research. This was done by cluster sampling (Martin, 2007; Wilcox et al., 2011). In total, three hundred and forty-four (344) participants were interviewed. The second step was to interview participants in detail about the treatments they had taken, when they had taken it, what the effect of the allopathic medicine and plant remedy or a combination thereof was and whether there had been any side effects (toxicity). The recall period was kept short (two to six weeks) to enable me to measure the progression of symptoms, treatment(s) and health outcomes.

The retrospective treatment outcome study data was transcribed, coded and then analysed using IBM SPSS V.22.0. Standard descriptive measures were used to describe the study sample and responses to the questionnaire. Chi-square tests were used when making comparisons between two groups such as age and medicinal plant use. All percentage distributions were calculated based on non-missing values. No amendments were made for missing data or multiple comparisons. In the analysis, a small number of plant species were identified as suitable candidates for further clinical studies (i.e. there was a correlation between the plants used and improved health outcome), although further studies were not part of the objectives of my research or the MUTHI project. These plant species were selected by comparing (using correlation and association) the frequency of use across the sample population, the dosage, period of treatment, the number of cases reporting a clinical recovery or improved health status (symptoms) and their reported side-effects. The health outcomes were also compared with simultaneous uptake of prescribed allopathic medication to observe potential herb-drug interactions. The analysis was conducted by me with assistance and after training from a medical doctor with a background in biostatistics.

### **3.3. Fieldwork in Genadendal commences**

Following the completion of the MUTHI projects, I left Cape Town for Genadendal to pursue long term ethnographic field work. My fieldwork was carried out from June 2014 to January 2016 with two initial visits lasting five months each and shorter intermittent visits thereafter.

#### **3.3.1. Going to Genadendal**

The road from Cape Town to Genadendal is one hundred and thirty kilometres (130km) long and the journey there gave me time to reflect on the many questions I developed over time about *kruie*. I was also thinking about how I would go about finding knowledgeable *kruiekenners* in the area. In my research proposal, I originally outlined the following research questions and aims:

- How TB is conceptualised by lay people and how do these conceptualisations inform their treatment of the disease
- How people interface with healthcare institutions and allopathic medicine
- To explore other ways of knowing TB in relation to local aetiologies, scientific discourse and practices and the lived reality of TB by sufferers.

- To describe therapeutic landscapes in relation to scientific practices of care with reference to the Genadendal clinic and home-based care unit
- To ascertain how such documents and texts are enactments of reality, or ways by which certain things are made present. In the process, how are ontologies performed or enacted into being.
- To ascertain what kinds of medicinal plants people in Genadendal use for treatment, healing and health promotion? What are their ‘plant practices’ and how do they make sense of related illness aetiologies and the efficacy (or not) of such medicinal plants.

The above questions were still of import for the study, but as the research unfolded, the focus became less about Tuberculosis and more about the medicinal plants which brought me to Genadendal. The research focus consequently shifted from one of a disease entity and its therapeutic practices to multiple ontologies and affect (Mol, 2002; Latour, 2005). Accordingly, my thoughts in the car were about how I would negotiate this shift in my own subjective understanding and in the field with those of *kruiekeners*.

My wavering thoughts were, however, overshadowed by the changing landscape. As I was driving, I could not help but be captivated by the rolling hills and the plant presence. I travelled from busy high-ways, industrial parks, and bleak desiccated landscapes in Cape Town to farmlands with brightly coloured carpets of flowers, herds of livestock and ravines as I got closer to Genadendal. My attention was inadvertently attuned to different topographies and biomes. When I turned off the N2 high way into Genadendal, I felt welcomed by the spectacle of cattle, pigs, and chickens roaming freely and was again struck by the plant presence in gardens and the mountains surrounding Genadendal. The imagery of the drive as well as the rural feel of Genadendal’s lush environs coupled with freely roaming livestock reminded me of my own upbringing in Elim and may have for a moment put me at ease about some of the uncertainty I had earlier.

My first point of call was to get a lay of the land by mapping the space. The institutional hub of Genadendal is concentrated along Strydomlaan- the main and only tarred road into and through Genadendal (See **Fig 3**). The police station, clinic, library, Home-Based-Care Unit, spaza shops, the Victoria Centre for Old Age, and both formal and informal liquor shops, are all located along Strydomlaan. This road leads up to the historic mission square. The mission square is a hub of historical buildings including the Moravian church, church offices, museum,

church garden, graveyard, information centre, the Hester Dorethea Conference Centre and a few smaller buildings which house a consortium of trade exhibitions dating back to the time of Genadendal's inception as a mission station.



**Figure 3:** Graphical layout of Genadendal's mission square. Source: Genadendal Tourism bureau

I also went to all the above-mentioned institutions to once again introduce myself, state my intentions for research and gather as much information from informal conversations, public pamphlets, posters and my own initial observations. To allay my feelings of solitude, as is often the case in the early stages of extended field work, I developed research schedules and activities to remain attentive throughout the first weeks of fieldwork. I would, for example, during the day visit the Home-Based-Care Unit and library (which I later called “doing the rounds”) which was also an occasion to meet people and have conversations about medicinal plants. At night, in my small basic room at the Hester Dorethea Conference Centre, I felt alone and vulnerable. The centre is located within the mission square, the closest houses and people are about a kilometre away. Apart from when the centre had visitors (which was few and far between), I was there alone at night. I had no television, radio or access to internet. The bathrooms were a short walk away from the room. Genadendal, because of its location and older infrastructure, often had electricity interruptions for prolonged periods of time (sometimes as long as two weeks), which meant that I could not charge my cell phone or laptop. Added to this, repeated burglaries in my room and car left me anxious, especially at night. To combat my unease at night, I would habitually clean, cook dinner and then walk along the hiking trail behind the conference centre at dusk. I then returned to my room, locked my door, took stock of the day, made field-notes and prepared for the following day’s activities.

### **3.3.2. Recruiting *kruiekenners* and other participants**

Genadendal is a small village which has remained largely unchanged over time. Most people grew up in the area, have family and work in or around Genadendal. The village is close-knit. People’s comings and goings are observed, discussed, and news of my arrival spread quickly. Unlike the many visitors who stayed there for comparatively short periods of time, my prolonged stays had raised speculation in the village. My first encounters with people in Genadendal were met with either enthusiasm or scepticism. As a newcomer, it is normal to be greeted with a nod of the head, friendly waves or to be stopped as I walked through the village or at the spaza shop for chats. These often developed into invitations to socialize. Random people approached me during the day and introduced themselves. Some, under misapprehension, heard about a *kruiedoktor* in die *dorp* (bush doctor in the village), and expressed their interest in *kruie* with me. People brought with them twigs, leaves or dried plant material asking for me to identify it or “*wiet jy warvoor ek dit kan gebruik*” (do you know what I can use this [plant] for?). Others were not as forthcoming and were suspicious of my interest



in the plants they grow or collect and what they are used for. People speculated about my presence in the village; asked about my whereabouts, why I spoke to some and not others.

Despite having to negotiate my presence in the area and at times personal space, *Genaalers* in general were friendly, approachable and shared an interest in *kruie*. Participants were not difficult to find or talk to, especially if the conversation veered in the direction of *kruie*. In addition to the participants I met through my initial encounters, participants were selected through a non-probability “snowball” sampling method (Heckathorn, 1997; 2002; 2011). The snowball method is a non-probability referral type of sampling. The technique relies on first meeting a small sample of participants who then aid in recruiting future participants from their list of acquaintances (Ibid). Community leaders and other officials such as the curator of the Genadendal museum, Dr A, the museum’s conservationist, H, church pastors and clinic staff are key participants and gate keepers that were influential in introducing and referring me to people who were knowledgeable about *kruie*. One of the drawbacks of snowball sampling is that it is selective in the participants recruited that is, the researcher is likely to recruit people specifically acquainted with the key participant and thus not the rest of the sample community (Heckathorn, 2011). I therefore chose to widen my search and met a range of potential participants by regularly visiting, volunteering and partaking in the activities of the Home-Based-Care unit, clinic and Genadendal’s community garden allotments which are part of the local feeding scheme.

At the Home-Based-Care unit, I volunteered as an assistant to Home-Based-Care nurses. The unit comprises twelve (12) home-based-care nurses (HBCN) who work half days and two (2) full-time head nurses. Each HBCN is responsible for managing up to twenty patients in various parts of Genadendal which is periodically rotated. Two days a week, I walked with a different HBNC and visited five (5) patients a day. In the house visits, the HBCN measure and test patients’ blood pressure, blood glucose, check for infections, monitor and ensure that patients are taking prescribed medicine, remind them of doctors’ appointments or make them on patients’ behalf, and spend a few minutes enquiring about the patients’ health and well-being. By volunteering and accompanying HBCN’s on their daily rounds, I was able to meet a larger number of older participants. I then followed up with specific people who are knowledgeable about medicinal plants and was in turn also referred to other knowledgeable people.

At the Genadendal clinic, I was not able to participate and visit as freely. The clinic is small and moderately equipped. Biomedical doctors are only available at the clinic once a week or by special appointment. Patients requiring urgent medical attention are referred to the Caledon district hospital thirty (30) kilometres away. The three (3) nurses at the clinic work long shifts and are usually inundated with the number of patients. Consequently, I preferred to interview nurses after work hours and on weekends when they were able to participate. Less time was spent in the communal garden allotments because the gardeners only tend to the gardens once a week for a short time. Nonetheless, I volunteered at the gardens to get a sense of cultivation and harvesting practices and used it as an opportunity to engage with the eight elderly (8) men and three (3) women from the community who work there.

In total, more than fifty people were referred and subsequently interviewed concerning their aetiologies of Tuberculosis, but also about other common chronic conditions such as Hypertension and Diabetes Mellitus, as well as their plant use and practices. From this sample, twelve key participants were selected for further in-depth semi-structured interviews. This group comprised five (5) men and seven (7) women of which three (3) men are Rastafari bush doctors. These participants identified themselves as *kruiekenners* and are known in the community for their knowledge of *kruie* and for practicing healing. I chose to spend more time with these *kruiekenners* because of their extensive knowledge of *kruie* and because I wanted to gain a deeper understanding of their plant practices, including plant collection, preparation, administration and healing techniques. This key group of *kruiekenners* were all over the age of sixty (60).

The inclusion criterion for my study was simple. It included people above eighteen (18), active medicinal plant users and participants who had Tuberculosis. I did not intend to do research with mostly older participants. The elderly is often seen as the custodians and repositories of local knowledge of medicinal plants and healing (Davids, 2010; Wheat, 2014; Pasquallie, 2016). In the literature (Hsu and Harris, 2010; Wheat, 2014; Mathibela et al., 2015) and in my own fieldwork observations, the use of medicinal plants and knowledge of them are often perceived as disappearing because it is linked to elderly knowledgeable people. This is especially important and concerning because, unlike other countries in the global south with expansive and well documented traditions of medicinal plants use, this is not the case in South Africa. According to (Nortje, 2010) and (Philander, 2011), such knowledge tends to be passed down orally. In Genadendal, however, younger participants that I interviewed also learnt *kruie*

from their parents and grandparents. Younger people use *kruie*, albeit to a lesser extent than older participants. They formed their own practices of collecting, growing, preparing and consuming *kruie*. Knowledge of *kruie* is therefore constantly adapted, transformed and assimilating into existing understandings and current needs in relation to its use for curative and preventive purposes (Hsu, 2012).

### 3.3.3. Becoming a *Genaaler*: reflexivity and doing anthropology at home

I observed early in my fieldwork that *Genaalers* value their relationships with friends, family, neighbours and others in the village and are involved in reciprocal relations of care and concern. This is evident in the frequent greetings, chats, and regular social gatherings. These include braais, drinking beer together after work and on weekends as well as regularly inquiring about the well-being of others. The foundations of “good” relations with fellow villagers are vested in values, manners and respect- referred to as *ordentlikheid* (decency). *Ordentlikheid* also involves accepted forms of addressing older people. Younger people are expected to greet elders with “hallo auntie or oom” (hello aunty or uncle) or “hello aunty A” for example. *Genaalers* are also attentive to the way they present and portray themselves, their children, houses and gardens. Aunty A, for example stressed that

...it is important to dress neatly, that your clothes are ironed, that your children can greet others with respect and not be caught smoking or drinking...Your house and garden must also be neat...it says to people that you care and that your household is in order...

The behaviour above is part of being *ordentlik* (decent or respectful) in the eyes of friends, family, neighbours and especially *kerkmense* (church people). In small “coloured” communities with close social ties, several studies in South Africa have reported similar social and moral attitudes towards one another in the community (Du Toit, 1993; Spiegel and Watson, 1996; Davids, 2010; Ross, 2010; Makiwane, 2011). In her long-term fieldwork on the Cape Flats, for example, Ross (2010) argued that decency and reciprocity are part of people’s efforts to make sense of material and social conditions. Despite abject poverty, poor housing and dire social circumstances, people draw on convivial care and concern for one another to solve problems and maintain social relationships. I also observed this in Genadendal. *Ordentlikeheid* is also about commensurability. Villagers feel at liberty to ask for and exchange, lend or borrow household items, money, food and to request plants, cuttings or seeds from gardens. Older

people can discipline a child caught smoking in the street. Quarrels between friends, family, neighbours, a dirty house or untidy garden are seen indications of a lack of *ordentlikheid*.

Consequently, in the research, I had to be aware of the above and of the way in which I engaged with participants. This required me to adjust to the everyday sociality and subtle social cues of village life. Out of respect, I greeted and referred to older participants as Aunty or Uncle. I was cautious about the way I dressed and made sure that my room and car was always clean. If participants unexpectedly came to visit or asked for a ride somewhere, they could see and note its cleanliness: which is a reflection of me. I had to adhere to unspoken rules of generosity and reciprocity, for instance, when I visited an older *kruiekenner*, I always brought bread for the household or cool drinks when we planned to go to the *veld* for the day. Some *Genaalers* asked for money, rides and food which, being on a strict budget, I could not always provide and had to decline without weakening relationships. I also had to brush up my Afrikaans and get accustomed to local vernacular uses and expressions.

At times, I became acutely aware of my status as a researcher. I am a student with prior experience working with traditional health practitioners, *kruiekenners* and medicinal plants. I also had some background training in biomedical research. At the home-based-care unit and clinic, for example, nurses and staff were confused by my training. Aunty W, a nurse, confronted me,

...what is it that you do? You seem to know more about TB than us, but you do not treat it? ...And you go up the mountains to play with the baboons? Looking for plants? For what?

For some of the nurses and health care staff, my training and studies became a source of pride. The head nurse, Aunty K, searched for one of my articles online, printed and framed it, and then displayed it amongst other certificates at the home-based-care unit. In participants' gardens, I was asked about medicinal plants they found in the *veld*, the medicinal properties of plants, dosages or about plants not known to them that could be used to treat their symptoms. Some participants did not care about my academic work but were delighted by my interest in local knowledge about medicinal plants.

I am also a student researcher, male and, according to South African racial classification, coloured. I dressed rather formally and owned a car. Initially, *Genaalers* called me *meester* (master or sir), a title which H, the mission's conservationist, wittily said, "...it's because we

call all rich white farmers that...It's a sign of respect." My position in Genadendal was also influenced by the fact that I had an uncle from Elim who now lives in Genadendal. Uncle Sonny is a retired school principal, an elder in the Moravian church and the director of the Hester Dorethea Conference centre where I stayed.

In a way, I had to continuously negotiate my position as an emic researcher and local in the different spaces and with different people. At times, when the situation called for it, I assumed the role of an interviewer, listener, observer, student, and other times, I acted as an assistant to Home-Based-Care staff or in the communal garden allotments. I tried to come to an intersubjective understanding (Schwandt, 2006) through the process of generating knowledge with *kruiekenners*, health care staff and other *Genaalers*. I constantly tried to be self-reflexive and to remain conscious of my own subjectivity, my own assumptions and biases and had to try carefully to gain an understanding which was in a sense continually negotiated between the *kruiekenners*, health care staff, *Genaalers* and myself. My own background, biases and subjectivity is always part of the research process and is not easily disentangled from my encounters with participants, but I had to engage in a continuous process of adapting, interpreting and to be self-reflexive in trying to make sense with others.

Like all anthropologists, positionality is often an issue encountered in the field, particularly when the anthropologist is a native (Becker et al., 2005; Ganga and Scott, 2006; Bourke, 2014). I grew up in Elim, a mission station in the Western Cape which has a similar history to Genadendal. As is the case for most *Genaalers*, I am a Moravian-Christian, speak Afrikaans, am of Khoi-German descent and share in much the same cultural traditions and practices. Although I am not from Genadendal, I have a strong connection to the area and could easily relate to the people there. Adams et al., (2015) stress that autoethnography is an important method which uses a researcher's personal experience to describe and make sense of the messiness of social life. Autoethnography acknowledges and is accepting of uncertainty and emotion. It shows life in the making; paying close attention to the meanings, struggles and experiences of participants (Ibid.). By contrast, one of the main complexities for anthropologists doing research at home is that it becomes challenging as a researcher to detach from their own relatability, subjective understandings, and background (Strathern 1987; Jackson, 1987; Becker, 2007; Akuupa, 2015). Everyday normalcies and interactions are taken for granted and become harder for an insider to observe and describe as opposed to an outsider who views new research settings through a different lens (Mead, 2000; Douglas, 2002). As a



result of the insider status, the researcher may find it difficult to critique the beliefs, practices and experiences of people from their own/similar setting. It is also expected that the native researcher be familiar with the local norms and values and it may be frowned upon if they are taken for granted.

In the early stages of my fieldwork, and as part of normal conversation, *Genaalers* asked about my background and where I came from. When I told *Genaalers* that I grew up in Elim, it affected their perception of me. Aunty W, a nurse, for example, said to me,

...why did you not tell us you are from Elim? I have been to Elim. I have family there...We did not know you are one of us... You speak English...you know we don't speak English here. You must talk Afrikaans to us...

As someone who may have at first been seen as an outsider, my association with Elim, the fact (I realised only later) that I was, albeit remotely, related to one of the elders in the Moravian Church, Uncle Sonny, my prolonged stay in Genadendal, attendance of local events, Church services, community meetings, socializing with locals and being seen with Home-Based-Care staff in the area made me acceptable to the local people. At the library, for example, I was one day standing in line to borrow books when a group of young men discussed their plans to attend a local dance. Leigh-Ashman, the librarian, told them "We must invite D (locals were now calling by my first name and not *meester* anymore). He is already an old *Genaaler*, He has to be there."

My background and upbringing in Elim gave me an advantage in the field because I spoke the language and was familiar with local customs. I was able to build rapport and gain the trust of my participants. Living in Genadendal for extended periods of time sometimes made me feel as if I was back in Elim. I became immersed in the routine activities of everyday life and found it easy to relate to people in Genadendal. I had to be very attentive and self-reflexive so that I did not take anything for granted. In addition, I returned to Cape Town from-time to time for short periods and was able to reconsider my position in the field as well as to be self-reflexive about my own biases, assumptions and subjectivity. Each time I returned to Genadendal from Cape Town, I compared it to the fast paced, urban and congested lifestyle in Cape Town, and became attentive to things I may have previously overlooked.



### 3.3.4. Materials, methods, and data analyses

Geissler and Prince (2009: 602-603) advocate that:

Ethnography can attend to temporary engagements, creative relations, and their underlying imaginaries of emergence in a different way from scientific representations that attempt to fix entities and patterns. This is not because ethnography provides another, better perspective on things, but because it creates its own imaginary of emergence. Deriving from encounters with unpredictable outcomes - not from 'data collection' - it opens ways rather than surveying a territory, produces stories and itineraries rather than maps and figures. Therefore, ethnography can measure up to ways of knowing other than science, including the unacknowledged effects of scientific knowing.

For my qualitative fieldwork in Genadendal, ethnography was an important methodological tool to probe the day-to-day events, interactions and activities of *Genaalers* and to gain a thick description (Geertz, 1973) of how they construct meaning around, for example, illness, medicinal plants and interfaces with biomedicine. The ethnographic method has long been critiqued for the way in which anthropologists represent their participants (Clifford and Marcus, 1986) and for its one-dimensional data collection technique; participant observation (Hammersley, 2005; 2006; See also Rashid et al., 2015). As I mentioned in the introduction to this chapter, I used multiple methods, including participant observation, in my research because it allows for an understanding of different viewpoints, layered perspectives and sensitivity to cultural contexts (Greene 2007; Bryman 2006). I also used multiple methods because there was no singular method which could capture data from all perspectives, which could work with all participants and/or which could offer a suitable explanation to the many questions my study posed. The following materials and methods were important in my research.

Participant observation was used extensively. Despite its critiques, participant observation allows for a level of authenticity which a researcher is not easily able to capture (Kawulich, 2005). The method should, however, not be taken for granted because it is not impartial to performance (Ibid.). As a researcher, my task was to remain flexible, sensitive and patient. The scale of participant's willingness to engage with me was dependent on the situation, the space and the participant's temperament. In the research, I asked questions about Tuberculosis, illness

and treatment. Some of my participants are older, frail and some had disabilities. This required me to be sensitive to their state of health and their ability to interact meaningfully with me.

Despite my participants' willingness and enthusiasm to engage with me, I had to use my own discretion when, for example, during a house visit with a Home-Based-Care nurse, a participant had a measured high blood pressure and was visibly ill but wanted to speak with me. I also had to, at times, limit the extent to which I could or felt comfortable to participate in certain activities. When I accompanied Home-Based-Care nurses to do house visits, for instance, a few of their patients required to be washed and I was not comfortable to assist or be in the same room. Participant observation allowed me to follow and observe participants in the *veld*, in their gardens and with Home-Based Care nurses to patient's homes. I was able to understand the lived reality of, for example, Tuberculosis and other chronic conditions as sufferers experience them first-hand. Participant observation also allowed me to engage with participants in a setting, such as their lounge's, gardens or in the *veld*, where they felt comfortable and conversations flowed naturally.

As is often the case with participant observation, information or themes are overlooked, but can be revisited and captured in interviews (Bernard, 2011; Skinner, 2012; Hammersley, 2014). In the research, a combination of in-depth semi-structured as well as informal interviews was used. This was because the in-depth semi-structured interviews allowed me to ask specific questions about, for instance, plant use, but it also left the interview schedule open-ended to accommodate more descriptive responses from participants. The topic schedule for the interviews included probing questions to enhance consistency and accuracy in participants' responses and to compare responses. The interviews took place at the participants' homes or a suitable environment where they felt comfortable, such as the conference room at the Hester Dorothea Conference Centre. Although the semi-structured interviews were a useful tool, I found that the formal one-on-one nature of interviews and the presence of a notebook and tape recorder, influenced participants' responses and level of comfort. Therefore, I also saw chance and casual meetings with participants as important occasions for data collection. Participants felt more comfortable to speak freely with me. I would then make field notes as soon as the informal conversation ended.

Tim Ingold (2011: 161) argues that walking and narratives are central to retracing the path through lived experience. In Genadendal, most *Genaalers* do not have easy access to cars. A lot of time is spent walking and talking. The "walking ethnography" (Ingold, 2011; 2012; Pink,

2009; Davids 2010; Parker, 2016) is another method I used. Walking is perhaps one of the least privileged forms of human activity, but it opens possibilities for in-depth informal conversations and sensory perception which may not be easily achieved in formal interviews (Pink, 2009). A considerable amount of time was spent walking with participants in the *veld* to collect plants or accompanying Home-Based-Care nurses to their patients. As we walked, we noted plants, animals, discussed village news and shared stories. Walking therefore served as a visual representation of the landscape and a stimulus for conversation.

Similarly, narratives were important for tapping into the lives of individuals through their own stories. After several burglaries at the Hester Dorethea Conference centre where I stayed, the management there decided to employ Uncle A, an elderly *kruiekenner*, as a nightshift security guard. At night, I would take Uncle A coffee, food and spent time patrolling the grounds with him. In this time, he reflected and told me stories about his childhood growing up in Genadendal, how he learnt about *kruie*, and how the village has changed over time. Uncle A's stories were recalled in significant detail which served as visual representations for me, but they were also embedded with meaning for both of us. Although, the narratives were informal, and many times sparked by chance events or objects, they often required a collaborative dialogical relationship which required me to be sensitive and impartial towards the information shared. As a method to cultivate understanding (Ingold, 2011; Cohen, 2013), narratives were equally important as a tool for data collection.

Initially, I also planned to conduct focus group discussions (FGD). My attempts to bring participants together were unsuccessful. This was because many of the *kruiekenners* were not willing to openly discuss their plant practices with other *kruiekenners*. Tuberculosis sufferers were also not willing to partake in a focus group discussion for fear of disclosing their status amongst fellow villagers and facing possible stigma. I attended two community conferences held in Genadendal which was advertised in the local newspaper and on posters. The conferences were about traditional knowledge around local farming practices and the conservation of honey bush tea in Genadendal. The attendees included some of my participants and local farmers. Since they were all together, I saw it as an opportunity to invite them for a focus group discussion. Two focus group discussions were subsequently held at the Hester Dorethea conference centre. The first included a group of eight women and four men. The second comprised twelve women and six men. All were between sixty and seventy years old. In both discussions, I used the same topic schedule to enhance consistency in participants'

conversations. Probing questions were used to explore underlying thoughts and assumptions. Exit questions<sup>15</sup> were used to ascertain if anything had been overlooked in the discussion. During the discussions, I listened attentively and was cautious about giving sensitive and impartial responses to participant's input.

In addition to the above methods, all the interviews were tape recorded and extensive field notes and photographs were taken with the consent of participants. I also kept a field journal to capture my own experiences. The data was transcribed and checked for quality in the field. If there was information I was unsure about, I returned to the participant where possible to clarify. The in-depth, semi-structured interviews and focus group discussions were analysed using a thematic content analysis method (Green and Thorogood, 2009; Heckathorn, 2011). After the interviews, the data underwent numerous stages of analysis, initially transcribing the material and then checking for coherence. The materials from different respondents were compared with each other to identify patterns and themes that were recurrent or common. Segments of data were then coded. The emerging themes were linked to sections of data with associated codes such as, for example, plant practices, modes of administration and path of knowledge. Themes were determined by the number of sections of research material that were encapsulated by related codes (Creswell, 2007; 2014). When no new information arose from the material and when no new codes or themes emerged, saturation had been achieved. Thereafter, the transcriptions were presented to a random sample of participants in a respondent-feedback session for cross-referencing, editing where necessary and to substantiate that the results were not anecdotal. The information generated from interviews was triangulated with observations, narratives, informal conversations, focus group discussions and current literature.

### **3.3.5. Doing an ethnography about plants**

Anthropological studies of and methodological approaches to studying plants have mostly focused on human-centric approaches, considering plants as objects, botanical entities or material things (Gibson and Killian, 2013; 2018; Ryan, 2012; Myers, 2012; 2015, 2017). Recently, anthropologists, thanks to contributions such as Kohn (2013), Pollan (2001), Myers (2012; 2015; 2017), Marder (2013) and others have begun to explore plants and plant research beyond the human, and attempt to study plants on their own terms; considering them, for

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<sup>15</sup> Exit or summary questions are used to confirm that no information was overlooked. These questions also served to conclude the FGD because there were no additional sessions with the same group of participants. Participants were, for example, asked whether the oral summary of the FGD was representative of the discussion and whether they had anything more to add.

example, in terms of relational ontologies (De Castro, 1998; Descola, 2013), beyond-the-human (Haraway, 2008; 2016), more-than-human (Kohn, 2013; Tsing, 2013; Pitt, 2014) and as “agents” or “actants” (Tsing, 2013; Ryan, 2012).

An important, if not dominant theme, which problematizes earlier efforts to do what Myers (2015) calls a “planthropology” has been the issue of language and how anthropologists should approach plant research; describe the materiality, sociality and agency of plants and plant encounters beyond classifications such as signs and symbols, and without reducing them to objects of research (Kohn, 2013; Gibson, 2016; 2017; Cohen, 2015). Myers (2016) argues that researchers should become more intimate with plants to develop attentiveness to their liveliness. In this regard, three methodological approaches were instrumental in helping me study plants in Genadendal.

The first is the ethnobotanical survey. As part of the process of collecting plants and preparing them as voucher specimens, I had to observe and document the plants’ growth, height, width, smell, texture, colour, fruit and flowers, as well as the environment in which they grow which included studying the surrounding biome, soil conditions and proximity to water. I documented the GPS coordinates of plants, noted their minute movements and responses to seasonal changes such as drought and flooding in winter. I took extensive photographs of them and noted insects which live on them. I did not have a plant press<sup>16</sup> in Genadendal. I inventively used newspaper and cardboard boxes to flatten and dry press the plants by placing them in between the mattress and base of my bed, using my own body weight as pressure. Once a week, I changed the newspaper as part of the gradual drying process and could not help but notice the lively materiality of plants. Insects were crawling around on some of the flattened plants. They moved with the plant from the *veld*. Some of the plants continued to grow, even flower, despite being deprived of water and sunlight. The plants, even after weeks of dry pressing, still exuded a strong herbaceous smell. The colours and shapes of flowers were still vibrant. Doing an ethnobotanical survey made me attentive to plants in ways which I had not done or experienced before. I had to touch, smell, observe and engage with plants in their own bionetworks which made me attentive to their form and materiality. In this way I was reminded of their liveliness; and in the process I was inadvertently honing my own perceptual skills (Whatmore, 2006; Tsing, 2013; Ingold, 2000; 2011; 2013; Gibson, 2018).

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<sup>16</sup> Please see page 100 for definition of plant press



Second was working with plant specialists. Pitt (2015) argues that to learn from plants, it is necessary to first develop a susceptibility and attentiveness to them. The plant presence then becomes noticeable in ways that were not before. To do so, Pitt (2015: 47-49) suggests that it is imperative to work closely with plant specialists. In the early stages of fieldwork, I met two students working on honey bush tea in Genadendal. Nicola, a botanist and Zeta, an entomologist, were doing research on the insect activity of honey bush tea. They wanted to establish how the plant acts as a host for useful insects (those which help protect the plant from harmful insects and possibly assist with pollination) and harmful insects which destroy plant and plant networks. Ultimately, their research was aimed at sustaining and protecting the growth of the honey bush species as part of larger plans to commercially farm and export it.

For two weeks, I was fortunate to spend time in the *veld* with Nicola and Zeta collecting plant specimens and insects on local honey bush plantations. In the process, Nicola and I conversed about how honey bush protected itself from harmful insects and/or lured mutually beneficial insects. She explained,

...I think there are molecules in the host plant and insect that interact...The plant produces chemicals which can be beneficial for some insects. It wants certain insects around to protect it... like those that pollinate it...I think that in some cases the plant can also produce more than usual amounts of leaf tannins to ward off unwanted pests.

Observing the honey bush closely, Nicola pointed out insects on the leaves, stems and in the surrounding soil, narrating each species as we moved from one bush to the next, “you see these are the pollinators, predators and these are the parasites.” By contrast, Zeta was interested in surveying the insects including what she pointed out to be the co-existence of harmful and beneficial insects. We collected plants and all the insects on and surrounding those plants with insect nets. Zeta then sketched all the insects by placing a needle through them and placed them on a cardboard sketch pad as they appeared on the plants. She was therefore able to make a visual representation of the diversity of species and the different layers of the plant they occupied. Following, helping and learning from Zeta and Nicola made me attentive to an entirely new assemblage in relation to plants. In the past, I conducted ethnobotanical surveys and my focus was mostly on singular plants, its collection and medicinal uses. I did not take into consideration their vibrant social lives. In the *veld* with Nicola and Zeta, I had to observe plants, leaves, stems, flowers, soil, and their relationships and interactions with other organisms such as insects. By showing me, observing with, walking amongst, interviewing,



photographing and collecting plants and insects, I focused on and became attentive to the sociality of plants (Hitchings, 2003; Tsing, 2013).

Thirdly, in trying to find new ways to study plants, I drew on the work of *kruiekeners* as plant experts. In this regard, I paid special attention to *kruiekeners*' plant practices and understandings of plants. By following *kruiekeners* as they search for and collect plants in the *veld*, mountains, community garden allotments and personal gardens, and then prepare and administer them, I was able to better understand plant histories, mobility, relationality and plant knowledge as plants interact with *kruiekeners*, the soil, animals, and their surroundings. I used a variety of methods such as participant observation, narratives, interviews and walking ethnography to explore *kruiekeners*' relationships with plants. I also had to employ visual and sensory methods, for example, seeing, listening, touching and smelling to learn with plants as *kruiekeners* do.

In the *veld*, *kruiekeners* showed me where to find medicinal plants, made me attentive to their shape, leaves, areas in which they grow, their smell and texture, their local names, what they are used for and how to prepare them as medicine. They tried to teach me about local *kruie*. I had to touch, smell and taste them and, afterwards, to find and identify them again. In this way, *kruiekeners* made me attentive to plants, the *spoor* (tracks) of animals found in pathways, the movement of birds, insects, rodents and bigger animals and the conditions in which plants grow in the *veld*. *Kruiekeners* were trying to hone my sensory perception and skills in relation to plants (Ingold, 2011). Although the research may have started from the viewpoint of humans, by following and working closely with plant experts, I was able to observe, learn about and encounter plants in new ways and which intimated experiences such as affect, sensory perception, agency and vitality. In this regard, Plumwood's (2002: 56) approach, which calls for a mode of understanding plants and requires "sensitive listening and attentive observation and an open stance that has not already closed itself off by stereotyping the other that is studied in reductionist terms as mindless and voiceless," was especially useful for me.

### **3.3.6. Ethical implications of the study**

The questions, methods and proximity of anthropological research often give rise to close and lengthy relations between the researcher and participants. The enduring challenge for anthropologists in doing ethnographic fieldwork lies in their proximity and positionality which at times can be disconcerting, disordered and personally perplexing (Posel and Ross, 2015).

Contemporary ethical guidelines for research (Beckman, 2017; Anthropology Southern Africa, 2005) are frequently directed at the researcher's role and responsibility towards their participants. Less attention is given to the ethical implications of fieldwork and potential dangers thereof for the researcher. As an anthropologist, one of my obligations was to not treat participants as subjects (people and plants) of research, but to involve them as co-producers of knowledge while ensuring that my research was carried out with the highest standards of respect, integrity and accountability for my participants and for my own scholarly endeavours and safety.

My research dealt with issues around the healing knowledge, plant use and practices, diseases, disease aetiologies and treatments of Home-Based-Care nurses, biomedical nurses, *Genaalers* and *kruiekeners*. In some instances, personal and confidential information, and traditional knowledge was given to me such as physical conditions, intimate knowledge and synopsis of healing practices which I endeavoured to handle with the utmost level of sincerity, respect and confidentiality. This is especially important when I was dealing with issues of intellectual property (IP) and medicinal plants. The plants I received from *kruiekeners* as samples form part of their own knowledge and livelihood as it is stressed in the South African IKS policy 2004. I therefore refrained from publishing all the local names of plants used by *kruiekeners* or associating the use of specific plants with individual *kruiekeners* and plants which had not appeared in literature yet. In this thesis I only refer to plants collected which are already published in the literature.

To protect *kruiekeners* and myself in this regard I sought informed consent from them. They were made fully aware of the study's aims and implications. A memorandum of understanding (MOU) as well as a material transfer agreement (MTA) was drawn up with each *kruiekenner* with whom I worked. I received verbal and written informed consent from *kruiekeners*. Participants were also made aware of their right to withhold any information which they felt were too intrusive or intellectually taxing and furthermore that they could withdraw from the research at any time. To avoid confusion and misunderstanding, participants were informed of this both in writing and verbally in their preferred language (English or Afrikaans).

I conversed with the *kruiekeners* and other participants about anonymity which met with mixed responses. Some of my participants wanted me to reveal their names and other personal information about them because this would inform people outside, especially universities and people in positions of power that there are people in Genadendal trying to make a difference in

their communities and who were willing to participate in this study. They also felt that if people heard of them there may be some kind of intervention for their communities, particularly in instances of Tuberculosis, poverty, educational programmes, food schemes and help with their children's further education. Conversely others, including those diagnosed with Tuberculosis and *kruiekeners*, felt that our conversations were private and should not be shared. In the end, the majority decided that it would be best to remain anonymous and that pseudonyms such as Aunty K or Uncle A, should be used.

During my fieldwork I spent intensive time with some key participants. This meant that I spent less time with others. This was not entirely intentional, but I decided to work more with those whom I felt to be particularly knowledgeable and helpful. This raised concerns, and at times caused animosity among participants who sometimes competed for my attention. Aunty K, a *kruiekenner* for example said "I know more about plants than aunty R. I grew up here. She came from Cape Town, but you want to talk to her so..." Some participants were vexed and felt that I was favouring a select few. Social visits such as invitations for supper and braaing at a participant's house may have contributed to such feelings. In this regard, I tried to explain that the research process is a complex one and that the key participants I chose to work with (mostly *kruiekeners* and knowledgeable older people) had been particularly helpful for me. I nevertheless tried also to evenly distribute my time with participants.

In the case of my own experiences, I was sometimes confronted with ethical quandaries which required ethical decision making in the field and were not always prescribed in ethical guidelines and codes. In the research, for example, I was robbed at knife point, my car and room were broken into on several occasions and personal items were stolen. On weekends, when some *Genaalers* drink heavily, I was often asked for money, alcohol and rides to faraway places by intoxicated individuals, and at times threatened if I refused. A few locals came to my room and informed me that gang members were planning to rob me, break into my car and possibly steal it; and asked me for "protection money" to ensure that it did not happen. On yet another occasion, towards the end of my stay in Genadendal, I witnessed the theft of a microwave, stove and fridge from the Hester Dorethea Conference centre where I lived and reported it to the local police. I later received a note under my room door from who I suspect to be the thieves saying, "watch your back!"

Because of the above experiences I became attentive to my own safety and awareness of certain individuals and spaces which are known to be dangerous. I tried to handle each situation on its

own merits depending on the severity of the threat and my own level of comfort. In some instances, when I felt unsafe, I went to Cape Town for a few days. When threatened I once said that I was going to the local police. Although ethical guidelines and codes do not attend to personal safety, this is an area that could be enhanced in the future (Milicevic, 2010; Wynn, 2011).

### **3.3.7. Ethics statement**

Ethical approval for this study was obtained from the Senate Ethics Committee, University of the Western Cape (Project ethics number: 13/7/1). Informed consent was obtained from each participant. Participants were informed of the aims and objectives of this research and interviewed in their preferred language (Afrikaans or English) in a setting that was comfortable for them and in a way which was non-threatening. Participants were informed that they were free to withdraw from the study at any time and that any prior information they gave would be destroyed. All participants were offered anonymity and assured about the confidentiality of their information. Once the fieldwork was completed, the collected data was stored in a locked safe at the University of the Western Cape. The data will be stored for a period of five years and then destroyed. The collected data was presented to a random sample of key participants on two occasions in Genadendal to verify that the responses and my conclusions were not anecdotal. As part of community feedback, I also conducted two workshops with the Home-Based-Care unit. The workshops provided an overview of participants' aetiologies of Tuberculosis and highlighted some of the most commonly used medicinal plants which are sometimes taken in conjunction with prescribed allopathic medication. This pointed to the potential for herb-drug interaction, an issue raised during the workshop discussions. Photographs displayed in this thesis are done so with the permission of participants. In the research, no interviews were conducted with participants under the age of 18 and with mentally impaired people. The Study strictly adhered to the Ethical Guidelines of the University of the Western Cape's policy on research ethics (2014), Anthropology Southern Africa's research ethics guidelines (2005), as well as to International Ethical Guidelines for Social Science Research in Health (NCESSRH, 2004; CIOMS, 2016).

In relation to medicinal plants, a plant collection permit was applied for and granted by Cape Nature (Permit number: 0028-AAA008-00221) for the collection and transportation of medicinal plants from Genadendal to UWC. A material transfer agreement (MTA) was signed by participants who collected plants with me in the veld and gave me specimens from their

gardens. The material transfer agreement specified that the collected material was for research, teaching and publication purposes and not for profit. A benefit sharing agreement (BSA: see Appendix 4) was drawn up with participants and stipulated that the plant material is the property of the participant and made available as a service to the research community at UWC. It will be used for teaching or not-for-profit research purposes only. The material will only be made available to other researchers with the approval of the provider. The plant material was provided at no cost, or with an optional fee solely to reimburse the participant their time or for preparing a plant mixture. The plant specimens are stored at the herbarium of the University of the Western Cape botanical voucher specimens. Plant based medicines and remedies described in this thesis are not endorsed by the author, the University of the Western Cape or the National Research Foundation (NRF) and are understood to be experimental in nature and may have hazardous properties.

## Conclusions

In this chapter, I highlighted various analytical, as well as practical-methodological approaches for doing research across disciplines and research spaces. By using a mixed-methods research approach, I was able to explore, interpret, understand, and participate in research contexts in a way which would have not been conceivable if I relied solely on classical ethnographic inquiry or on quantitative methods. The approach allowed me to apply the strengths of, for example, quantitative research techniques to offset the limitations of qualitative ones and vice versa. Although the mixed-methods approach was useful for me, it was also limited by my own ideas, beliefs, and behaviour, which required me to constantly reflect on my background, positionality and role as a researcher. Doing fieldwork is becoming more demanding and complex as participants, whether they be plants, scientists or *kruiekenners*, are more informed and involved as the co-producers of knowledge in research. In my research, I became acutely aware of and attentive to the above and had to constantly negotiate and renegotiate my time with and presence in each research context despite having built the necessary rapport. I also tried always to do the research as professionally, accurately, and as truthfully representative of my participants as possible.



## Chapter 4:

### Doing an ethnobotanical survey: Medicinal plants used to manage Tuberculosis and associated symptoms

#### Introduction

Medical anthropology has seemed hitherto to lack in full engagement with phytomedical reality, and the acceptance that the health care practices of most people on this planet depend on plants and animals (Ellen, 2006: 10)

In South Africa, with the exception of Michelle Cocks and other more recent literature on medicinal plants (See for examples: Gibson, 2011: 2018; Gibson and Killian, 2013; Cohen, 2015, Nathen, 2016; Shirungu, 2017; Ellis, 2018: 2021), most anthropologists have not fully engaged with plants in their research. As I already mentioned in chapter one and two, in South Africa anthropologists have studied medicinal plants in relation to traditional healing (Thornton, 2009; 2010; 2015), conceptualizations of plants as traditional medicine (Cocks and Dold, 2000: 2002; Nzue, 2009; Gibson, 2009) and explored the significance of plants in ritual ceremonies (Hutchings, 2007; Sobiecki, 2014). However, specific studies on plants in anthropology is historically limited (Hsu and Harris, 2012; Shirungu, 2017). Where such historic studies do exist, they often lack botanical analysis and tend to focus on the ethnographic or socio-cultural context of plant use and knowledge (Ellen, 2006; Hsu and Harris, 2010; Fuller, 2013; Ellis, 2018). In more recent times, anthropologists have begun to engage with plants in their research under the framework of more-than-human or other-than-human studies (Kirksey and Helmreich, 2010; Ryan, 2012; Tsing, 2017; Myers, 2015; 2017a&b), however, much of the past studies on plants are found in ethnobotany, conservation studies, ecology, and other related fields (Samuel et al., 2018).

Since I had to do an ethnobotanical study as a part of my research, I will attend to this domain of expertise extensively in this chapter. Ethnobotany is the study of the relationship between people and plants (Martin, 2007). It is a multi-disciplinary approach which attempts to bridge the gap, or at least establish a dialectical relationship, between medical anthropology and botany (Martin, 2007; Qauve and Pieroni, 2015). Ethnobotanical surveys have served as a valuable source of knowledge about medicinal plants used for specific illness conditions: including local knowledge about plants; their collection, preparation, administration and dosages. Because a great deal of studies focuses on local uses, knowledge's and practices,



ethnobotany also attends to issues such as conservation of indigenous species (Martin, 2007; Hsu and Harris, 2012). The documentation of traditional knowledge and plant species found in ethnobotanical surveys has contributed to the development of several medicines such as *Artemisia annua* as an antimalarial medicine (Cui and Su, 2009) and *Sceletium tortuosum* as an antidepressant (Van Wyk, 2011), and served as potential leads for further research on others (Verpoorte, 2000; Cox, 2000; Gilani et al., 2005a-e; Cheickyouseff et al., 2011).

South African traditional medicine, unlike other countries from the global South, such as Ayurveda in India (Jaiswal and Williams, 2016), propriety medicine in China (Chen et al., 2016) and traditional herbal medicine in Mali (Diallo et al., 2006; Nordeng et al., 2013) to name a few, does not have a formally documented history, compendium or *materia medica* of traditional (plant) knowledge, use and practices. Up till now, much of South Africa's traditional plant knowledge had been orally and practically passed down from older to younger generations or between knowledgeable plant practitioners like herbalists and *bossiedokters* (van Wyk and Oudtshoorn, 1997). Several studies contend that local knowledge about medicinal plants is under threat of being 'lost' as older, knowledgeable people die (Philander, 2011; Nortje, 2012; Wheat, 2014; Ellis, 2018). In recent times, the introduction of online plant data bases such as the South African National Biodiversity Institute's (SANBI) database, the SANBI red list program for threatened species and a growing body of local ethnobotanical studies have contributed to the documentation and preservation of historical plant knowledge. Anthropologists have also begun to investigate how plant knowledge is generated, acquired and passed on over time (See for example: Davids, 2010: 2012; Ellis, 2018, Nathan, 2018, Parker, 2018).

The objectives of this chapter are twofold: First, I did an ethnobotanical study to identify and document medicinal plants used to manage and/or treat Tuberculosis (TB) and its associated symptoms in Genadendal. To my knowledge, there have been no formal ethnobotanical studies done on Genadendal or in surrounding areas. The chapter thus serves to lessen the gaps in knowledge about medicinal plants used in the area. By doing an ethnobotanical survey, I also want to respond to critiques that anthropologists have not in the past sufficiently engaged with medicinal plants in their research (Ellen, 2006; Hsu and Harris, 2012), and add to the growing body of work on medicinal plants at the interface of medical anthropology, botany and plants in and of themselves (Cohen, 2015; Myers, 2015; Shirungu, 2017; Gibson, 2018). My focus of the ethnobotanical survey is specifically on plants reportedly used by people and on plant

practices, that is, the collection, preparation, application and local understandings of medicinal plants used. I will discuss the diagnoses and aetiologies of TB in chapter six.

The second objective is to show that ethnobotanical studies are not just about “list-making,” plant categorizations, identification or preservation of plant specimens for future reference (Ellis, 2018). It also addresses theoretical questions in applied research, such as the relationship between people and plants; how local plant users’ healing and plant practices are adapted to their environs; and investigates ideas and plant practices which emerge at the interface of people and plants and are brought together through the assembly of ethnobotanical data collection (Martin, 2007; Daly et al., 2016; Ellis, 2018; Gibson, 2018). The ethnobotanical survey is done as a series of steps at a specific moment in time, during certain seasons, and involving different actors and knowledges at each stage, for example, *kruiekenners* during plant collection in the *veld* or scientists at the South African Herbal Science and Medicines Institute (SAHSMI) and herbarium (Latour, 1999; Mol, 2002). Following the work of Latour (1999), I critically describe doing an ethnobotanical survey as series of steps which are done at certain times and in different spaces but are often overlooked (or seem to momentarily disappear at certain times or during practices) in its final representation as a publication or as botanical reference collections (Latour, 1999; Mol, 2002). In these steps, plants are collected and transformed by botanical techniques, forms of measurement and description, and in the process, acquire new meaning and value. The final reference collection serves as a material and symbolic representation of the *veld*, the plants surroundings e.g. soil type, other plants in the vicinity, the season etc., and local knowledge of the plants’ uses (Latour, 1999).

#### **4.1. Doing an ethnobotanical survey: Moving through a series of gaps**

In a book chapter, *Circulating reference: Sampling the soil in the Amazon forest*, Latour (1999) follows the work of soil scientists who were seeking to understand whether the forest is slowly engulfing the savannah biome or vice versa. Latour’s (1999: 32) aim was to understand how scientists “put the world into words” or make “reference.” Latour (1999) argues that the referent (the soil) undergoes a process of transformation, that is, it is taken from the environment, undergoes a heterogeneous series of procedures which is facilitated by the transformative capacity of the scientist and his/her knowledge and techniques, as well as the distinctive capacity of non-humans (e.g. the forest, savannah or soil) to substitute, constrain or be suitable for this transformation (ibid. 67). The final product, the reference, may be a code, a

graph, a map, or a soil sample that serves as a representation which reflects the original situation (i.e. the soil, forest, or landscape).

Latour highlights the process of transformation and the ability of the final representation to adequately reflect the original situation. He argues that, in practice, nonhumans do not neatly move into words or from a referent to a sign (Latour, 1999: 40). Instead, the transformative process is carried out through a series of steps in which the activities of the scientists and the soil are synchronized and brought into being. The reference has two “features,” it serves as a physical reference of the soil which can be used to validate and cross-reference its identity in future research, but it also takes the place of the soil so that it can be combined with other information collected while in the field, for example, notes, maps, local knowledge and so on (Latour, 1999: 32). The final representation is therefore made to do more than just resemble the soil but serves as an inscription of the entire process and of the “original situation” (Latour, 1999: 40; 67). Latour likens the process of moving from a referent to a sign to a process which entails moving across a series of gaps. He calls this “circulating reference.”

In my ethnobotanical survey, I was trying to understand the local use, knowledge, meaning, vernacular plant names, and such, of the plants which locals utilize in Genadendal. To do so I had to interact with *kruiekeners* and scientists. I collected the plant specimens from the Genadendal commons, local gardens, and the *veld* to enable me to later prepare a voucher specimen for ethnobotanical analysis. This was a procedural practice, but it was also a deeply immersive and sensorial experience (Ingold, 2007; Tsing, 2015). I had to engage with plants in their ecological setting, note their textures, the sounds and weather conditions in the *veld*, and was forced to notice plants in corporeal ways (Tsing, 2015; Gibson, 2018). When I returned to Cape Town, scientists at SAHSMI and students at the Herbarium at the University of the Western Cape helped me to identify, preserve and compile my collected specimens so that we could determine their scientific taxonomy, that is, the plant name, species, genus and so on (Martin, 2007). As I discuss later in the chapter, some of the plant specimens were kept aside for further research and other specimens were prepared and subsequently accepted by the herbarium as reference collections. The plant reference collections stored in the herbarium serves as a material and visual representation of the plants collected in the *veld*, which other researchers can later use to cross-reference.

In the case of the above processes, and like Latour (1999), I argue that doing an ethnobotanical survey is like traversing a series of often overlooked steps. Ethnobotanical studies frequently

describe the conditions and locations from which plants were collected, the associated local knowledge about the plants, and then categorize the plants in table form in publications. In the herbarium, plants are carefully mounted onto wax paper along with field notes about the plant, its name, genus, and local uses. The steps involved in doing the ethnobotanical survey, i.e. the collection, transportation, drying process, and preparing plants as reference collections are often omitted in the final representation of plants, for example, as a graph in a publication or as a botanical reference collection in the herbarium. It is these “overlooked” or “intermediary” steps (Latour, 1999: 37) which I attempt to scrutinize in this chapter through practices.

As Latour (1999: 32) shows, the steps involved in doing an ethnobotanical survey and making botanical reference collections are part of the transformative process. It is in these, often overlooked steps, where different practices and knowledge come together, and where different realities of the same plants are enacted and brought into existence (Mol, 2002). At times, for example during the collection phase, the local knowledge and plant practices of *kruiekenners* are brought under scrutiny, while at SAHSMI or the herbarium at the University of the Western Cape when plants are being “processed” as botanical reference collections, *kruiekenners* and their plant knowledge become less pertinent in the process. In the final botanical reference collection, the botanist’s knowledge, preparatory techniques, and skill is similarly omitted. In what follows, I describe my ethnobotanical survey as a circulatory process of generating knowledge about plants. I follow the trail of plants from collection to the point of final reference collections, and scrutinize the steps involved.

## **4.2. Completing the survey**

In August 2014 a small research team including two SAHSMI staff members, two MA students and I stayed at Genadendal for a month to complete the first part of the ethnobotanical study. As discussed in chapter 3, I did a systematic review of available literature and found scant data about Tuberculosis, rates of infection and medicinal plant use in Genadendal. The purpose of the ethnobotanical survey was therefore to gather as much empirical data about the socio-demographic characteristics of participants, the prevalence of plant use, the number of medically diagnosed cases of Tuberculosis (TB), its symptoms, perceived symptoms, and unconfirmed cases of Tuberculosis (not medically diagnosed). I also wanted to document ethnobotanical knowledge about plants, plant parts used, mode of preparation and administration, collection sites and so on. In addition, the survey served as an inventory of plants used by locals which would later help me when I collected these plants with the aid of

*kruiekenners*. It was therefore imperative to screen all households in Genadendal. The screening questions were directed at TB and TB sufferers, but because my research included plants, plant users were also asked to complete the survey.

While my research spanned nearly three full years in Genadendal, the surveys were done in a relatively short period. This was because of the time constraints of the other researchers, the limited duration of the project and the large sample we had to screen. We essentially did a rapid ethnobotanical appraisal (Hardon, et al, 2001; Martin, 2007). We had to follow rigid timeframes but were occasionally side-tracked by participants' stories of plants, tours of their gardens and enthusiasm about a group of young people inquiring about their health and well-being. At the end of each day, the research team and I would collate our field notes, check surveys for quality and accuracy, and return to households the next day if there was incomplete information.

When the interviews were finished I returned to the South African Herbal Science and Medicines Institute (SAHSMI) where the survey data was transcribed, coded and analysed under the guidance of a statistician. The analysed survey data showed that there were thirteen cases of medically confirmed TB in Genadendal at the time of my research. There were also fifteen suspected cases of TB based on participants' reported symptoms, which included chronic cough, chest pain, coughing up blood and weight loss. From the survey data, I was also able to establish a list of roughly forty plants used to treat and/or manage the reported symptoms, where and when participants acquired these plants, how they prepared them, their dosages and the reported recovery time. Furthermore, the survey data identified specific participants who presented with chronic cough and used medicinal plants and were later selected from the cohort to participate in the Retrospective Treatment Outcome Study (RTO).

Because the survey dealt with plant related knowledge, I had to critically engage with issues concerning ethics, memoranda of understanding (MOU), intellectual property (IP), material transfer agreements (MTA), plant collection permits, informed consent (IC), the conservation status of plants I would later collect, and the plant collection permit I applied for from Cape Nature. As Latour (1987: 67-68) contends, these documents serve as inscription devices which probe but also gather knowledge as part of a broader cycle of accumulation. In the case of my research, this broader cycle of accumulation is the ethnobotanical survey and the reference collections it will produce. Inscriptions are not only scientific tools but also textual apparatuses. Therefore, to achieve the final inscription which is what we see represented in tables, figures,



or the final reference collections, I had to map a series of inscriptions including the above documents but also had to “send out inquiries with series of questions into the whole population” in the form of the survey (Latour 1987: 227). This led to the next inscription which involved working closely with *kruiekenners* and other key participants to collect plants.

After the data analysis at SAHSMI had been completed, I returned to Genadendal to conduct further in-depth semi-structured interviews and spend time with twelve key participants (*kruiekenners*). These *kruiekenners* had been identified through the survey data and prior interviews as having extensive knowledge of medicinal plants. Villagers also directed me to elderly knowledgeable people who were known for collecting *kruie* from the *veld* or growing them in gardens and treating people. These *kruiekenners* assisted me with subsequent plant collection.

### 4.3.Plant collection

Plant specimens were collected during several field visits. Because I stayed in Genadendal during all seasons, I was able to observe plants in drought conditions and rainy season, when they were flowering, bearing seeds and/or fruit. Plants were collected three-fold, numbered and dry-pressed in the field. This was to enable me to later provide the UWC Herbarium with a representative sample of specimens. Plants lose their shape, smell, texture, and colour during the dry pressing phases. Adding photographs and multiple specimens would later aid the botanist at the UWC herbarium with identification because of this additional information. Together with plant pressings, I noted vernacular plant names, plant locality, GPS coordinates, habitat, soil type, plant distribution when collected, plant parts used, preparation and modes of administration. These are distinguishing features attached to specific plants, but for the purpose of the ethnobotanical survey, these features will come to represent all plants of this kind as for example *Artemisia Afra*, whether it is growing in the *veld*, in a local user’s garden, as a picture mounted at the Genadendal Information centre, or as a reference collection at the UWC Herbarium (Latour, 1999).

Each collected specimen included leaves, stems, flowers, and fruits. For small herbaceous plants, the whole plant was collected. I noted the local uses of the plants, economic importance, and the distribution of the plants (Martin, 2007; Van Wyk et al., 2009). I also examined the condition of the soil and took samples. In addition, I used a GPS device to ascertain the geographical location of the plants. This information would help during the curation of plants



later on. For botanists and scientists to superpose physical specimens, their collection data including soil conditions, weather, GPS coordinates, and so on, onto graphs, maps, and as reference collections, these two bodies of reference need to be comparable (Latour, 1999: 56).

Over time, I discovered that *kruiekenners* have different areas for collecting plants. Some *kruiekenners* were unable to collect plants from the *veld* due to their fragility and age. They would either grow them in their gardens or train young people to collect them from the *veld*. Others travelled well beyond Genadendal's peripheries to collect plants. While ethnobotanical surveys are processual exercises in identifying and categorizing plants (Tsing, 2010), it also brought me into more intimate contact with plants because I had to walk in the *veld*; perceive its sounds, smell, and textures (Pitt, 2017). In what follows, I draw on my time in the field with *kruiekenners* collecting plants and sharing stories. I argue that collecting plants, dry pressing, and categorising them is not only about collecting and organizing bits of knowledge as is often portrayed in the final presentation of ethnobotanical surveys as, for example, graphs or figures (Latour, 1999; Ellis, 2018). The socio-cultural context in which plants are collected, prepared, and used also provide important insights into the relationships, histories, meaning and knowledge making between people and plants (Whatmore, 2006; Pitt, 2015; Daly et al., 2016; Ellis, 2018).

#### 4.4. In the *veld* with *kruiekenners*

We were naughty when we were children. We were a group of about nine friends. We would plan the day before, get up early and hike up the mountains. Our mothers would look for us in the *dorpie*, shout our names and when we eventually came home after dark we would get the leather (belt). Those were fun times for us. No cars, no TV's but also no food. When we were hungry, we caught fish, birds or ate *veldkos*. *Veldkos* are *vetplante* (succulents) but you also get wild garlic, wild potatoes and there were lots of wild fruit trees that time. We used to climb over the fences and steal fruit from the farmers. *Kruie* we got from the *veld*. If I was sick I went to get me *kruie*. I stayed in the *veld* until I was better. Sometimes I slept under a tree. My grandmother and mother taught me *kruie*. They showed me where to go find them.<sup>17</sup>

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<sup>17</sup> Transcribed interview notes: September 2014.

Uncle AB<sup>18</sup> was born in Genadendal and, apart from an unsuccessful two-year stint in Cape Town to search for work in the mid-80's, spent most of his life there. "The only good thing I found in Cape Town was a wife" he wittily told me. Uncle AB, like many of the youth at the time, was forced to leave school at an early age to work on a local farm to support his extensive family. Much of his adult life was spent as a "jack of all trades" making a living from the *veld*; occasionally working on surrounding farms as a seasonal labourer, chopping down trees in the *veld* and making firewood, keeping and selling livestock, and selling *kruie* in surrounding communities such as Greyton and Caledon. Uncle AB often described himself as a "*veldkind* (child of the *veld*) referring to his upbringing as a child but also his continued love for the *veld* in his late sixties. He was taught *kruie* by his grandmother, a well-known *bossiesdokter* at the time who practiced *insmeer*. He fondly recalled their expeditions up the surrounding mountains and along the riverbed in search of *wilde als*, *kankerbos*, *wilde knoffel* and other plants. Uncle AB's grandmother showed him where to find plants, what they looked like, how and when to harvest them, which parts to use and how to prepare them as medicine. Later, his aged and frail grandmother would ask him to collect plants from the *veld* on his own and, under her guidance, dry, store or prepare them for people that would often visit their house for medicine; a tradition he continues with his own grandchildren.

Uncle AB's "short" life history exemplifies the narratives of most of the elderly *kruiekenners* I met and who helped me to collect plants in Genadendal. Many of my elderly participants are the descendants of, or had relatives who were, *bossiesdoktors*. They often reminisced about their upbringing in Genadendal and recalled stories of the *veld*; how they learnt about *kruie* by collecting them with older relatives and used plants for a variety of ailments. Most of these elderly *kruiekenners* were actively collecting *kruie* from the *veld*, growing *kruie* in their gardens, and preparing and administering them to ill people. They were also regularly consulted for advice about symptoms, medicinal decoctions and cared for fellow villagers. Despite their age and elderly status in the village, my elderly participants were surprisingly fit and healthy. They were up early in the morning, saw to household chores such as cooking and cleaning, tended to their gardens, and were involved in church activities and the Victoria Centre for Old Age. In part, my elderly participants attributed their health and vitality to the way they live. This included, for example, staying active, walking in the *veld* to search for *kruie* or leading

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<sup>18</sup> A pseudonym

their animals around the village outskirts to graze, going to church, eating healthily, and consuming *kruie*.

What became obvious in my interactions with elderly *kruiekenners* is their robust relationship with the *veld* and *kruie*. The *veld* is the material space where *kruie* are collected, where knowledge is transferred and transformed through teaching young children about plants and where social relations are mediated. The *veld* also symbolises remembrance and continuity as is evidenced in *kruiekenners*' narratives about the *veld* as children (Samuels et al., 2018). When I collected *kruie* with *kruiekenners* in the *veld*, each plant was accompanied by a memory; an illness episode and subsequent healing, a piece of information about how a specific plant should be approached, harvested and prepared for it to “work.” It is important to note that plant knowledge is not limited to the *veld* or *kruiekenners*. I also observed *kruiekenners* harvesting plants from their gardens, exchanging plants with other elderly people, confirming the medicinal uses of plants with others and, at times, buying plants from local Rastafari bush doctors. Nonetheless, the *veld* and *kruie* link past instances of disease, ontologies and even specific *kruie* such as *wilde als*, which was frequently mentioned, with present social and physical conditions. The *veld* enfolds knowledge around people who have played roles in its formation such as *bossiesdoktors* from whom my participants learnt about *kruie*. It brings a nuance of continuity, but also stimulates a sense of well-being because *kruiekenners* associate their health and well-being to *kruie* and the situational circumstances under which they are learnt, collected, prepared used and consumed.

The *veld*, as I perceived its smells, textures and aesthetics during plant collection with *kruiekenners*, can here be understood through Ingold's (2000) notion of a “dwelling perspective” where people live in and among the landscape and, to a certain extent, form part of it. To better understand the relationship between *kruiekenners* and plants, and to move beyond the practical imperative of collecting plants for the ethnobotanical study, I borrowed from Pitt's (2015: 49-50) approach. She argues that to study plants it is necessary to learn like apprentices from plant experts like *kruiekenners*. Pitt draws on Ingold's (2000) idea of learning by experimentation from guides. Knowledgeable guides are central to introducing apprentices to taken-for-granted elements of the environment and are encouraged to experiment. According to Ingold (2000: 22), “novices are instructed to feel this, taste that, or watch out for the other thing.” In the same way, *kruiekenners* would not merely allow me to collect plants or simply show me where to find them. I was invited to smell, taste, and feel their textures and describe

their colours. My attention was also drawn to the surrounding environment. In turn, this process influenced me. It invoked memories of my own experiences with plants, memories of illness, healing and being taught about plants as a child. I came to understand the *veld* as a way to describe the local people's interaction with their environs (Martin, 2007; de Beer and Van Wyk, 2011). By doing so, I was able to interrogate the interface between people and plants. This interaction, which Hall (2011: 3) calls "plantscapes," also has an important analytical usefulness for the ethnobotanist. It allowed me to examine the specialised skills and practices of those who live in the environment, who attach meaning to the collection, preparation, and distribution of plants.

#### **4.5. Dry pressing plants in the field: honing perceptual skills**

I was cautioned by colleagues at SAHSMI and the UWC herbarium curator at the time that storing and dry pressing plants is particularly important outside of a controlled environment like a laboratory or herbarium. If not treated correctly, the plants may wilt, discolour, and lose distinguishing features essential for identification later in the process (Martin, 2007). Because my field trips to Genadendal were lengthy, often spanning three to six months at a time before returning to Cape Town, I had to be especially careful with how I preserved collected plants in the field. I stored the collected plant specimens in brown paper bags which I had brought along from Cape Town (**Fig. 4**). As I mentioned in chapter three, I did not have a plant press in Genadendal. A plant press is a flat wooden structure with many compartments inside of it. It is used for plants to be layered and strapped down under pressure to preserve it for future reference (Martin, 2007). In between these layers are sheets of blotting paper which absorbs moisture from the plants (**Fig. 5**). I changed this paper every couple of days to ensure that no discoloration of the plant material happened.<sup>19</sup> I also separated different species of plants, for example, succulents and fine herbaceous plants to avoid cross contamination.

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<sup>19</sup> There are also other methods of drying plants such frost-free refrigeration, but this method is reliant on plant material which is relatively "fresh" and must be done in a controlled environment such as a laboratory (Martin, 2007). This method is much quicker but causes rapid discoloration of plant material and the likelihood of cross-contamination of species is more likely to occur as several different plant species can be kept in one refrigerator at a time. I thus elected not to dry the specimens in this way. Instead, I used a conventional press made up of material I had available to me.





**Figure 4:** Freshly uprooted plant specimen in Genadendal. Author photo



**Figure 5:** A plant specimen in the dry pressing phase with collection notes. Author photo

When I collected plants with *kruiekeners* in the *veld*, my focus was largely drawn to *kruiekeners*' knowledge of plants. During the drying phase, I had to interact with the collected plants very closely. I saw insects crawling around on some of the flattened plants. They had moved with the plant from the *veld* to the room where I stayed and, despite my efforts to fumigate the room, remained with the plants. Much to my surprise, some of the plants continued to grow, even flower, in spite of the fact that they were deprived of water and sunlight for weeks. The plants, after weeks of dry pressing, still exuded a strong herbaceous smell which filled the room each time I checked them. The colours and shapes of flowers were vibrant as if I had recently collected them.

According to Whatmore (2006), paying close attention to plant forms is vital to produce new knowledge about them. Tsing (2013) builds on Whatmore's (2006) argument by including sociality to the study of material form. She contends that humans equate sociality to bodily form and modes of being in the world. Unlike non-humans, humans have a finite bodily form which we use to interact with others. By contrast, plants

keep growing and changing throughout their lives. Even if they can't pick up and move to another place, they can grow into new environments and social fields. Their form shows their biography; it is a history of social relations through which they have been shaped (Tsing, 2013: 22).

Similarly, when I engaged with dry pressed plants, I became acutely aware of their lively materiality and sociality. I had to (again) touch, smell, observe and interact with plants outside of their usual bionetworks but they had still somehow managed to make me attentive to their form and materiality. In this way I was reminded of their liveliness and in the process, I was inadvertently honing my own perceptual skills for when I interacted with them in future (Whatmore, 2006; Tsing, 2013; Ingold, 2000; Gibson, 2018). I will return to these ideas later in the chapter.<sup>20</sup>

#### 4.6. Reported plants used to manage Tuberculosis and associated symptoms

A total of thirty-eight (38) plant species belonging to twenty-three (23) families were reported for the treatment and/or management of Tuberculosis and its associated symptoms in Genadendal. A few of the species reportedly used in Genadendal are not endemic or indigenous to the area. They have been introduced or are considered naturalized exotics (Musil and Macdonald, 2007). Plants are often traded, exchanged, propagated, or bought from nurseries and Rastafari bush doctors who travel to other regions to collect medicinal plants. In interviews with Rastafari bush doctors, they regularly stated that they travel as far as the Northern and Eastern Cape provinces to collect, buy, and trade plants. In Genadendal plants are used, grown in gardens and, over time, become part of local pharmacopoeia. Many of these plant families are used to treat symptoms associated with Tuberculosis such as chronic cough, chest pain, night sweats, wasting and so on, or to combat the side effects of allopathic medication.

The medicinal plant species, family, vernacular names (specific to Genadendal), reported use and additional notes are listed in **Table 2** below. Two of the species listed are trees. Although trees are sometimes excluded from ethnobotanical studies, they have been listed here because of their extensive use in medicinal remedies. Other plant-based products such as common fruits, vegetables and, what I have called culinary herbs such as parsley, dill, or coriander, are often consumed as soups and teas. Participants reported the strengthening/immune boosting properties of these, but not in relation to Tuberculosis management. In my fieldwork, participants also reported other non-plant-based material such as crystallised Rock Hyrax urine (*dassiepis*), lichens, dried animal droppings, animal-based products such as sheep or pig fat, and minerals extracted from river rocks. These materials were sometimes used together with medicinal plants but have also been excluded here.

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<sup>20</sup> I also explore these ideas further in chapter 6.



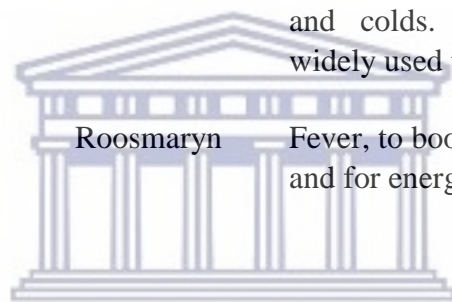
*Wilde als* (*Artimisia afra*) was the most frequently reported plant species (81.3%) among all medicinal plant users in Genadendal. The other reported plant species were also used but were not as significantly reported. These plants were used in remedies containing up to nine plants, although in most instances herbal decoctions were made from single plant remedies and consumed at different times. The most frequently reported families were Asteraceae (16.05%), Lamiaceae (16.05%), Aizoaceae (8.70%), Apiaceae (8.70%), Boraginaceae (8.70%), Fabaceae (8.70%) and Rutaceae (8.70%). The remaining (24.40%) were evenly split over sixteen families- Amaranthaceae, Amaryllidaceae, Araceae, Asphodelaceae, Euphorbiaceae, Geraniaceae, Hypoxidaceae, Iridaceae, Malvaceae, Mesembryanthmaceae, Myrtaceae, Phyllanthaceae, Sapindaceae, Thymelaeaceae, Viscaceae and Vitaceae.

Some of the families reported in Genadendal have been documented in ethnobotanical studies (Semenya and Maroyi, 2013; Lawal et al., 2014; Hlongwane, 2016) and researched for their anti-tuberculosis activity (Green et al., 2010; Madikizela and McGaw, 2018) in other South African studies. Although previous research on some of these families is suggestive of their significance for Tuberculosis treatment, others have not been documented or researched. As I discuss later in this chapter, many of these plants are used symptomatically or to manage the side effects of allopathic medicine and not necessarily to treat Tuberculosis.

| Family        | Species                               | Voucher Number  | Vernacular plant names (Specific to Genadendal) | Reported use/Symptoms  | Notes  |
|---------------|---------------------------------------|-----------------|---|--|--|
| Lamiaceae     | <i>Leonotis leonurus</i> (L.) R.Br.   | P25_06<br>(UWC) | Wilde dagga                                     | Colds, influenza, stomach complaints, chest pain, chronic cough, Diabetes Mellitus, Hypertension, and TB.  | Leaves and stems are used to make a tea. The leaves and roots are also used to treat snake bites, insect bites and stings.   |
| Asteraceae    | <i>Artemisia afra</i> Jacq. ex Willd. | P06_04<br>(UWC) | Wilde als                                       | Colds, influenza, Chronic cough, Fever, appetite loss, Stomach complaints, chest pain, chronic cough, Diabetes Mellitus, hypertension, TB, colic, headache, earache, for pain, sedative and as a general preventive tonic. | In most instances, the plant is used as a single plant prepared and as a tea. Leaves are infused in bathwater to soothe muscles and fever associated with Flu. Participants cautioned that the plant should be consumed in moderation as it is reportedly toxic in stronger dosages. |
| Asphodelaceae | <i>Aloe ferox</i> Mill.               | P10_02<br>(UWC) | Bitter alwyn                                    | Fever, pain, inflammation (Swelling), skin conditions (cuts, rashes and insect bites), constipation.   | The leaf flesh and juice are taken orally for constipation. Participants reported that excessive consumption of raw Aloe has side effects such as diarrhoea, fever, skin break-outs and headaches.   |

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| Aizoaceae      | <i>Carpobrotus edulis</i> (L.)<br>N.E.Br.                    | P25_07<br>(UWC) | Suurvye/hotnots vye                            | TB, oral sores, stomach ulcers, and externally to treat rashes, eczema and burn wounds.   | The leaf juice is used to treat children with painful gums and teething problems. For TB, the leaf juice is added to simmering milk and consumed thrice a day for 3-6 months. |
| Amaryllidaceae | <i>Tulbaghia violacea</i> Harv.                              | P01_03<br>(UWC) | Wilde knoffel                                  | Colds, influenza and hypertension.  | The leaves and roots are used as a general tonic and immune booster.  |
| Fabaceae       | <i>Lessertia frutescens</i> (L.)<br>Goldblatt & J.C. Manning | P03_01<br>(UWC) | Kankerbos/bitter bos/<br>kiertjies/blaasieb os | Colds, influenza, TB, chest pains and shortness of breath, stomach ailments, diabetes, pain and inflammation (swelling). <i>L. frutescens</i> is also widely used for internal cancers. | <i>L. frutescens</i> is mostly used as a single remedy in decoctions. The plant is only seasonally available in Genadendal.   |
| Lamiaceae      | <i>Salvia africana-caerulea</i> L.                           | P10_04<br>(UWC) | Blousalie/bloubl omsalie                       | Fever and night sweats  | <i>S. africana</i> is often used with other medicinal plants as a sweetener and flavouring agent. The plant is also used in food for the same purpose.                        |
| Geraniaceae    | <i>Pelargonium</i> (Eckl. & Zeyh.) Kostel.                   | P04_05<br>(UWC) | Rooistorm/Rooi wortel                          | Cold, the Flu, throat infection and chest complaints.   | The root is the only part of plant used and is used as a single plant in decoctions.  |

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| Apiaceae           | <i>Lichtensteinia lacera</i> Cham. & Schltdl. | P18_04<br>(UWC) | Kaalmoes                   | Hypertension, Diabetes Mellitus, Colds, the influenza, stomach complaints including diarrhoea, fever and pain.  | <i>L. lacera</i> is regarded as a remedy for stomach aches. The plant only grows along river beds and immersed in water.                                     |
| Lamiaceae          | <i>Mentha longifolia</i> (L.)                 | P01_01<br>(UWC) | Ballerja/Mint/Pepper mint  | A decoction of the leaves and stems are used for headaches, respiratory ailments, coughs and colds. <i>M. longifolia</i> is widely used to combat phlegm. | <i>M. longifolia</i> is sometimes added to other plant combinations to reduce side effects of allopathic medication and improve the taste of medicinal teas. |
| Aizoaceae          | <i>Tetragonia fruticosa</i> L.                | P32_02<br>(UWC) | Roosmaryn                  | Fever, to boost immune system and for energy.   | <i>T. fruticosa</i> is used as a single plant to boost energy and inhibit perspiration. In multi-plant remedies, the plant is used as a flavoring agent.     |
| Rutaceae           | <i>Ruta graveolens</i> L.                     | P03_2<br>(UWC)  | Wynruit                    | Inflammation, menstrual pain, parasitic infections, fever, varicose veins and rheumatism.   | A leaf decoction of <i>R. graveolens</i> is administered for menstrual pain.   |
| Mesembryanthmaceae | <i>Sceletium tortuosum</i> (L.)<br>N.E.Br.    | P41_03<br>(UWC) | Kooigoedbossie/<br>Kougoed | Pain, fever, inflammation, fever and chest complaints.  | <i>S. tortuosum</i> is used as a single remedy for pain, stress and anxiety. It is also used to reduce fever and chest complaints by fumigation.             |
| Asteraceae         | <i>Helichrysum petiolare</i> L.               | P41_05<br>(UWC) | Hotnoskooigoed             | Pain, inflammation, wound dressing, coughs, colds, fever, headaches, insomnia,  | The plant was reportedly used dried and as fumigation.   |



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|              |  |                 |   | hypertension, Diabetes Mellites and TB.  |   |
| Lamiaceae    | <i>Stachys rugosa</i><br>Aiton             | P42_13<br>(UWC) | Koorsbos, TB<br>bos, Hen-<br>metkuikens | TB, chronic cough, chest pains, fever, colds, and the Flu.   | <i>S. rugosa</i> is used as a blood purifier, for respiratory problems, skin rashes, ulcers, snake bites, colds and flu. A remedy of <i>L. frutescens</i> , and <i>S. africana</i> are used for diabetes and pain relief. |
| Boraginaceae | <i>Trichodesma africanum</i> (L.)<br>Lehm. | P05_01<br>(UWC) | Brandnetel                              | Fever, sore throat, stomach ulcers and chest complaints.   | The plant is widely regarded as a strong remedy for chest complaints including coughing, chest pains and phlegm. It is consumed as a medicinal tea as well as burnt and inhaled for chest complaints.                     |
| Viscaceae    | <i>Viscum capense</i><br>L.f.              | P39_06<br>(UWC) | Voëlent                                 | Although not directly used for TB, the plant is used as a general tonic for chest complaints including excessive coughing as well as for diabetes and hypertension | A cooled tea made from the whole dried plant is drunk as a general tonic for colds and Flu. A decoction of the fresh plant is used to treat diabetes and hypertension.  |
| Lamiaceae    | <i>Salvia dentata</i><br>Aiton             | P03_3<br>(UWC)  | Salie/bergsalie/<br>Wilde salie         | Digestive problems, diarrhoea, heartburn and depression  | <i>S. dentate</i> is used to prevent the overproduction of saliva and inhibits perspiration.  |





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|---------------|--|-----------------|---------------------------|--|---|
| Amaranthaceae | <i>Salsola kali</i> L.                       | P31_7<br>(UWC)  | Khakiebos                 | Chest pain, hypertension, diarrhoea, and blood cleansing.  | The burnt ash of <i>S. kali</i> is used to make soap. Mixed with salt, the plant is used for bathing and washing clothes. The plant should only be used once “cooked” and in moderation as it is reportedly poisonous raw and in large doses. |
| Myrtaceae     | <i>Eucalyptus camuldensis</i><br>Dehnh       | P36_1<br>(UWC)  | Bloekomblare/bl<br>ue gum | Chest pain, coughing, fever, Colds and influenza.  | The raw leaves are packed tightly on the chest and left overnight to alleviate fever and chest complaints. The dried bark and tree trunk is burnt to ward off mosquitoes.   |
| Rutaceae      | <i>Agathosma betulina</i><br>(Berg.) Pillans | P06_09<br>(UWC) | Buchu                     | Inflammation, urinary tract infections, stomach complaints, chest pain (including coughing) and internal infections. | <i>A. betulina</i> is used together with <i>A. afra</i> as a medicinal tea for TB, colds, the Flu and chest complaints.   |
| Thymelaeaceae | <i>Passerina filiformis</i><br>L.            | P03_07<br>(UWC) | Bakkerbos/Bakb<br>os      | Severe pain  | A decoction of the leaves and bark is used for pain. The plant is believed to be poisonous when consumed raw. Multiple doses are not advised.   |



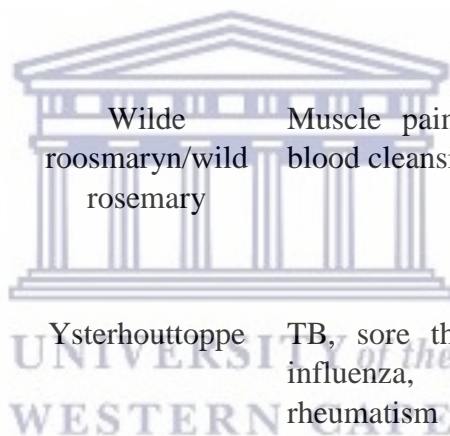
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| Asteraceae   | <i>Vernonia oligocephala</i> (DC.) Sch. Bip                 | P01_9<br>(UWC)  | Groen amara                    | Stomach complaints including colic, ulcers, pain and fever.                | Fresh roots, leaves and twigs are used to make a tea for stomach complaints. Participants cautioned that the plant has an hallucinogenic effect if too much is consumed. |
| Lamiaceae    | <i>Salvia splendens</i> Sellow ex J. A Schultes             | P18_05<br>(UWC) | Rooi-blom-salie                | Digestive problems, diarrhoea, heartburn and depression                    | <i>S. splendens</i> has similar medicinal applications to <i>S. dentata</i> , however <i>S. splendens</i> is considered to be “stronger” based on its bitter taste.      |
| Vitaceae     | <i>Parthenocissus Planch.</i> (1887)                        | P31_01<br>(UWC) | Wilde wingerd                  | Coughing and phlegm  | Raw leaves are placed on the chest to relieve congestion. The leaves are also chewed to reduce phlegm.   |
| Fabaceae     | <i>Cyclopia maculate</i> L.                                 | P01_02<br>(UWC) | Heuningbos/Honeybush           | Diabetes Mellitus, hypertension, colds, the Flu and as a general tonic     | <i>C. maculate</i> is widely used as an immune booster. The leaves are also added to medicinal remedies to improve taste.  |
| Hypoxidaceae | <i>Hypoxis hemerocallidea</i> Fisch., C. A Mey. & Ave-Lall. | P25_4<br>(UWC)  | Mountain patato/African patato | HIV, cancer, hypertension, Diabetes Mellites, TB, colds and the influenza. | The root is dried, grated and then used to make a medicinal tea.   |



|                |  |                 |                            |   |  |
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| Phyllanthaceae | <i>Flueggea virosa</i><br>(Roxb.ex Wild)<br>Voigt    | P5_01<br>(UWC)  | Braam                      | Snake bites, rashes, diarrhoea, fever and pain.                             | The root, bark and fruit are all used to make a medicinal tea for migraines.   |
| Iridaceae      | <i>Aristea Africana</i><br>(L) Hoffmanns             | P11_01<br>(UWC) | Moerbos                    | Fever, coughs and thrush.   | The leaves and flowers are used to make a medicinal tea. The plant is considered potent and should be consumed in moderation.  |
| Boraginacea    | <i>Lobostemon fruticosus</i> (L.)<br>H.Buek          | P11_02<br>(UWC) | Ag-dae-geneesbos/geneesbos | TB, eczema, ringworms, skin infections, colds and influenza.                | The plant is said to cure a variety of ailments ranging from the common cold to TB in eight days. A tea made from the leaves and stem tips is used to treat internal infections.       |
| Araceae        | <i>Zantedeschia aethiopica</i> (L.)<br>Spreng., 1826 | P25_8<br>(UWC)  | Arum lily                  | Cuts, sores, insect bites, pain, fever, inflammation, and chest complaints. | The plant is considered poisonous when raw. The leaves are left in boiled water and then applied externally. Small quantities of dried leaf material are used to make a medicinal tea. |
| Apiaceae       | <i>Petroselinum crispum</i> (Mill.)<br>A.W.<br>Hill  | P01_12<br>(UWC) | Pietersielie/parsl ey      | Phlegm, coughing and chest pain.  | In addition to its culinary uses, the plant is widely recognized as a remedy for coughing and phlegm. The leaves (raw or   |

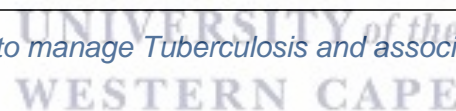


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|---------------|--|-----------------|-------------------------------------|--|---|
| Asteraceae    | <i>Conyza scabrida</i><br>DC.  | TSAT<br>013     | Paddabossie/Bak<br>bossie           | Sores, inflammation, fever and<br>diarrhea   | prepared as a tea) are reportedly<br>used to clear phlegm in 1-2 hours.   |
| Asteraceae    | <i>Eriocephalus<br/>paniculatus</i> (Cass.)                                  | P31_8<br>(UWC)  | Wilde<br>roosmaryn/wild<br>rosemary | Muscle pain, circulation and<br>blood cleansing  | The plant is reportedly said to<br>provide energy when consumed<br>as a tea. It is also believed to<br>inhibit perspiration.  |
| Sapindaceae   | <i>Dodonaea viscosa</i><br>Jacq var.<br><i>angustifolia</i><br>(L.f.) Benth. | TSAT<br>014     | Ysterhouttoppe                      | TB, sore throats, Colds, the<br>influenza, fever and<br>rheumatism   | The leaves and stems are used to<br>treat sore throats, coughing and<br>chest complaints. The roots are<br>used as fumigants for<br>rheumatism and inhaled for chest<br>complaints. |
| Euphorbiaceae | <i>Ricinus communis</i><br>L.  | P14_06<br>(UWC) | Olieplant/Oliebl<br>omplant         | Rheumatism, stomach worms,<br>constipation. Externally: to<br>treat sores, fungal infections<br>and fever. | In the case of fever and chest<br>complaints, the leaves and seeds<br>are heated and placed on the<br>chest.  |



|            |                            |                 |           |   |   |
|------------|----------------------------|-----------------|-----------|---|---|
| Asteraceae | <i>Calendula L.</i>        | P07_02<br>(UWC) | Calendula | Muscle pain and spasms, fever, sore throat and mouth, stomach ulcers and cancer.                          | The flowers are said to produce a powerful and sweet flavoured medicinal tea. Participants cautioned that the medicinal tea should be consumed in moderation because of its potential side effects such as diarrhoea and headaches. |
| Malvaceae  | <i>Malva sylvestris L.</i> | TSAT<br>012     | Malva     | Pain, inflammation, headaches, insomnia, stomach complaints, chest congestion and respiratory complaints. | The flowers and leaves are made as a tea and consumed orally as a general tonic. The leaves are used fresh as snuff to clear congested nose and chest. The raw leaves are also used as a flavouring agent in food.                  |

**Table 2:** Medicinal plants used to manage Tuberculosis and associated symptoms in Genadendal.



#### 4.7. Modes of plant preparation, administration, and dosages

The ethnobotanical survey data showed that there were few cases of TB in Genadendal at the time of my fieldwork. Many of the participants in the study did, however, report that they have or had symptoms of Tuberculosis which included chronic cough, cough with blood, fever, night sweats, wasting and chest pain in the past. They did, however, not seek medical diagnosis. These participants claimed to use medicinal plants and over-the-counter medication to ease their symptoms. I was thus also interested in the perceived symptoms of TB, associated conditions such as chronic cough and medicinal plants used. I therefore included all medicinal plant users as well as *kruiekenners* and those who thought they had Tuberculosis when I interviewed participants about their plant practices. In this cohort of participants, sixty four percent (63.95%) reportedly used medicinal plants. To understand the prevalence of plants used in Genadendal, this group of participants was divided into two categories, namely active and non-active medicinal plant users (Davids et al., 2016). Active users included participants who used medicinal plants for at least one day in the two weeks prior to being interviewed. This group made up 74.09% of overall medicinal plant users. Non-active users (25.91%) utilized plants less frequently, that is for at least one day in a week for three months prior to being interviewed.

Participants generally collected, prepared and consumed plant remedies on their own. In some cases, participants obtained medicinal plants by consulting *kruiekenners* or buying them from Rastafari bush doctors who travel to other regions to collect medicinal plants when they are scarce in Genadendal's surrounds. It should be noted that *kruiekenners* (person who is knowledgeable medicinal plants) and Rastafari bush doctors do not practice healing as is the case in other settings amongst traditional health practitioners (*amagrirha*)/herbalists (*nyanga's*) or *bossiesdoktors* (people who treat with plants) (Davids et al., 2014; Cohen, 2015; Nathen, 2018). Instead, villagers may consult a *kruiekenner* for advice about symptoms and what to use, to combat the side effects of allopathic medicine or to ask for plants, which is occasionally paid for in kind. In my fieldwork, I occasionally saw *kruiekenners* and elderly women practice *insmeer* and administering medicinal decoctions to children. By contrast, Rastafari bush doctors sell medicinal plants in the Genadendal town centre twice a month. Here, the plants are openly displayed as part of an informal market. Rastafari bush doctors also sell plants from their homes and are consulted about plants to use for specific symptoms.



Some of the plants used in Genadendal, such as *Leonotis leonurus*, *Artemisia afra*, *Aloe ferox*, *Carpobrotus edulis*, *Tulbaghia violacea*, *Tagetes minuta* and *Agathosma betulina* are naturalized and are often grown in gardens. Elderly participants who are unable to walk to the *veld* cultivate medicinal plants in their gardens for ease of access or ask their children and grandchildren to collect plants in the *veld* by describing the appearance, texture, and smell of the plants to them. Overall, participants preferred to collect plants from the *veld*. They argued that medicinal plants from the *veld* are stronger and perceived them as more efficacious than those in gardens. Plants are collected in the spring and summer months when they were more readily available and easily identifiable. These seasons are also considered to yield strong plants with high potency. The participants in my fieldwork had diverse opinions about the potency of medicinal plants collected in the *veld* compared to those grown in gardens as well as fresh and dry plant material. Fifty six percent (56%) of participants used fresh plant material. This is partly because they collected plants as they needed them and generally did not preserve plant material for extended periods. In comparison, forty six percent (46%) of participants, including all the *kruiekenners* in my study, reported that dry plant material makes stronger remedies and “worked” faster.

As can be seen from the above, there is a distinction between and idiosyncrasy about the perceived power of plants from the *veld* and those which grow in Gardens. Participants also linked medicinal plants’ power to nature and God. In Paulshoek, Northern Cape, South Africa, Cohen (2008; 2009; 2015) confirmed that participants in his study understand plants as “gifts from God.” He argues that plants are intricately linked in webs of relations with people, illness and *toor* (witchcraft). Medicinal remedies and prayers are used to combat the life sapping effects of witchcraft. Cohen draws on Low’s (2004; 2007; 2009) work to discuss the link between people, plants and the environment. Low argues that plants reportedly have spirits which are interconnected with nature. Plants appear in dreams and through meditation to *kruiedoktors* and direct them to (new) healing uses (Cohen, 2015: 14). The healing powers of plants are thus activated by knowledgeable *kruiedoktors* who use it to allay a variety of social and health related problems. In other studies, scholars have shown that the site of plant collection, such as from the *veld*, mountains or specific province plays a role in its perceived therapeutic power and efficacy (Davids, 2012; Davids et al., 2014; Hughes et al., 2015; Nathen, 2016; Ellis, 2018). Notably, the above studies all mention the power of medicinal plants and show that their perceived power are linked to knowledgeable people who use and recommend

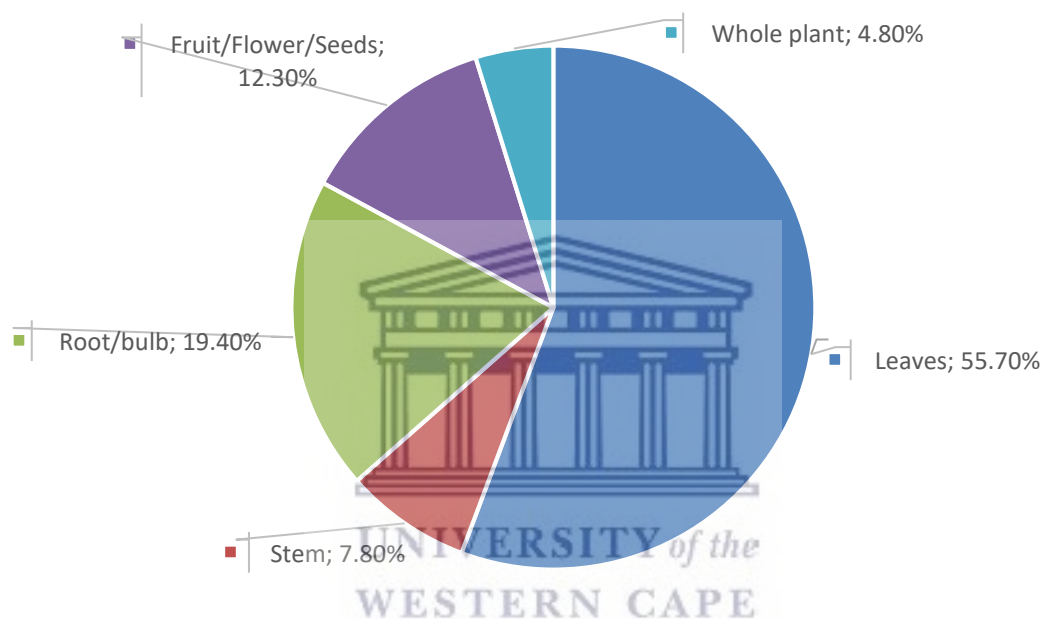
them. In Genadendal, my participants also made this connection and consulted *kruiekeners* for their specialist knowledge.

As discussed above, some plants are considered stronger than others and the quantities used, preparation methods and modes of administration varied for each plant and amongst users. The preparation and administration of each plant mixture depends on the severity and duration of symptoms. This differed from one participant to the next. Up to nine different species were used in plant mixtures, although most mixtures contained only one plant and were consumed at different times to other plant remedies or allopathic medication. In some instances, plants were added to decoctions to improve flavour, combat a different symptom or to make a more potent decoction which would possibly work faster. Certain plant species were reported to be especially effective against Tuberculosis symptoms such as *Carpobrotus edulis*, *Passerina filiformis* and *Calendula L.* but are thought to be toxic or have side-effects in strong doses or after prolonged use. Participants thus cautioned that these should be used in moderation. The traditional practice of using multiple plants in a mixture has been documented in other studies (Alarcon-Aguilara et al., 1998; Davids et al., 2014; Hughes et al., 2014; Hughes et al., 2015). Evidence in the literature suggests that the use of multiple plants decreases the likelihood of resistance to specific plants or persistent symptoms. In my fieldwork, participants reported that multiple plants were used because they worked well together to treat symptoms.

Most of the plant preparations were ingested orally (62%) and were usually prepared as decoctions or infusions. Topical application (18%) was used to treat skin rashes and irritations associated with Tuberculosis medication side-effects. Plant leaves were also drenched in hot water and applied to the chest to alleviate chest pains and fever. Eight percent (8%) of participants used a combination of oral ingestion and topical application. Body washes (6%) and plants used as snuff and/or enemas (6%) were not as frequently reported. The reported dosages varied significantly from one participant to the next. These ranged from 5ml to 350ml per dose up to three times a day. In general, children receive half the adult dose. The duration of treatment lasted until symptoms or side-effects cleared up. This period ranged anywhere from two weeks to six months. After this period, many participants continued to take weaker doses of plant remedies as a tonic for general well-being.

The leaves (56%) were the most frequently harvested and used plant part in decoctions made for the management of Tuberculosis and associated symptoms in Genadendal. The extensive use of leaves in medicinal remedies is also recognized in other ethnobotanical studies (Hughes

et al., 2013; Davids et al., 2014; 2016; Hughes. et al., 2015). The belief that the leaves are the strongest part of the plant, offering the most potency in relation to other parts, has encouraged their extensive use. It also raises potential concerns about medicinal plant conservation because of its over-use (Loundou, 2008; Mintsa Mi Nzue, 2009; Street and Prinsloo, 2013). The roots/bulbs (19.4%) were the second most frequently used plant part and raises similar conservation concerns as the whole plant is uprooted and used. Other plant parts (**Fig. 6**) were also utilized, but to a much lesser extent.



**Figure 6:** Plant parts used in medicinal preparations

Overall, there were no significant variations of plant parts reportedly used by participants for Tuberculosis when compared to its associated symptoms such as chest pain, chronic cough, night sweats, fever and fatigue. However, there were dissimilar views about how plant parts should be used to address similar symptoms by different participants. The dry leaves of *Artemisia afra* and *Leonotis leonurus*, for example are consumed orally as a hot tea to treat chest pains, chronic cough and headaches by some, while other participants argued that the curative effect of the fresh leaves were more evident when used externally. The parts of the same plant used to treat similar reported symptoms thus differed from one participant to the next in Genadendal.

By collecting plants in the *veld*, dry pressing them, interviewing and spending time learning about *kruiekeners'* plant knowledge through the survey; modes of plant preparation and

administration, and about plants themselves, I was able to observe how knowledge production permeates through networks of association between the *veld*, *kruiekeners*, and science colleagues at SAHSMI. As plant specimens were collected and data about their use for specific symptoms documented, I was acting as an “intermediary” between *kruiekeners*, the *veld* and my colleagues nearly 150km’s away (Latour, 1999). I was also inadvertently translating plants and plant knowledge during each step that is, in the *veld* collecting plants, dry pressing plants, and interviewing consumers of plant medicine, to eliminate indeterminacy. I had to, for example, collect specific plants, in a certain geographic setting, and had to hone in on how these are used and for which conditions by interviewing people. This was because scientists required a detailed inventory of plant specimens, a list of symptoms, and methods for using plants to treat symptoms, so that they could in the next stage further translate physical plants and knowledge about them into a single entity i.e. graphs, figures, and texts which represents all the steps described above. I discuss this translation further in the next section.

#### **4.8. Returning to Cape Town: Preparing plants as reference collections**

After a period in the field, I returned to Cape Town with the pressed plant specimens so that SAHSMI scientists and I could examine them. At SAHSMI I went around the offices and laboratory to meet with colleagues that were part of the MUTHI project and updated them on the plants I had collected. As I walked from one office to the next, I became acutely aware of the environment I had just left behind and the one I now found myself in. The long drive from Genadendal with its relatively quiet, scenic farmlands, livestock roaming freely, mountain backdrops and ravines, served to prepare me for the hustle and bustle of Cape Town again.

The laboratory; its activities, space, colours, and sounds were a “world-apart” (Latour, 1987: 18). Although I had spent at least two years doing research and working with scientists before, my fieldwork in Genadendal made me see and experience this space afresh. I observed that the floor space was separated into two sections. One section was made up of offices and student workstations while the laboratory was sectioned off with glass and had machines, test tubes, plant material scattered under UV lights to dry, and bottles of chemicals were carefully arranged in glass cabinets (**Fig. 7 & 8**). The office area was a hub of activity. Students in lab coats were at their workstations, phones rang almost constantly and the sound of office equipment such as printers, air conditioners and laboratory machinery were whirring in the background. In a way, these observations reminded me that I was no longer in the “natural



world” and had to make an analytical shift to closely observe the different practices, ways of knowing, and studying plants in a laboratory setting (Latour, 1999).

Doing ethnobotanical surveys are, as Tsing (2010) contends, a process of identification and categorization, but they also have the tendency to reduce plants to derivatives of their sociocultural and ecological contexts (Cohen, 2009: 19). Up till now, doing the ethnobotanical survey was procedural. As part of the process, I had engaged *kruiekenners* about their plant knowledge, collected plants from their local environs, dry pressed, stored and then transported them to Cape Town. These processes also involve getting to know plant-life more intimately (Tsing, 2010). The sociality, relationality, and plant forms which I observed and engaged with by collecting, pressing and “processing” plants stretched well beyond the *veld* or Genadendal. The collected plants continued to display liveliness as I tried to dry press them in my room in Genadendal as well as on the way to Cape Town when my car was filled with their herbaceous smells. I had, because of the processes, got to know plants more intimately and developed an ethics of care and concern for them (Pitt, 2014). Yet, because of my past experience with science and the objective of the MUTHI project to collect plant specimens as data, I also knew that they would now undergo further translations in the laboratory which would abstract them as well as knowledge about them into referents necessary for the production of facts (Latour, 1999) and which are essential for the RTO study later on.



**Figure 7:** A section of the laboratory at SAHSMI.  
Author photo



**Figure 8:** Dried plant material in the plant storage room at the SAHSMI laboratory

Like my observation and sense perceived sense of detachment in the laboratory above, the plants, which I had carefully collected, trimmed, labelled, slept on, observed and “cared” for over the prior months, were also far from the environment they found themselves in not so long ago. By collecting, dry pressing, and transporting plant samples, I was moving, but also preserving, “features” or parts of the *veld*, plants, the soil, weather, smell and *kruiekeners* knowledge. The plants were “detached, separated, preserved and tagged” (Latour, 1999: 39). This was necessary because SAHSMI scientists and botanists rely on these features to perform the next step.

The collected specimens would now undergo another translation. This process involves deconstructing, further detaching, and then reassembling plants according to taxonomical and botanical specifications so that researchers can compare, learn new things about plants, and keep a permanent feature in the form of a reference collection. The plants no longer grow in the *veld*, but have been transformed by the practices, knowledge and skill of the scientists/botanists and me. They exist as “hybrid mixtures” of the *veld*, *kruiekeners* knowledge, the collection and transportation process, and their “reconstruction” as identified, labelled, and stored reference collections (Latour, 1999: 39).

SAHSMI scientists and students began to scrutinize the collected plant specimens. Botany students first examined the plants. The plant specimens were decontaminated with ethanol spray to avoid potential cross-contamination with plants already in laboratory storage. The botany students then carefully examined each specimen under a magnifying glass and, what was deemed “acceptable” specimens, that is with leaves, shape, colour and parts intact, were temporarily moved to the plant storage room to be prepared as reference collections. This would later be deposited at the UWC Herbarium. In other words, the botany students who helped to scrutinize, categorise and “process” plants as reference collections were being attentive to, and also showing me how they notice, name, and enact physical plants botanically (Latour, 1999; Mol, 2002; Tsing, 2015).

The remaining plant specimens were then examined by phytochemists who were interested in samples to compare with samples collected from other regions. SAHSMI scientists began to extract some of the plants in ethanol while others were further dried or refrigerated to preserve their potential bioactivity for future testing.



Because I followed the work of many of these SAHSMI scientists in the past (Davids, 2012), I knew that they would go on to test my plant specimens using STN assays (Bioassay-guided fractionation), Nuclear magnetic resonance (NMR) and High Performance Liquid Chromatography (HPLC) to confirm (or not) whether they had bioactivity for health conditions which were already being investigated as part of student projects or institutional research on HIV/AIDS, TB, Cancer and Malaria. This would include testing for antifungal activity, antibacterial, antioxidant, protease and toxicity amongst others. The emphasis of my thesis and research project was, however, not to revisit this process but to focus on the RTO study and the techniques it involved as a form of experiential science.

When colleagues at SAHSMI completed their examination of my collected plant specimens, they were deposited at the herbarium at (UWC) together with collection/field notes and a comprehensive reference collection with representative specimens. At the herbarium, the plants were further scrutinized, dried, mounted onto wax paper, scientifically classified, and given voucher numbers before acceptance into the main reference collection archives. I then researched other ethnobotanical surveys such as those done by Cocks and Dold (1999; 2000; 2002) in the Eastern Cape and Thring and Weitz (2006) in Elim, Western Cape. This was to compare the local vernacular names of the plants collected with *kruiekenners* to existing literature. The latter also gave extensive botanical descriptions, as well as the known medicinal uses, dosages, and such of the medicinal plants. The scientific names and genus of the plants also appear in the literature. Lastly, the plant names were updated using Kew's plant list <http://www.theplantlist.org/> (accessed and updated: 28.02.2016).

## Conclusions

In this chapter, I examined the practices and processes involved in doing an ethnobotanical survey. I shadowed *kruiekenners* and plant users to ascertain when, how and under which circumstances plants are collected, prepared and used. By exploring the life histories of some of my participants, I also observed how practical plant knowledge is learnt, produced and reproduced over time. I argue that ethnobotanical knowledge is not pragmatic or static. The representations of ethnobotanical knowledge over time are somewhat repetitive but are also adaptive and transformative. *Kruiekenners* displayed a kind of embedded knowledge which is highly situational. The advice and treatment offered by elderly participants and *kruiekenners* is as much about addressing illness conditions as it is about the building of social relations, of interaction, but also of, and caring for, and being concerned about, others. Knowledge about

medicinal plants and healing are therefore accumulated in dynamic social situations (Lock and Nguyen, 2010; Hsu and Harris, 2010).

Although I was limited, as mentioned earlier in this chapter, by time constraints and the conventions of what scientists needed me to collect as data, I also wanted to engage with other critiques and questions of ethnobotany on human-non-human relationships. I therefore followed plants from the time of collection in the *veld* to the final stage of reference collections at the UWC herbarium. My aim was not only to collect, or document medicinal plants used by locals to manage symptoms of Tuberculosis and associated conditions, but to exemplify the often-overlooked steps in doing an ethnobotanical survey. The collection, transportation, drying procedure and preparing plants as reference collections are part of a circulatory process in which the plants are translated into something which botanists and phytochemists deem knowable or measurable in the form of reference collections, survey data or bioactive compounds. In the ethnobotanical study, plants are “detached, separated, preserved, classified, and tagged” (Latour, 1999: 39). It is during these steps where different practices, knowledge and meaning about the same plants momentarily converge and are brought into existence (Mol, 2002). These steps also raise important concerns about conservation-based conflicts, bioethics, and the killing of plants which I explore further in later chapters (Daly et al., 2016; Gibson, 2018). In the following chapter, I demonstrate that the process of translating (or reducing) plants into references such as graphs, numbers, specimens, compounds and so on, advances arguments about *kruiekenners* plant knowledge which are, to a certain extent, sanitised through the experiential techniques of the RTO study.

## Chapter 5:

### A retrospective treatment outcome study: Translating plants into experiential science

#### Introduction

The ethnobotanical study provided important information about local plant knowledge, the extent to which medicinal plants are utilised, as well as how plants are collected and used. The ethnobotanical study also provided significant information about active and suspected TB cases in Genadendal along with an inventory of commonly used plants to treat and/or manage its symptoms. This information is further scrutinised in the Retrospective Treatment Outcome (RTO) study. The RTO study builds on the ethnobotanical study by adding two experiential techniques to pre-clinical drug discovery (Johnson et al., 2007; Patwardhan and Mashelkar, 2009; Willcox et al., 2011; 2015).

Firstly, it involved the collection of clinical information such as the diagnosis, treatment, and progression of TB. Plant users were simultaneously interviewed about their reported health outcomes, and the side-effects of both prescribed allopathic medicine, and medicinal plant remedies were documented. Secondly, information about medicinal plant use, preparation techniques, dosages, period of use, reported health outcomes such as, improvement, cured or perceived side-effects were then statistically analysed to determine whether there are significant correlations between them. Noteworthy results, such as a positive correlation between a plant and improved health outcome with minimal side-effects can serve as potential clinical indicators (or identify suitable candidates) for further scientific research (Graz et al., 2005; Diallo et al., 2006; Willcox et al., 2011; 2015).

In the last two decades there have been several scientific studies done on the uses, efficacy, toxicity and potential pharmaceutical value of South African medicinal plants (Van Wyk, 2011; Street and Prinsloo, 2012; Aboyade et al., 2014). Such studies have served to corroborate the traditional claims made about plants, scrutinize their bioactivity, and conduct clinical trials, including experiential reverse pharmacology approaches to drug discovery (Johnson et al., 2007; Oloyedi, 2011; Gibson, 2011; Gibson and Killian, 2013; Morris, 2017). One such example is *Lessertia frutescens*. This indigenous plant is widely used for a range of health conditions in South Africa and is also amongst the plants used and collected in Genadendal (Oloyedi, 2011; Gibson, 2011; Gibson and Killian, 2013). The plant has been the subject of

Phase I, II(a) and II(b) randomized controlled trials and experiential reverse pharmacology approaches to drug discovery (Gibson, 2011; Gibson and Killian, 2013; Laplante, 2015; Morris, 2017). As I already explicated in Chapter 1 and 2, both trial studies of *Lessertia frutesens*<sup>21</sup> push the boundaries of conventional clinical trials because it takes into consideration, but also assimilates, the local knowledge of healers as well as the “science” of pharmacology (Gibson and Killian, 2013: 162). These studies have presented an interesting moment in South Africa's intellectual history, where traditional knowledge and science intersect to provide insight into locally used medicinal plants (Green, 2012; Green et al., 2015; Laplante, 2015).

Like the trials of *Lessertia frutesens*, the RTO study was similarly experiential in nature and situated in a moment which necessitated the scientific ways of knowing, testing and translating plants into objects of scrutiny (Latour, 1999: 2004; Turnbull, 2009). However, the RTO study was also reliant on the local knowledge of plants, understandings of TB and plant practices to identify suitable candidates for further research. In other words, because the RTO study was experiential and knowledge objects, such as Tuberculosis and *Artemisia afra*, were not yet “made,” the practices involving plants, their entanglements with humans and experiential techniques were open to scrutiny (Laplante, 2015).

Since the RTO study was a novel mode of research, it involved experiential techniques, training, practices, clinical data, computer software, and comprised actors from diverse backgrounds including, international funders, phytochemists, medical professionals, statisticians, epidemiologists, *kruiekeners*, plant users and medicinal plants. A great deal of uncertainty existed about which clinical information we should collect; which medicinal plants would “appear” in the research; which statistical test to use when correlating the reported health outcomes or side-effects with specific plants; whether any of the collected plant specimens

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<sup>21</sup> Up till now, medicinal plants were discussed as agents of healing, botanical reference collections, and as part of local knowledge (Latour, 1999; Mol, 2002). In this chapter, the scientists (medical professionals, biostatisticians, and pharmacologists) who I worked with understand, speak of, and analyse plants as botanical entities. Plants are coded so that statistical software can compare them with reported health outcomes. They are translated into software outputs in the form of histograms, tables, and figures. I therefore use the botanical/scientific names of plants in this chapter because they are known, understood, and enacted differently in the laboratory setting. In the next chapter, where I return to Genadendal, I use the vernacular names again to reflect a different reality, setting, and way of knowing plants (Latour, 1999; Mol, 2002).

would show anti-Tuberculosis activity in subsequent chemical analyses and, what the implications of the study might be for funders, local plant users and future research. Although such ambiguity existed in the RTO study, it was also an important opportunity to investigate the knowledge practices and assumptions about differing ways of producing knowledge about plants (Latour, 1993; 1999; Law, 2004; 2007; 2009; Mol, 2002; Turnbull, 2007; 2013).

In this chapter, I attempt to provide a symmetrical analysis in which the results of the overall RTO project were reliant on the intermixing, or at least interaction, of diverse knowledge and practices (Latour, 1993; 1999). A symmetrical analysis does not only represent traditional or scientific knowledge but scrutinizes them. I draw on the practices and processes involved in designing and administering the RTO survey with a medical professional, calculating an “adequate” sample size and statistically analysing survey data, and my own training and involvement in the study to take an in-depth look at how knowledge practices and objects such as Tuberculosis (TB) and medicinal plants are defined and “done” in multiple ways in different settings within the South African Herbal Science and Medicines Institute (SAHSMI) (Mol, 2002; Law, 2009). I focus on the processes in which knowledge about plants is moved, transformed, shaped, named, influenced by and influences other actors through the technology and experiential techniques of the RTO study (Latour 1999: 2005; Turnbull, 2007).

### **5.1. Designing the RTO survey with a public health professional**

I had first met Emma,<sup>22</sup> an American public health professional, a few months prior to working with her on the RTO survey. Since our first meeting, her passion for plants was obvious to me. Her office was decorated with potted plants and on her desk was a consortium of herbal oils. She told me about her natural products skin care range which included various indigenous South African plants. She came to South Africa hoping to study further and possibly extend her skin care range here.

Emma was employed as contract staff at SAHSMI to help with other branches of the Multi-Disciplinary University Health initiative (MUTHI) project. She holds two master’s degrees in public health and medical bioscience respectively. By her own admission, however, she knew very little about medicinal plants; their local uses, names or phytochemistry,

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<sup>22</sup> A pseudonym



I am a vegan. I eat plants, I bathe in plants, I feed my rabbits plants. I was never really into how they work. You know, phytochemistry? I think my attraction to plants is linked to my lifestyle. I am more interested in what they do for me as opposed to how they do it.

Instead, Emma's prior work at the Mayo clinic and consulting for the World Health Organisation (WHO) meant that she focused more on epidemiology, patterns and causes of disease, identifying risk factors associated with communicable and non-communicable conditions and examining health outcomes. Because of her in-depth knowledge and background of public health, and especially examining health outcomes, the MUTHI project leads suggested that she works alongside me to develop the RTO survey.

Emma's involvement in the RTO study was particularly important because RTO studies must include health/medical records and interviews with patients who are already known to have the condition in question, which is TB (Salkind, 2010). Gathering this information needed the expertise of a medical professional. Unlike conventional ethnobotanical surveys or comparative retrospective health studies (Johnson et al., 2008; Mlangeni and Senkubuge, 2016; Cassim et al., 2017) the MUTHI-RTO study was complex because it involved uncontrolled treatment variables, which is the use of plants in unknown or non-standardised dosages. In addition, the outcome itself was also undefined and unpredictable. Emma and I therefore had to study the ethnobotanical survey done in Genadendal so that we could ascertain key indicators, such as the most frequently used plants, recurring symptoms reported by people who had been medically diagnosed with TB or suspected they had TB, preliminary health outcomes described by participants, and to identify eligible participants to be re-interviewed for the RTO study. This was to allow us to formulate hypotheses about associations between a health outcome and an exposure, i.e. the use of medicinal plants, allopathic medicine or both, and to further investigate the potential relationships between these.

An RTO study, as Emma pointed out, cannot make causal statements based on the associations described above but should investigate the mitigating factors leading to such associations. Part of the intricacy of designing the RTO survey was therefore that many of the mitigating factors such as the specific number of TB cases in the area, length of treatment, broader effects on health and associated symptoms were unknown. The ethnobotanical survey gave us some indication of the number of TB cases, suspected cases, reported symptoms and treatments but required more specific information to be able to statistically establish the relationship between



TB, treatments and health outcomes. The Genadendal clinic does tuberculin skin tests (TST) or takes sputum and blood samples which are then sent to the Caledon district hospital (about 35km's away). Accessing patient profiles or clinical histories was a problem. Ethical clearance and permission from the Department of Health (DOH) to obtain patient health histories was a lengthy process- one which we ultimately opted to avoid given the limited time frames of the MUTHI-RTO study. Instead, and under Emma's guidance, I carefully examined the literature and the ethnobotanical study to determine likely indicators of TB which we could include and further probe in the RTO survey without accessing medical records or interviewing health care staff.

One of the confounding issues linked to the design of the RTO study was the small number of TB cases reported in the Ethnobotanical survey. As already discussed in an earlier chapter, there were only thirteen (13) cases of medically diagnosed TB in Genadendal. This figure is much lower than district or provincial averages (Taljaard, 2009; DOH - Strategic Plan, 2015; Western Cape government health, 2017; HST update, 2018). Genadendal reportedly has a high TB infection rate with approximately 1900 people living with TB (Taljaard, 2009; DOH - Strategic Plan, 2015; Massyn et al., 2016; Western Cape government health, 2017), while the Western Cape, at the time of my research, had the highest year-on-year incidence of new smear positive cases (518 per 100 000) of TB in South Africa (WHO, 2012; Massyn et al., 2016). In the literature, however, nearly all of the reported high-risk TB areas in the Western Cape fall within larger regional profiles such as the Cape Metropole, Overberg and the Theewaterskloof districts (Census, 2011; Provincial Strategic Plan on HIV/AIDS, STIs and TB 2012-2016, Overberg district plan, 2018). The epidemiology of TB in impoverished, semi-rural areas such as Genadendal and among people living on farms, where access to medical services and testing facilities are limited, are not well represented. Although prevalence surveys conducted according to municipal districts report high rates of active TB, residents of these areas often fall outside the gaze of statistical analyses which currently make up a sizable percentage of TB cases in the Western Cape (Overberg district plan, 2018).

The low incidence of TB in Genadendal thus meant that it would be impossible to statistically compare thirteen cases of TB with reported health outcomes. In statistics, particularly inferential statistics, a sample of 30 or less is considered insignificant and unlikely to yield meaningful (or significant) results (Binu et al., 2014; Andrade, 2019). However, given the fact that Genadendal's case detection by sputum microscopy is limited and the small outpatient

clinic there relied mostly on a standardised recording, reporting and referring system, Emma suspected that there may be many more TB cases in Genadendal than reported or represented in the literature. This is also supported in a systematic review of the literature which suggested that a sizable proportion of TB cases in South Africa are not diagnosed and further that there is a gap in TB treatment and/or adherence to treatment even though tests and medication are free (Heller, 2006; Andrews et al., 2007; Karim et al., 2009). We revisited the ethnobotanical survey data and found that chronic cough, an important symptom of pulmonary TB, was significantly linked ( $p \leq 0.05$ ) to participants who were medically diagnosed with TB, participants who suspected they had TB and participants who reported associated symptoms such as fatigue, chest pain, coughing up blood, weight loss and night sweats.

The presence of chronic or persistent coughing for three or more weeks is a common symptom of pulmonary tuberculosis (TB), as well as several other possible illness conditions (Field et al, 2018). Because chronic coughing is unlikely to cause a major impact on the sufferer's quality of life, it is often first treated with over-the-counter medication or with plant medicines. There are many causes of chronic coughing, of which more than one may affect any person. The three most common causes of chronic cough in adult non-smokers for which people seek medical attention are upper airway cough syndrome (UACS, formerly known as postnasal drip syndrome), asthma, and gastroesophageal reflux disease (GERD) (Joubert, 2010; Benich and Carek, 2011). The Common Cold, Influenza, allergies, smoking and general exposure to air pollution is also seen as major contributors to chronic coughing and may reduce immunofunction (Abdool et al., 2011). In high-risk TB areas, chronic cough, together with other symptoms, may probably lead a person to suspect that he or she has TB.

Considering the limited information found in the literature and drawing on the ethnobotanical study data, Emma and I had to piece together an initial hypothesis. The hypothesis or set of guiding assumptions was as follows:

- That there may be more TB cases than what is reported
- That chronic cough is a key indicator of TB in high-risk TB areas, and should be explored as a possible tracking symptom for suspected TB cases
- That plants are used to manage symptoms of TB in addition to prescribed or over-the-counter allopathic medicine

These assumptions were made based on limited evidence, but as Emma told me, “they serve as a concrete kind of base to use as a starting point for further investigation.” These assumptions would also be necessary when I later worked with a statistician to calculate the sample size needed for the RTO survey. Taking this into consideration, the RTO survey was designed to collect public health information such as symptom case histories, duration of symptoms and how such symptoms affected participants quality of life. Because the RTO included chronic coughing, the survey had to encompass retrospective information about recent illness episodes such as a Common cold, Influenza or whether the participant had been in contact with a TB sufferer in the six weeks prior to being interviewed so as to eliminate other aetiologies of chronic coughing. In addition, clinical information such as the diagnosis, treatment, progression and reported health outcomes were included in the survey and would be collected retrospectively. The survey was also intended to hone in on medicinal plants and the reported health outcomes linked to their use, as well as the reported side-effects of both prescribed allopathic medicine and medicinal plant remedies. As Latour (1987) argues, the survey is another “inscription” which would enable me to later make a more specific correlation between a singular plant and reported health outcomes but also to show whether a combination of plants affected health outcomes (I discuss this later in the chapter). The survey was presented to project leads at SAHSMI and at Oxford University who, after some review, accepted it. I then had to work with a statistician to calculate an adequate sample size for the survey.

## **5.2. Calculating an “adequate” sample size**

Prior to meeting with Samuel,<sup>23</sup> a biostatistician, I tried to calculate a sample size on my own using online calculators. I quickly realised, however, that concepts and statistical jargon, such as “p-value,” “confidence interval” and “prevalence” which needed to be entered into the online calculator in order to produce a sample, was much too complex for me. I needed the help of a statistician. Technological advancements in statistics, especially the use of online sample size calculators, which are easily searched for and widely available on the internet, have helped to make statistics more accessible for novices. While many computer applications and software, such as “SPSS,” “Sofa statistics” and “R” can help researchers calculate a sample size, they still require a level of theoretical background and skill to perform calculations and to be able to make a statement about the assumptions under which a sample was calculated (Peat,

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<sup>23</sup> A pseudonym

2011; Israel, 2013). As Samuel explained, an adequate sample size is necessary to achieve tangible results,

A sample size that is too large or too small can't find concrete results. An incorrectly calculated sample size wastes resources, eats time, and I have seen huge studies thrown out the window because of poorly calculated samples or insignificant results. I think the most important thing is that these online calculators are nifty tools to help you understand, but in biostatistics where we analyse medical data or the results of clinical trials, you must be conscious of the experimental or unnecessary risks you expose your participants to. The reason we use statistics in medical research is to guarantee, within a small margin of error, that the treatment, that the care offered is to the benefit of participants with as little risk as possible.

Before I describe how the RTO sample was done, a little statistical theory is necessary to understand what Samuel was talking about and trying to teach me. A sample size is part of a population which is carefully chosen for a survey or experiment (Cochran, 1977). Because it is, under most normal circumstances, physically impossible to survey an entire population, a sample is taken to serve as a representation of the entire population. In both descriptive statistics, which is broadly concerned with the identification of patterns emerging from data and representing it in a concise meaningful way using tables and graphs (Larson, 2006), or inferential statistics which makes inferences about a larger population from which the sample was drawn (Marshall and Jonker, 2011), a thirty percent (30%) sample of the entire population is usually considered acceptable (Efron and Tibshirani, 1993; Davison and Hinkley, 1997; Hesterberg et al., 2003; Binu et al., 2014; Andrade, 2019).

In lieu of the above, Samuel was trying to show me how to follow in the tracks of scientific protocol (Latour, 1987; Law, 1992; Serres, 1997). In this case, a carefully calculated sample serves as a representation of the human sample I needed to interview and the chance (or probability) of finding a specific symptom i.e. chronic cough. The process of doing a sample size calculation momentarily brings together a series of heterogenous bits and pieces of information such as population size and symptom of a disease and translates it into something that is passable to scientific practice (Law, 1992; Latour, 1999). The sample must conform to scientific theory and practice and must be replicable under similar circumstances or I would haphazardly sample the entire population and make scientifically unreliable inclinations about the data (Latour, 1999: 52). The sample and later tests and analysis has implications for human

and non-human actors that are brought together in stable but heterogenous networks of aligned interests for the purpose of the RTO study (Law, 1992). The implications include, for example, the number of surveys I needed to print and take with to Genadendal and the number of completed surveys needed to be able to make inferences about chronic cough, medicinal plants, and health outcomes.

In order to determine a sample size that will yield meaningful results, investigators first establish the parameters around the study (Binu, 2014). This includes the preferred margin of error (ME) or the largest acceptable deviation from the statistical mean, a standard deviation, a Z-score, the total size of the population to study which is represented as “n,” and a prediction about the probability of an event under scrutiny, for example chronic cough, to occur within the sampled population. Statisticians must also factor in sampling error which is measured by a confidence interval or level. A confidence interval is a predetermined statement about the likelihood of an event reoccurring in a given population, for instance, if the study were to be repeated multiple times, there is a 90%, 95% or 99% chance that the results would be identical. In this regard, Samuel told me that in social science 90% is a sufficient confidence interval because study results are influenced by the researcher, gender, dynamics of power and so on. In comparison, medical research, especially those involving clinical trials, use a 99% confidence interval. This is because of the accuracy needed when testing medicine or when “human subjects” are used.

To return to Samuel I, following Latour (1987), had to take an “anecdotal” approach to statistical science in an attempt to better understand what Samuel was trying to teach me about statistics. Latour (1999: 24) argues that “the only way to understand the reality of science studies is to follow what science studies does best, that is, paying close attention to the details of scientific practice.” I habitually met with Samuel on Friday afternoons in the small conference room at SAHSMI. Using the computer and a white marker board there, Samuel wrote down a few concepts such as; p-value, association, correlation, t-test and Pearson's chi-squared test ( $\chi^2$ ). He then explained them to me before asking me to stand beside him as I gingerly attempted to replicate his teachings. As an apprentice does, I initially grappled with statistical jargon, mathematical equations and computer software but was sincerely interested in this mesmerising new realm of numbers, equations and computer software. As Latour (1987: 19) contends, with the exception of situations involving privacy or competition, novices interested in science can elicit a response which assumes a teaching role from the scientist.



This was also true and became apparent in the way Samuel chose to assist me with the MUTHI-RTO study. Samuel's background as a lecturer and doing medical research meant that he was adamant about teaching rather than showing me the fundamentals of statistics. He wittily told me that he would turn me into a statistician by the end of the RTO study, a feat he partially achieved.

It was probably for the reasons discussed above that Samuel was continually trying to make statistics relatable to me, an anthropologist. When we calculated the RTO sample size, he explained that what Emma and I had done previously was to seek out situational background information which describes the problem, the context (or sample population) and could be used as hypothesis' when calculating an adequate sample size. This information was imperative, although it did not at first appear that way to me, when calculating the sample size. As we interpreted the assumptions Emma and I made, Samuel indicated that we already had the total sample  $n$ , or roughly 5000 people in Genadendal, the reported and suspected number of TB cases and people who had associated symptoms, and the number of people who utilise medicinal plants. The  $p$ -value and margin of error was easily selected from pre-existing tables of data. The final datum needed was to determine the confidence interval to use in the study. Here, Samuel relied on one of his many analogies to contextualise probability for me,

Since the study population involves people with chronic coughing, we define the sample population as those presenting with coughing that lasts more than three weeks within a six-month period. But what is the likelihood of finding someone with chronic cough? There are other things to consider here. You see this is where statistics becomes like anthropology. You must consider the social. The literature will tell us one thing, but let's think about this carefully. We can draw some deductions. If I ask you what is the chance of having your car stolen at this University, what will you say? Probably very low. But think. This is South Africa. Don't think about the safety of the University walls or fences. Crime is rife here. You might look at crime statistics or police records and they will give you some indication. So, despite the safety of the walls we accept that crime is high in South Africa and therefore that the probability of having our cars stolen is probably also much higher than we assume.

The argument Samuel raised in the above conversation was about the probability of chronic coughing and whether the confidence interval should be 90%, 95% or 99%. Since the RTO study was not an entirely medical one and did not involve clinical trials or testing medicines,



the survey protocol and research was unlikely to put participants at direct risk of experimental techniques. On the other hand, the study was not entirely “social” as Samuel put it, and therefore required a measure of replicability under similar testing (or data collection) conditions. We therefore chose 95%, a common interval in statistics (Simundic, 2008), which still allowed for a margin of error within the study. The sample (**Fig. 9**) was then calculated based on these parameters. The calculation showed that I had to interview 344 people in Genadendal in order to achieve a 95% chance of encountering someone with a chronic cough.

Cochran (1977,) reviewed by Israel (2013), allows to compute the sample size under the following conditions:

1. Assume that the distribution of people presenting with chronic coughing is normally distributed:
2. The confidence interval is 95%, Z=1.96 for alpha 5%.
3. The probability to have a participant presenting with chronic coughing in a household is P=4% (den Boon et al., 2006; Webster Mavhu et al., 2010) and not having a person coughing is Q=96%.
4. The margin of error D= 0.02
5. The total population is represented as N.

The sample size is calculated using the following equation:

$$n = \frac{N * Z_{\alpha/2}^2 * p * q}{(N - 1) * d^2 + Z_{\alpha/2}^2 * p * q}$$

6. The sample size is calculated using Microsoft excel.

|   |      |          |  |
|---|------|----------|--|
| N | 5000 |          |  |
| z | 1.96 |          |  |
| p | 0.04 | 343.5244 |  |
| q | 0.96 |          |  |
| d | 0.02 | 344      |  |

**Figure 2.**

7. The sample size is therefore calculated at 343.5244 rounded off to 344 households.

**Figure 9:** Narrative description of the RTO sample size calculation

### 5.3. Making sense of Emma and Samuel's respective science(s)

The progression of the MUTHI-RTO project outlined thus far, represents an “assemblage” (Latour 1987: 1999; Law, 2004; Law and Mol, 2008).<sup>24</sup> This includes the practices and processes surrounding the construction of scientific facts from plants which, at first, appear undetectable and somewhat disorderly (Latour, 1987: 1999: 2004), but are made real and become visible through practices. Emma and Samuel's approaches to making sense of data and converting these into representations, i.e. a data collection protocol or a well-defined sample that is plausible to informed observers (e.g. fellow SAHSMI scientists or MUTHI projects leads), offers an account of how science “works,” what scientists do, the language they use, or how they construct facts about TB, chronic coughing or medicinal plants. As an anthropologist who was working at the interface of ethnobotany, epidemiology, public health and statistics, I was in a way following plants and different ways of producing plant knowledge from one scientists' office to another to observe, participate in and make sense of how scientists produce knowledge about plants. This included, inter alia, the use of literature, scientific theory, the skill of scientists, computers and software, visual representations such as graphs and figures, and scientific language (Latour, 1987).

The ethnobotanical data, plant reference collections and local plant knowledge from Genadendal which reached this stage of the RTO study, and which would eventually find itself in tables, graphs and figures created by scientists, are not only illustrative of the prevalence of TB, chronic cough, the *veld* or plants. They are representations of the *veld*, plants, seasons, indications of drought, animal grazing, plant knowledge, TB sufferers and *kruiekenners*, but also of the process of their collection, dry pressing, storage and transportation (Latour, 1999). Emma and Samuel had to draw on their respective scientific backgrounds and techniques to translate this data into something that was quantifiable or recognizable to science (Latour, 1986: 1987: 1999). As part of this process, plant data was probed, talked about, and statistically measured through practices which render them “knowable” to science (Latour, 1999; Mol, 2002; Law and Mol, 2008), and had to stand up to scrutiny.

The processes described above also stands for “cycles of accumulation” (Latour, 1987) and show how mobile knowledge is (Turnbull, 2007). There was, for example, a sense of continuity which existed from the time of the ethnobotanical survey and its subsequent data analysis to

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<sup>24</sup> I draw on Latour (1987; 1999) and Law and Mol's (2008) idea of an assemblage as a “bridging concept” that link various practices and processes to describe my observations in different settings and among different actors.

the RTO protocol and sample size calculation. Each process was, to a certain extent, contingent on data from the previous one. Along the way, the assemblage- made up of scientists, plant data, computer technology and practices- was constantly negotiated and renegotiated, defined, refined and scrutinized (Laplante, 2015). At times, plants, plant knowledge and collection methods, were less important and, as can be seen in discussions with Emma and Samuel, fell into the background or disappeared altogether, yet were still present as immutable mobiles (Latour, 1987). On other occasions, when practices and protocols were scrutinized in meetings or discrepancies in the data arose, they were again brought to the fore and became “visible.” The final referents are inevitably linked with the construction of plant knowledge and its translation but are also extensions of actors and interactions which derive meaning from plants, and the mobility of their knowledge (Latour, 1986; Turnbull, 2007; Gibson and Killian, 2013).

According to Latour (1999), the production of scientific facts does not completely encompass or seek to include that which is considered non-science, for example, local knowledge about plants or the *veld*, in the construction of facts. Instead, scientific practices reduce these, through a series of translations, to something which is comprehensible to science (Latour, 1999; Mol, 2002). Studies which have employed an Actor-Network or material-semiotic approach have shown the reductionist and objectivist nature of scientific practices as it relates to the construction of facts (Latour, 1999; Mol, 2002; Applebaum and Oldani, 2010; Atkins and Robins, 2013), and further that the outcome of experiential science is often difficult to apply in settings outside the laboratory (Stengers, 2000; Gibson and Killian, 2013; Laplante, 2015, Cohen, 2015).

While I realise that it is difficult to overlook the supremacy of science or the significant impact that it has made on, for example, the discovery of new drugs, phytochemistry or advances in biotechnology, in the case of Emma and Samuel’s work and for the RTO study at least, I chose to maintain a constructivist or hybridized standpoint. I argue for a kind of intersectionality (Latour, 2005), which is sensitive to and inclusive of diverse knowledge(s) and practices. This is because I include, and ultimately hope to offer an account of, the agency of non-humans, the local plant knowledge of *kruiekeners*, and the “multiple-ness” of plants and conditions such as TB and chronic cough through practices. Rather than subscribing to one or the other viewpoint from only one dominant perspective (e.g. science) paying less attention to others, the study is concerned with how practices involving non-humans such as TB or plants are done in diverse ways.

#### **5.4. Doing the RTO survey in Genadendal and then returning to SAHSMI to analyse results**

In October 2014, Emma, three MA students and I drove to Genadendal to do the RTO survey. On the whole, similar protocols for interviews were used as in the ethnobotanical survey, except interviews were arranged with house visits and telephone calls beforehand rather than screening all households as before. Although we had selected participants from the ethnobotanical data set, we still had to screen more people/households to reach the needed sample size. The screening was done by cluster sampling (Martin, 2007; Wilcox et al., 2011). Participants were identified on the basis of a positive response to a screening question: "Have you been diagnosed with TB in the past and do you or anyone in the household have a chronic cough lasting three weeks or longer in the last twelve months?" A subgroup of screening questions for TB based on common symptoms was also included in the questionnaire. In total, three hundred and forty-four (344) participants who met the requirements were interviewed in the end.

During our twenty-one-day fieldwork period, we interviewed participants in detail about the treatments they had taken, when they had taken it, what the effect (or no effect) of the allopathic medicine and plant remedy or a combination thereof was and whether there had been any side effects. In other words, we were trying to establish whether or not a combination of allopathic medication and herbal remedies or herbal remedies alone were potentially unsafe or safe to use. The recall period was kept short (two to six weeks) to enable us to measure the progression of symptoms, treatment(s) and health outcomes. Throughout the fieldwork, data was captured on paper forms, and for lack of a scanner, we tediously photographed each page to ensure that none of the data was lost or became damaged. We also kept extensive fieldnotes of any additional data. At the end of each day, we had debriefing sessions, which also served to cross-check the accuracy of data on the questionnaires and to perform revisits if needed. We also started the coding process in the field. We grouped questionnaires according to usage of herbal remedies, allopathic medicine, or a combination of both herbal remedies and allopathic medicine.

Once the surveys were completed, we returned to Cape Town where I started the process of transcribing, coding and then analysing data with Samuel. The data was carefully entered onto

a dataset using Microsoft Excel.<sup>25</sup> Samuel and I then uploaded the dataset to SPSS to analyse. While the process of designing the RTO survey and collecting data involved months of training, planning and fieldwork, analysing the data took three weeks at SAHSMI.<sup>26</sup> Descriptive statistics such as frequencies, tables, percentages, and histograms were used to describe the data. Standard descriptive measures were used to describe the study sample and responses to the questionnaire. All percentage distributions were calculated based on non-missing values. No amendments were made for missing data or multiple comparisons. The analysis included comparative techniques such as Bivariate analyses in order to check the association between variables, for example, to determine the relationship between chronic coughing and TB. Chi-square tests were used when making comparisons between two groups such as age and medicinal plant use. To determine the strength of association, Phi Coefficient and Cramer's V tests was used.

In the analysis, four plant species were identified as suitable candidates for further clinical studies (i.e. there was a correlation between the plants used and improved health outcome with minimal side-effects), although further studies were not part of the objectives of my research or the MUTHI project. These plant species were selected by comparing (using correlation and association) the frequency of use across the sample population, the dosage, period of treatment, the number of cases reporting a clinical recovery or improved health status (symptoms) and their reported side-effects. The health outcomes were also compared with simultaneous uptake of prescribed allopathic medication to observe potential herb-drug interactions. In what follows, I describe the RTO study results. Because the end results comprised a forty-page report, I do not have the space to discuss all of them here. Instead I will focus on key findings such as the prevalence of TB and associated symptoms, treatments, and health outcomes. The socio-economic and socio-demographic characteristics of interviewed participants such gender, age, religion, educational level, employment, and monthly household income, are described in chapter one and three of this thesis.

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<sup>25</sup> This process involved tabulating each question and assigning participants' responses a code. In most cases, responses were selected from a range of possible answers, such as "yes" or "no." These responses were then coded as 1 and 2 correspondingly.

<sup>26</sup> In part, this was because I wanted to do the analysis with Samuel and had to work around his availability. Samuel told me that a statistician should completely analyse a data set like the RTO in two days.



## 5.5. The RTO results

### 5.5.1 Prevalence of TB and associated symptoms

When Samuel and I started generating analysis reports from SPSS, we observed a discrepancy in the prevalence of TB cases reported in Genadendal. A total of sixty-two (62) cases were reported. Four (4) participants had medically confirmed TB and fifty-eight (58) participants had had TB in the past. These figures suggest a TB infection rate of 18% in Genadendal at the time of the RTO study. Although it is much lower than the reported estimate of 1900 or 38% for Genadendal by local government (Taljaard, 2009; DOH - Strategic Plan, 2015; Western Cape government health, 2017; HST update, 2018), it is much higher than numbers reported in the ethnobotanical study. In the ethnobotanical study, thirteen (13) participants had TB (three months earlier). I had to consult Emma again to discuss this occurrence in the data. Emma speculated that some may have been cases in remission or were not honest about their status. It is also important to note that South Africa, particularly the Western Cape, is considered a high TB burden area with up to 70% of the population infected with latent TB (du Toit et al., 2020).

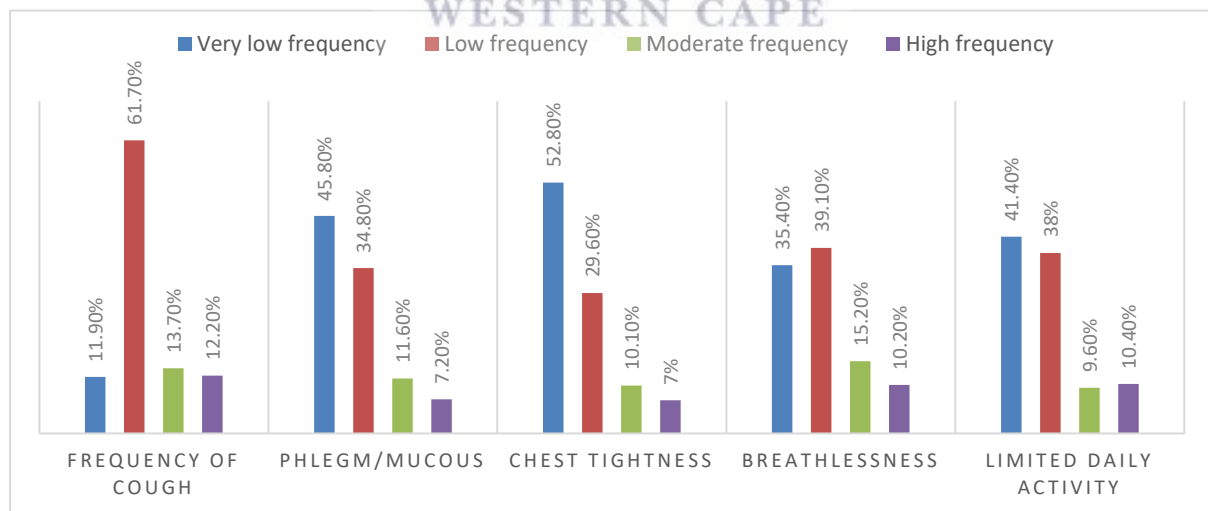
In South Africa, TB is a highly stigmatised condition (Abney, 2011: 2018; Dixon, 2012; Macdonald et al., 2016). Although TB diagnoses and treatment is free, research has shown that there are also other social determinants such as community, institutional and interpersonal factors which hinder successful TB treatment or access to healthcare (Andrews et al., 2007; Karim et al., 2009; Courtwright and Turner, 2010). In the past, stigma surrounding TB was primarily driven by the condition's transmissibility (Pebody, 2012). In Genadendal, for example, I often heard people referring to TB as *tering*, a colloquial Afrikaans term with strong references to mange in dogs. Although studies have indicated a reduction of TB stigma in South Africa over the decades resulting from effective treatment and care (Pebody, 2012), it remains a point of discrimination for some, and may deter people from sharing their status. Another reason for the increase in reported TB cases may have been due to the retrospective nature of the RTO survey. In the ethnobotanical survey, we were only concerned with the prevalence of TB and did not ask participants about a past diagnosis.

In addition to a medically confirmed diagnosis of TB, the RTO protocol was also about examining and cross-referencing the baseline TB symptoms from the ethnobotanical study with those of the RTO study. This was to better understand the relationship between TB and core symptoms, and how these are managed. Participants were asked to select from a range of



symptoms such as night sweats, weight loss, fatigue, inflammation, vomiting, vertigo, loss of appetite, fever, headaches, chest pain, stomach pain, shortness of breath, shivering and runny stomach. Although these symptoms may be an indication of a range of possible conditions, in the literature, they are presented as common symptoms of TB (Brennan et al., 2020). In high-risk TB areas such as the Western Cape, these symptoms may also lead people to suspect TB (WHO, 2007; Fourie, 2011). In the case of Genadendal, seventy-nine percent (79%) of the overall sample (n=344) presented with more than three of the aforementioned symptoms. Nearly all (93.55%) of the participants with TB confirmed at least five of these symptoms. Among TB sufferers, the most frequently reported symptoms were chronic cough (82%), fever (52.7%), weight loss (47.3%) and night sweats (43.2%) respectively.

Participants were then asked to self-assess the severity of their symptoms on a Likert scale.<sup>27</sup> This was done to measure reported symptoms against activities of daily living (ADL)<sup>28</sup> which would later be used again to measure the severity of symptoms after treatment. **Figure 10** shows that participants generally perceived their symptoms to be mild to moderate and did not grossly affect their day-to-day doings. This is partly because the figure represents the entire sample and was measured over a period of time (up to six months). However, when the recall period was shortened (three weeks) or when results were correlated with TB sufferers, the severity of symptoms, and thus ADL's, increased exponentially.



**Figure 10: Impact of symptoms on activities of daily living**

<sup>27</sup> A Likert scale is a series of points lying on a continuum used to measure a participants' attitudes or beliefs towards the topic under investigation (Sullivan and Artino, 2013). Because the participant is likely aware that their attitudes are being assessed, Likert scales allow for a strong measure of agreeable or disagreeable statements to be directly assessed.

<sup>28</sup> In public health and medical research, ADL's are used to describe basic skills such as walking, bathing, sleeping, and eating, and how illness affects these skills (Katz, 1983). More recently, ADL's have been used to qualitatively assess a patients' symptoms on their quality of life in relation to pain or suffering (Bieńkiewicz et al., 2014).

### 5.5.2. Treatments

In the RTO study, fifty-nine or (95.16%) of TB sufferers sought formal medical treatment and three did not. The latter group were medically diagnosed with TB but treated it with over-the-counter medication and medicinal remedies. Amongst the broader sample (n=344), 72.1% of participants sought medical treatment for the symptoms outlined in 5.5.1, while 27.9% did not seek any form of treatment. Participants who did not seek a medical diagnosis or treatment argued that the symptoms were not severe, did not last longer than six weeks and therefore did not call for medical intervention. Of the participants who did seek medical treatment, one hundred and forty-five or 41.28% of the overall sampled population, claimed to have spent at least one day at a public hospital as an outpatient. Treatment for TB involves taking oral medication for several months. This includes two months of isoniazid (INH), rifampin (RIF), pyrazinamide (PZA), and ethambutol (EMB) followed by a continuation phase of four months of INH and RIF.<sup>29</sup> Most people do not need to be admitted to hospital during treatment, however, in severe symptomatic cases hospitalization may be necessary (DOH National Tuberculosis Management Guidelines, 2014). The high number of participants reporting hospitalization can also be attributed to the age of the sample with 70.06% over the age of forty (40), and the likelihood of co-morbidities such as Hypertension, Diabetes Miletus or Human Immunodeficiency Virus (HIV) which may affect this group (Harper, 2006; Dixon, 2012; Parker, 2015).

All participants described above were grouped into categories according to the treatments they had taken over time. These categories included those who used allopathic medicine, medicinal remedies and those who used a combination of both. **Figure 11** characterises the relationship between treatments used. Even though the recall period was kept short so that participants could remember treatments they had recently used, the treatment period for TB usually lasts several months which meant that participants were not always able to accurately describe the treatments they used and when they did so. Because the nature and severity of symptoms vary significantly from one participant to the next and over time, participants reported that they sometimes used only medicinal remedies or only allopathic medicine and other times a combination of both, although not at the same time.

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<sup>29</sup> Personal comment, Nurse A

The concurrent use of medicinal remedies and allopathic medicine is not a new phenomenon (Aiyegoro and Okoh 2009; Hughes et al.; 2013; Davids et al., 2014; Liwa et al. 2014; Hughes et al. 2015; Davids et al., 2016). It has, however, not received much scientific scrutiny in the past (Amira and Okubadejo, 2007; Olisa and Oyelola, 2009; Hughes et al., 2015). While TB medication has proven to be effective, allopathic medicine, including its perceived physiological effect on

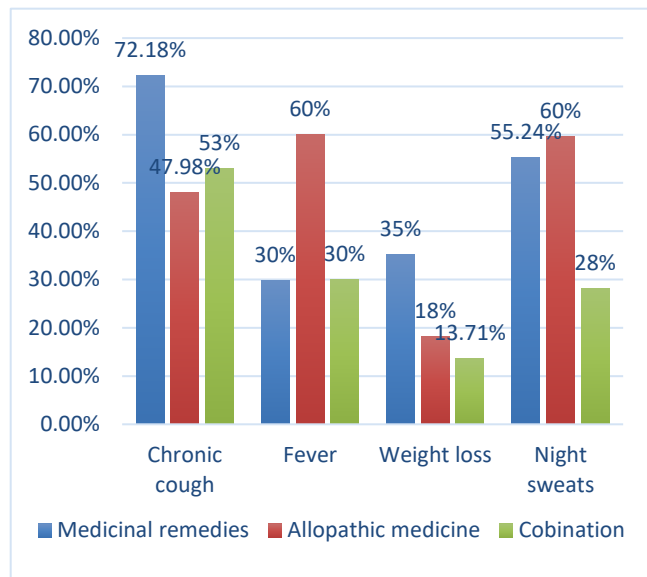


Figure 11: Treatments used for reported symptoms

bodily processes has many side-effects (Cohen, 2009; Chethan et al., 2014)). In TB sufferers, this includes nausea, vomiting, dizziness, headaches and stomach complaints to name a few. Medicinal plant preparations are generally believed to be effective with fewer side-effects (Erasto, 2005), and are seen as a potentially useful source of complementary supplements for maintaining health or to combat the side-effects of allopathic medicine. Studies have investigated the potential for herb-drug interaction and shown that there is possibility for side-effects when medicinal remedies and allopathic medicine are consumed simultaneously (Aiyegoro and Okoh, 2009; Okoh, 2008; Oliveira et al., 2015). Health care providers and users alike should therefore be made aware of the possible implications for using combinations of medicinal remedies and allopathic medicine.

In relation to medicinal remedies used, twenty-four (24) plant species were documented for the management of TB and most commonly reported symptoms, i.e. chronic cough, fever, weight loss and night sweats. These plant species, including information about their family, vernacular names and reported use, are presented in Table 2.<sup>30</sup> Two species are not listed in the table. Crystallised Rock Hyrax urine (*dassiepis*) was reported in the ethnobotanical and RTO survey but was excluded in both instances because it was not as often reported and is not a plant. The other species, *Leonotis nepetifolia* (L.) R.Br. is widespread in Genadendal. The leaves are used to make a tea to treat fever and cough. Although the plant was listed in the RTO survey, it was

<sup>30</sup> These species are listed under the voucher numbers P25\_06, P06\_04, P10\_02, P25\_07, P01\_03, P03\_01, P10\_04, P01\_01, P03\_02, P41\_05, P42\_13, P03\_03, P31\_7, P36\_1, P06\_09, P03\_07, P01\_09, P31\_01, P25\_4, P25\_8, P11\_02, P11\_01 in Table 2 Chapter 4.

also not significantly reported. The most frequently reported plants for TB and common symptoms were *Artemisia afra* Jacq. Ex Willd., *Leonotis leonurus* (L.) R.Br., *Agathosma betulina* (Berg.) Pillans and *Vernonia oligocephala* (DC.) Sch. Bip. Figure 12 illustrates the number of times these plants were reported amongst all active<sup>31</sup> medicinal plant users for the targeted symptoms in the RTO study.

The other plant species listed in **Table 2** were not as significantly reported. Participants claimed to use them in medicinal mixtures, to improve the taste of these mixtures or were applied as topical treatments. Some of these species have been documented and researched for their anti-Tuberculosis activity or to treat associated symptoms such as fever and cough. For the purposes of the RTO study, however, only

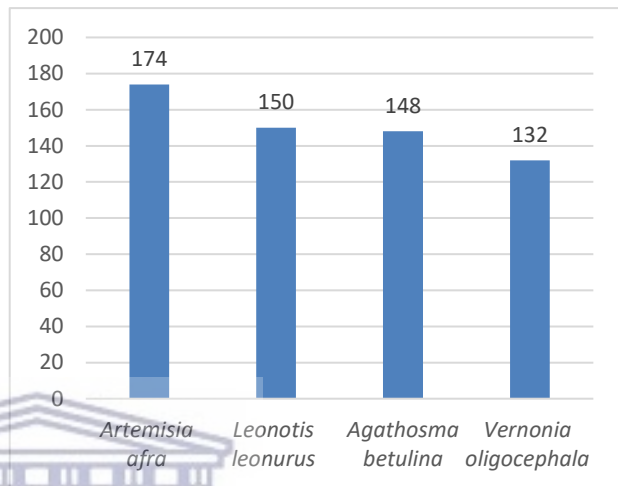


Figure 12: Frequency of test plants reported

plants which were significantly reported and showed an association between reported use and a positive health outcome could be selected for further analysis.

As can be seen from the RTO results outlined thus far, Samuel and I chose statistical tests which would yield descriptive results in the form of bar charts and histograms which in turn would represent the study data. As we analysed and compared data about plants; their relationships with symptoms, and the strength of these relationships, we had to shift back and forth between different tests, compare two rather than three or four columns of data, and adjust codes and variables to achieve the results we wanted. While we performed tests and engaged with the statistical software and data, we realised that we were also being influenced by the data, the tests, and results (Law, 1986). As Desai et al., (2017:135) argue, “While it is true that people use data and do things with them, it is equally true that data make people do things, i.e. they influence their work, they structure organizational practices, make organizations take certain decisions rather than others and produce particular effects and affects.” In this regard, data are what Latour (1987: 2005) call “actants” which have the potential to produce change and have a transformative effect on other actors through interactions with humans and non-

<sup>31</sup> Active plant users refer to people who used medicinal plants at least once a day in the two weeks prior to being interviewed (Davids et al., 2016).

humans (for example the statistical software, datasets, and the study results). From this perspective, the RTO study data were also acting on, affecting, and influencing Samuel and me. As shown in the following section, this “system of mutual influence” (Desai et al., 2017: 134) is important for realising the agency of data in tests, through interactions with humans, and for plotting how the data co-produces the overall outcome of the RTO study.

### 5.5.3. Health Outcomes

Finally, after much deliberation between Emma, Samuel, myself and senior SAHSMI scientists working on the MUTHI project, we had narrowed the search to four species. Up until now, the RTO study resembled a process akin to that of “abstractive” filtration (Latour, 1999). The plants and symptoms were gradually, but also systematically, reduced through a series of translations (Latour, 1999; Mol, 2002: 2008). The investigation started with a broad range of symptoms and plants in the ethnobotanical study. Each successive stage involved a plethora of practices, such as doing literature reviews, investigating existing epidemiological and public health information, collecting more physical data, and transcribing, coding and analysing data. All were designed to meet the criteria of scientific soundness which, borrowing from Latour (1987: 39), contends that “descriptions of social phenomena should be deductively derived from theoretical systems and subsequently tested against empirical observations.” We were then left with four plants and four symptoms which managed to make it through this lengthy process. The outcome of all this work would now be represented in a single figure.

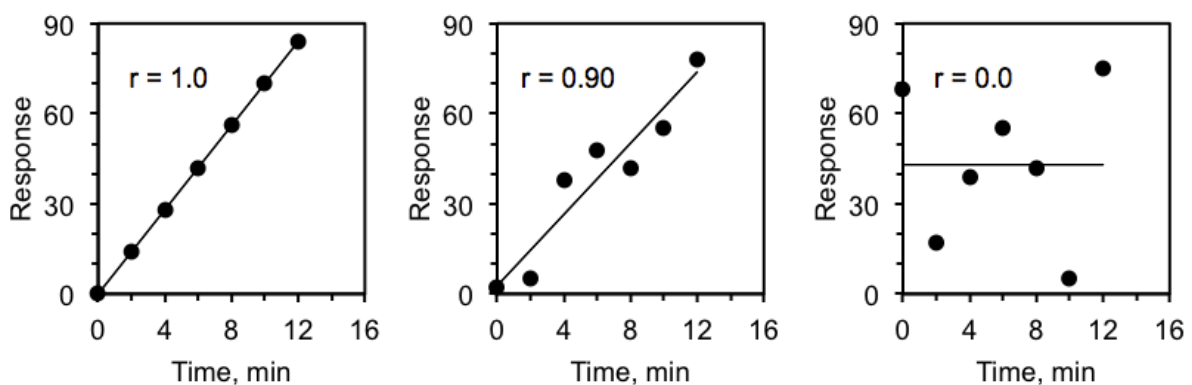
To prepare this figure, which Samuel called the “Association or contribution between medicinal plants used for TB symptoms to reported health outcomes and side-effects,” Samuel used comparative statistical techniques such as Bivariate analysis to check the association between variables. In this instance, Samuel was testing to see whether there was an association between multiple variables. These variables were the plants used, the dosages in which plant remedies were reportedly administered, and the treatment duration. The first outcomes of this test were that remedies, which included the four target plants, are used in mixtures having up to nine other plants. Fortunately, previous analysis and data had already specified the frequencies of the four main plants in these mixtures (**Fig 12**). The data also indicated that dosages and treatment duration varied from one participant to the next. Participants consumed between 5ml and 700ml per day over a period of one to twenty days. While other methods of preparation and application were reported, 99.5% of all participants consumed medicinal mixtures as a tea. The number of dosages per day also varied from one to three doses per day.



Mean averages within the dataset, however, pointed out that 88.71% of participants consumed at least one of the four targeted plants in a dosage of 350ml over a period of 10-12 days when they presented with any one of the core symptoms, i.e. chronic cough, fever, weight loss and night sweats.

While some inferences can be drawn from the results above, Samuel told me that the results were not specific or durable enough. The strength of the association had to be tested. Chi-square tests were then used to correlate or determine the strength of the association between plants used, dosage and duration of treatment. This would also be compared with perceived health outcomes. The terms correlation and association are often used interchangeably in statistics. While both refer to the relationship between variables, correlation is more stringent. Statistical tests such as Phi Coefficient, Cramer's V and P Fisher tests are used to measure the strength of association in a linear way (Hung et al., 1997; Bewick et al., 2003; Mukkaka, 2012).<sup>32</sup> In other words, these tests are able to show whether one variable is dependent on another. Incidentally, Samuel noted that correlation tests can sometimes yield or be interpreted very differently,

It is important to always check the type of correlation coefficient test used. Numbers can be swung either way, especially when you have large data sets with lots of variables. Big companies or brands sometimes use this to swing, you know, maybe perceptions about their products or the efficacy of something in their favour. Meanwhile, the product, well it works, but might not work as well as what we are led to believe.

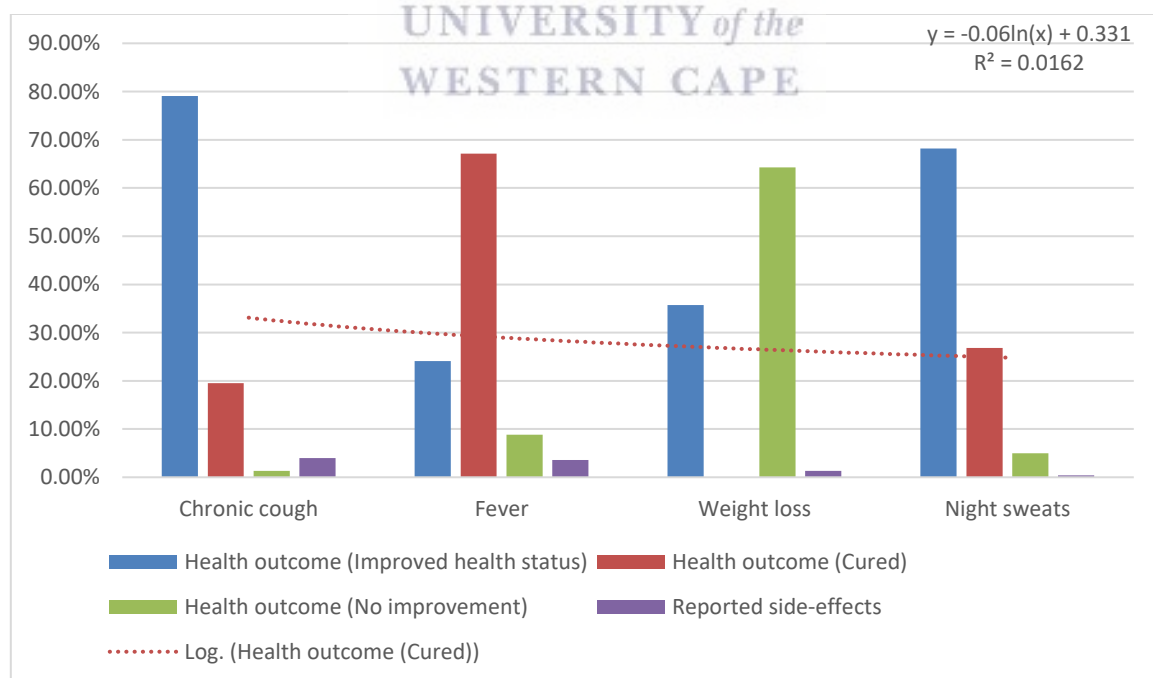


**Figure 13:** Graphs illustrating relationships between variables. Adapted from *The Human anatomy and physiology lab*. Available from: <https://courses.lumenlearning.com/ap1x94x1/chapter/correlation-coefficients/>

<sup>32</sup> In statistics, a correlation coefficient is a quantitative assessment that measures both the direction and the strength of a relationship together. **Figure 13** above from left to right demonstrates three positive relationships between variables that show a perfect relationship ( $r = 1.0$ ), a strong relationship ( $r = 0.90$ ) and a non-existing one ( $r = 0.0$ ).



Even though the outcome of the RTO study was experiential and would not be used in further studies, Samuel insisted on performing multiple correlation coefficient tests for accuracy. The results of these tests (**Fig 14**) suggested that there were a number of possible correlations between the variables. As can be seen from the graph, most participants who were using the target species reported an improved health outcome. Variables such as fever and night sweats indicated diminished over a relatively short period of time (1-5 days), while chronic cough represented the variable with the highest improved health outcomes, but this was reported over a longer period (7-20 days). Apart from weight loss, there were no significant reports of medicinal plants not having any effect. Importantly, the reported side-effects across all comparative variables, that is the target species used for the core symptoms, were miniscule. Since participants were using these plant species in any case, and subsequent literature searches (Elgorashi et al., 2003; Afolayan and Sunmonu, 2010; Patil et al., 2011) did not reveal any major concerns about toxicity or side-effects, the target species would make good candidates for further observational clinical studies (Wilcox et al., 2011). This is because an envisaged prospective comparative study of existing use and safety would not propose anything new but rely on existing evidence, i.e. that participants have already used plant remedies for some time (Wilcox et al., 2011).



**Figure 14:** Association or contribution between medicinal plants used for TB symptoms to reported health outcomes and side-effects

In a further even more detailed test, Samuel found that that there was an 88-95% (95% confidence interval) correlation between the use of *Artemisia afra* for chronic cough and reported improved health outcome after a single dose per day and over a period of 1-3 weeks. This test was not as profound for the remaining plant species with *Leonotis leonurus*, *Agathosma betulina* and *Vernonia oligocephala* reporting 68-95%, 64-93% and 58-79% respectively. In the literature, several studies have been done to confirm the claimed therapeutic properties of *Artemisia afra*. Some of these studies have partially validated these properties through clinical studies of experimental animals, or have been investigated for their antifungal activity, antibacterial, antioxidant, protease and potential toxicity.<sup>33</sup> *Artemisia afra* has also been documented for its medicinal use in ethnobotanical studies (Rood, 1994; van Wyk et al., 1997; van Wyk and Gericke, 2000; van Wyk and Albrecht, 2008; Davids et al, 2014; Hughes et al., 2015). In lieu of the above, the RTO study project leads deduced that *Artemisia afra* was a promising candidate for further clinical studies.

### Concluding thoughts

Science as a discipline and scientists have in the past been represented as something exclusive; separated from the rest of society and other ways of producing knowledge (Callon et al., 1986; Latour, 1987: 13). This division is vested in historical and epistemological partitions between science knowledge and everything else ruled not science knowledge. The symmetry of science becomes especially evident in the rigid ways in which scientists conduct research and collect, analyse and interpret data (Latour, 1986; 1993; 1999). Scientific knowledge, like methods, is often seen as objectified, bounded, fixed and positioned within the space in which it is produced, for example, in the laboratory (Latour, 1986; Agrawal, 1995; Turnbull, 2007; Green, 2007; 2012). I was well aware of the positionality of science studies around plant practices in the past and anticipated a kind of analytical separation between scientists and medicinal plants in the RTO study (Latour, 1999; Street *et al.*, 2008; Cohen, 2015; Green et al., 2015). In part, my opinion was shaped by the fact that the scientists I would be working with were not phytochemists. I thought that these scientists' ways of knowing and doing plants in practice

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<sup>33</sup> See for examples: Watt and Breyer-Brandwijk, 1962; Gundidza, 1993; Reaven et al., 1995; Rabe and van Staden, 1997; Cunningham, 1998; Wongkham et al., 2001; Burits et al., 2001; Elgorashi et al., 2003; Thring and Weitz, 2006; Mukina and Syce 2007; Mativandlala et al., 2008; Fouche et al., 2008; Mukinda et al., 2010; Sunmonu and Afolayan, 2010; Patil et al., 2011; Afolayan and Sunmonu, 2013.

would be in opposition to how I came to know plants in the *veld*, collected them and documented ethnobotanical knowledge in Genadendal. Yet, while at SAHSMI, and because of my own positionality, I argue that this was not the case.

Before I had even conceived of a PhD project, I was taking part in other MUTHI projects at SAHSMI. Following Latour's (1987) lead, I was trying to follow plants, scientists, equipment and processes to understand how plants are translated into, for example, facts, outcomes, data and so on, to understand how scientists make sense of plants and plant knowledge through the perceived rigidity of scientific methods, analyses and ways of knowing (Latour, 1986; Law and Mol, 2008; Davids, 2012). Over time, and because of the training I received from the MUTHI project and from SAHSMI scientists, I was able to work more intimately with the design of surveys, methods, presentations, statistical analyses and conducting "science" research. Consequently, I was not only following the practices and processes of science but became actively involved in the doing of science. In this way, and because of previous research experiences at SAHSMI, I was gradually drawn into SAHSMI's science culture, rather than constantly trying to negotiate my position there as a non-scientist. Although I was still a student, I was allocated a desk at SAHSMI amongst scientists and was given autonomy to access journals, books, electronic databases, the plant specimen storage room and the laboratory. I was invited to attend seminars, student presentations or to take part in laboratory experiments as an assistant. I was also given my own lab coat.

SAHSMI scientists therefore perceived me as more than a social scientist who regularly visited the laboratory for the MUTHI project and was interested in phytochemistry. I was actively participating in, albeit as far as I was able to and as far as they would permit me, SAHSMI research. I equally offered a more nuanced interpretation of some of the non-science issues SAHMI colleagues faced in their research. At times, when the situation required, I was an anthropologist. I was, for instance, asked to assist with presentations on traditional knowledge or to assist SAHSMI colleagues with publications when they were confronted with issues concerning traditional medicine or healing. Conversely, SAHSMI colleagues would regularly ask me to help with sample preparation in the laboratory or later to analyse statistical data for publications. In some respects, I had inadvertently assumed the role of an apprentice there. I subsequently began to see myself as more than just an observer of science, but as someone who was equally at home in the laboratory space and in SAHSMI's scientific activities and discourse.

It is against the above background that I argue the scientists with whom I worked were not trying to construe medicinal plants or *kruiekenners*' knowledge in a relativist or dismissive way. In reality, and as can be seen in Emma's narrative, they had their own vested interests and relationships with plants. Rather, it was the rigid and reductionist methods of public health, medical bioscience and statistics which extracted useful data and made others less apparent. The nature of the RTO study was entrenched in a theoretical assumption and framework which sought to promote African traditional medicine (ATM) and knowledge for improved health security (Graz et al., 2009; Wilcox et al., 2011; Graz et al., 2014). The study was reliant on, but also took seriously, the local knowledge of *kruiekenners* and medicinal plants. The theoretical framework underlying the RTO study was also to make scientific knowledge and the outcomes of the study viable in the contexts in which plants are used. Ultimately, the study was pertinent to scientists and local plant users because both were interested in medicinal plants which "work," can be developed as a medicine faster than conventional clinical trials and is possibly cheaper and more sustainable in remote areas like Genadendal.

In relation to my own ethnography and looking towards the next chapter; my participation in the MUTHI project and experience with conducting surveys served to heighten my personal interest in and affiliation with science and scientific ways of doing research. As my ethnographic fieldwork in Genadendal unfolded, however, I had to be reminded by the work of Strathern (1991), Verran (2001), Hsu (2010; 2015) and Latour (2013) that the objective reality of science represents only one way of knowing and understanding the world which we inhabit. The research at SAHSMI as well as the ethnobotanical and RTO surveys drew on and sought to understand knowledge about people, plants, disease and treatment from one reality, but in subsequent ethnographic fieldwork in Genadendal a different reality was being enacted—one which required me to shift to different practices, methods and understandings. In a way, I had to make an analytical move from experiential science, and the ethnographic study of this science, back to long term ethnographic fieldwork to make sense of a different way of knowing and doing medicinal plants and TB.

Geissler and Prince's (2009) work served as inspiration for me to make sense of the difficulties attending to this transition. In their compelling multidisciplinary study, Geissler and Prince conduct, but also follow a series of investigations in parasitology, botany, pharmacology, psychometrics, ethnopsychology and children's knowledge of medicinal plants in Kenya. They argue that "medicinal plant knowledge is not positioned within entities but between them; not

in objective reality, but in effects” (Geissler and Prince, 2009: 599). As scientists, they draw on anthropology and anthropological methods to “...anthropologically examine the entire study's peculiar way of seeing, as it appears to us now, and to follow its effects through different levels of scale” (Geissler and Prince: 601). Arguing for an alternative, rather competing ways of knowing, Geissler and Prince (2009: 602-603) contend that ethnography is a useful tool to uncover local understandings and practices in a way which science does not. I had to adopt a similar approach when I returned to Genadendal- one which was not dependent on competing ways of knowing but was cognisant of them as part of discussions on multiple ways of knowing in different spaces.



## Chapter 6: Knowing and doing TB in Genadendal

### Introduction

In a compelling paper presented at the first symposium of the South African medical research council's Tuberculosis Research Institute, in August of 1985, three doctors', Fourie, Townsend and Kleeberg made the following statement about the status of Tuberculosis (TB) in South Africa (Packard, 1989: IX),

Since the disease (TB) is totally curable and available control measures are sufficient to combat the disease effectively, the natural course of the epidemic can be altered to a rapid decline. Why then does the problem remain such a serious one?

This “old” question reveals the complexity which healthcare service providers, institutions such as the Centre for Disease Control (CDC) and the Department of Health (DOH), policy makers, the South African government and infected people still face in relation to TB today. The problem is exacerbated by the failure of existing control measures to effectively eradicate TB, a communicable disease caused by *Mycobacterium tuberculosis bacilli*. Although it can affect any part of the body, only active pulmonary and laryngeal TB pose the biggest risk of transmission from one person to another (Shrestha-Kuwahara et al., 2003; Romha et al., 2018; Hayward et al., 2018). Transmission occurs when a host individual inhales air containing droplet nuclei carrying the tubercle bacilli (Naidoo et al., 2017). Once inhaled, the droplet *nuclei* eventually reach the lungs and can spread throughout the body, debilitating its victims and, if not treated or if treatment is not adhered to, can cause their death (Naidoo et al., 2017). In most cases, a normal immune system limits the multiplication of the *tubercle bacilli*, although some *bacilli* remain dormant but viable, rendering a condition known as latent TB infection (Ncayiyana et al., 2016). Approximately 80% of South Africans reportedly have latent TB but only 5% go on to develop active TB (South African National AIDS Council, 2011; National Strategic Plan on HIV, STIs and TB 2012-2016).

Since 2012, the South African government spent more than R4 billion a year on TB testing, treatment and control efforts (Global AIDS response progress report, 2016). Yet the disease still produces roughly 360000 new TB cases annually (StatsSA, 2013; Global Tuberculosis report, 2020). In 2019, 58000 people died from this curable disease (Global Tuberculosis



report, 2020). The Western Cape is reported to have the third highest incidence of new smear positive cases (681 per 100 000) of TB yearly, and 90% of TB sufferers fall into the economically active age group (National Strategic Plan on HIV, STIs and TB 2012-2016).<sup>34</sup> While statistics suggest that South Africa's TB infection rate is decreasing and cure rates are increasing, the numbers are still short of development strategies and goals such as the Sustainable Development Goals 2035, End TB Strategy or National Strategic plan (WHO, 2015; Naidoo et al., 2017).

In trying to understand the persistence of TB; how it is perceived, managed as well as the emergent relations between doctors, participants, lay people, clinics, health care policy documents and other actors in the Western Cape and more generally South Africa, several ethnographic and epidemiological studies have investigated the existing treatment and control protocols (The South African national TB control programme, 2004; South African National Tuberculosis Management Guidelines, 2009; Abney, 2011: 2014; Dixon, 2012). Although this body of research is important, it does not attend to the pervasiveness of TB, high number of infections and mortality. This is partly because the South African government, healthcare institutions and policy makers have not, and perhaps cannot adequately address the foundations of TB i.e. social inequality, poverty and poor primary healthcare infrastructure (Helden, 2003; Ho, 2004; Harper 2006; 2010; Gibson, 2010; Dixon, 2012).

While officials in South Africa are aware of the socio-cultural and economic underpinnings of TB, there is nonetheless an over-reliance on medical science and technology to solve the issue in the face of adverse social and economic conditions (Packard, 1989; Karim et al., 2009). At the methodological level, several studies on clinical trials and Directly Observable Therapy Short Course (DOTS) as primary therapeutic courses of action in the treatment of TB have called the efficacy of clinical research and TB treatment into question (Harper, 2006; Dixon, 2012; Green, 2012). Advances in clinical research have nevertheless provided public optimism for the decline of infectious diseases such as HIV and TB (Cohen et al., 2009; Dooley et al., 2012). However, due to the fluid nature of TB, for various reasons, the goals of combating the disease through advances in TB diagnostics and treatment have not been met. The status of TB

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<sup>34</sup> Statistics before 2015 suggest that the Western Cape had a much higher number of TB cases, TB deaths, and overall rate of infection when compared to other provinces. Current numbers are based on data derived from 2015. Statistics since 2015 are scant and are expected to be updated once the National Strategic Plan 2017-2022 is published.

is still globally and nationally threatening. While the roll-out of TB treatment increases annually, several studies suggest that, in South Africa, a substantial proportion of infected people are still in need of TB treatment or have access to TB treatment, but do not adhere to it (Andrews et al., 2007; Karim et al., 2009). There is thus an apparent gap in treatment adherence and TB control efforts which hinder effective TB treatment and affect cure rates. One of the reasons for this is because of the adverse side effects of TB treatment, the prolonged period of treatment and frustration of those infected (Maroy, 2013).

Drawing on Mol (2002), the aim of this chapter is to explore primary healthcare and local knowledge in relation to TB as a disease, illness, and embodied experience in Genadendal. In other words, I look to examine TB at diverse levels of scale. I argue, following Mol (2002), that TB is not an unambiguous entity, but rather an accumulation of facts that is defined and “done” in different ways in primary healthcare and by local sufferers. In this process social and physiological definitions and descriptions are often intermingled, and influence understandings of the disease, treatment, and adherence. Rather than make sense of TB as an “object;” understood differently as a result of a variety of perspectives, this chapter is concerned with practice. I follow TB as a disease in and through primary healthcare and allopathic medicine. I then draw on three vignettes to explore TB as an ‘illness’ that is perceived and handled differently in and through local knowledge and daily socio-material practices such as experiences of symptoms, stigma and the use of plant medicines (Law, 2009).

## **6.1. Primary health care in Genadendal**

It is 08:05am on a Monday morning at the Genadendal clinic (**Fig 15**) and already there is a line stretching well outside the clinic doors and into the street. Through the clinic entrance door is a small waiting room with seating for up to fifteen people. These are all occupied this morning. The waiting room walls are almost completely covered with posters, information leaflet dispensers and government issue condoms. The posters contain illustrations of skeletons, the human body, various body organs and viruses. There are posters explaining the signs and symptoms of Diabetes Mellitus, Hypertension, Hypotension, pregnancy, contraception and TB. My attention is then drawn to the boisterousness of the waiting room; infants seated on their mother’s laps are moaning, crying and others are playing on the floor. The adults are mostly conversing with one another. Others are reading the medical information leaflets or newspapers there; patiently waiting their turn to see a nurse. In between the

whispering, whimpering, occasional coughing and newspapers rattling, I hear patients complaining, “it’s been going on like this forever. When will they get more nurses.”

Across the room, there is one administrator sitting behind an old but well-polished wooden desk. She is busy sorting brown patient folders. She occasionally glances up, looking over her spectacles at patients in the room, turns her rotating office chair to reach for a folder from the open display cabinet of stacked folders arranged alphabetically beside her, answers the phone or stands up so as to be seen above her tall desk and calls out the name of the next patient. The patient(s) then walk through a narrow passage to one of the consultation rooms. In the ten or so minutes I had spent in the waiting room, it was obvious that the clinic was too busy; perhaps understaffed and overburdened with patients that day. The interview I had arranged with nurse A could wait I thought. I walked over to the administrator, hoping she would convey an apology to nurse A on my behalf, but instead she called out for nurse A who, almost immediately, emerged from a consultation room, “Denver! I am glad to see you back in Genadendal. Come through.” I told nurse A that I could see the clinic was busy and would prefer to reschedule so as not to hinder her at work. “Nonsense,” she said,

I’ll tell you something now. Do these people look sick? Its Monday. The Monday after pay weekend. Can I ask you something? The line outside; were they all men? Ha ha ha. This is Genadendal my dear. *Die platteland* (the countryside). You will see this every single month. They drink whole weekend and Monday they don’t want to go work. *Babalas* (hung over). So, they come for a sick certificate. And the Mommies, they know full well it’s not baby day.<sup>35</sup>

Nurse A, or aunty A as I preferred to call her, is a senior nurse who had been working at the Genadendal Clinic for nearly twenty years at the time of my interviewing her in 2014. She was born in Genadendal and studied nursing in Cape Town in the early 90’s. She had done her community service at a district hospital in Worcester and then worked at the Caledon District Hospital before returning to settle in Genadendal. While our conversations always seemed to involve an element of jocularly, as can be seen from her response above, it was nevertheless obvious to me that she cared deeply for her patients, who like for almost all the nurses at the clinic, were fellow community members. Nurse A is well respected in the community. When I walked her home from time-to-time or went to interview her at her home, passing residents

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<sup>35</sup> Transcribed field notes, nurse A, August 2014.

would greet her, stop to chat or describe a recent illness episode and sought her advice. I also observed nurse A deliver medicine to frail or elderly patients after working hours, squeezing patients into consultation sessions during her lunch break or just before the clinic closed, and inquiring about their families, neighbours and friends before consultations in the waiting room.



**Figure 15:** Author photo of the Genadendal clinic

The excerpt of the clinic and nurse A above exemplifies the many structural issues faced by the primary health care system in Genadendal, and more broadly in South Africa. South Africa’s healthcare system has been described as “dysfunctional” (Coovadia et al., 2009), still in a period of transition (Parker, 2015), and as ill-equipped or under resourced to deal with the country’s influx of communicable and non-communicable diseases such as TB and HIV, but also to manage chronic conditions such as Diabetes Mellitus and Hypertension (Kredo et al., 2017; Solomons et al., 2019; Freeman et al., 2020). Amidst its many challenges, the South African health care system grapples with financial constraints (Malakoane et al., 2020), a lack of medical equipment and supplies (Moyimane et al., 2017) and, in some instances, poor infrastructure at primary health care facilities such as mobile and satellite clinics (Abney, 2011; Manyisa, 2016; Kredo et al., 2017). There is also a burgeoning health care staff crisis



confronting the primary health care segment in South Africa (George et al., 2012; Rawat, 2015).

The country's fragile health care system can be traced to its colonial past as well as apartheid policies in which healthcare service delivery was immensely fragmented (Baker, 2010; Gibson, 2013; Maphumulo and Bhengu, 2019). The National Party government divided the healthcare system according to racial categories, i.e. "Black," "Coloured," "Indian," "Asian" and "White" (Coovadia et al., 2009). Certain regions, such as so called "Bantustans" for example, had their own departments of health and associated health bodies (Baker, 2010). Major metropolises on the other hand, had separate hospitals or hospital sections for white and non-white people (Horwitz, 2009). This inequitable approach to healthcare led to the erosion of healthcare service delivery amongst non-white South Africans because of a lack of resources and skilled healthcare providers. This was especially evident in poorer and remote communities (Baker, 2010; Chassin & Loeb 2013; Maphumulo and Bhengu, 2019).

Since the last apartheid legislation was scrapped in 1991 and a democratic government came into power in 1994, there have been significant strides towards improving healthcare in South Africa. Government legislation and policies since 1994 have sought to implement health policies directed at making healthcare more accessible, integrated, and to provide a more inclusive national healthcare service aimed at growth and redistribution of resources (Coovadia et al., 2009; Naledi et al., 2011; Visagie & Schneider, 2014). While, for example, the National Policy on Nursing Education and Training, Policy framework on decentralised management of TB, and a plethora of technological and structural upgrades to public clinics and day-hospitals throughout the country are laudable, this is still an on-going process. Several studies have shown that there are still many barriers to healthcare, including lengthy waiting times, overcrowding, shortages of healthcare staff and medicine, poor hygiene practices in clinics and public hospitals, mismanagement, poor management of patient portfolios, and a perpetually expanding gap between public and private healthcare (Kon and Lackan, 2008; Fonn and Blaauw, 2011; Franks, 2014; Kama, 2017; Maphumulo and Bhengu, 2019). The general rampant corruption under former President Zuma also greatly impacted health care services in the country (Rispel et al., 2016).

The above trends affected Genadendal's outpatient clinic. The clinic was first operative as a smaller satellite clinic which served as an extension of the Caledon District Hospital 35km's away. Elderly residents told me that healthcare was very limited in the 70's and 80's. One

participant reported, “A doctor or nurse would come once a week, but you had to wait in a long line and just hope and pray that you will make it (to see the doctor or nurse) before the end of the day. Over Christmas they would stay away for the whole month and you would have to hitchhike to Caledon if you got sick.” In the mid-90’s, and in response to a growing population, the clinic became a permanent outpatient facility. This included an extension of its testing and treatment repertoire to include a range of communicable and non-communicable conditions such as HIV, TB, Diabetes Mellites, Hypertension and Hypotension to name a few. At present, the clinic comprises three permanent nursing staff and two permanent administrators who work from 07:30am-16:00pm Monday to Friday. In addition, specialists such as a dietician, physiotherapist, occupational therapist, and medical doctors<sup>36</sup> visit the clinic, usually by appointment, on a monthly rotational basis.

The clinic is moderately equipped, busy, and for the most part, relies on analogue practices such as patient folders and written archives to keep track of health records and general administration. In conversations with staff and patients, they reported several challenges faced by the clinic. The clinic, for example, is occasionally understaffed leading to long waiting periods for patients, medical equipment is old and inadequate, and numerous participants including clinic staff stressed that they sometimes ran out of medication. Treatment for serious illness or injury is referred to the Caledon District Hospital and requires that a patient report to the clinic, or to the Genadendal Police Station if the illness or injury occurs after clinic hours. Clinic staff or a police officer then call for an ambulance from Caledon. Patients are charged an ambulance call-out fee of R150 per trip to the hospital.

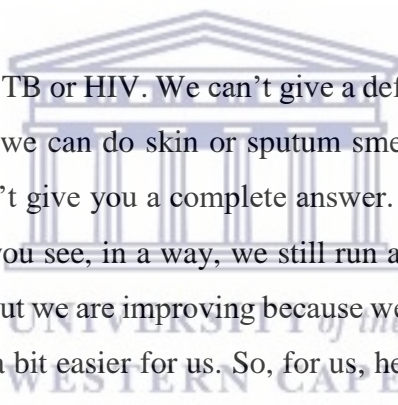
Residents have few alternative healthcare options. A small pharmacy and the practices of two private doctors are available in Greyton, however, in my own experience of an illness episode while in Genadendal, I found that the pharmacy and doctors were only open for a few hours a day and expensive. A trip to Greyton or to the Caledon District Hospital is also difficult and costly in a setting like Genadendal where large numbers of people are unemployed, earn minimum wage as farm labourers, or depend on state-funded-grants, and do not own cars.

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<sup>36</sup> I use the term specialists to refer to medical doctors as well because patients in Genadendal refer to them as such. In general, patients are able to see nurses any day of the week and liken their work to that of a doctor. Nurses examine patients, prescribe medicine, and make referrals. Medical doctors, on the other hand, are not as visible because they consult on certain days of the month or by appointment.



Because of the challenges faced by the Genadendal clinic and limited access to alternative healthcare, a significant burden falls on nurses as the primary source of healthcare. As frontline health care workers, nurses are considered as the “heartbeat” of South Africa’s healthcare system (Botha, 2014). They are responsible for “the prevention, promotion, maintenance and restoration of individuals health” (Singh and Mathuray, 2017: 123). The last three decades have also shown significant shifts in the roles nurses assume. This includes further specialisation, more autonomy and accountability (Scrivener et al., 2011). In Genadendal, Parker (2015; 2018) demonstrates that nurses must often undertake multiple roles as primary healthcare providers and caregivers. Since nurses are also residents of Genadendal, Parker argues that nurses are more sympathetic to their patients’ socio-economic backgrounds, histories, understandings of chronic conditions, and thus provide “context specific expertise” and care when dealing with patients (Parker, 2015: 43-44). This was also found to be the case in my research. As nurse B, for example intimated,



You see. Some diseases like TB or HIV. We can’t give a definitive diagnosis here. Yes, we can do HIV rapid tests, we can do skin or sputum smear tests for TB, we can do pregnancy tests. But we can’t give you a complete answer. We test, record, report and must refer to Caledon. So, you see, in a way, we still run a bit like a small outstation. We just can’t do it all here, but we are improving because we’ve got people (specialists) that come and make things a bit easier for us. So, for us, here (in Genadendal), we are not just nurses. We are carers. I think that’s why we always go beyond the call of duty. Weekends, late at night, that’s when we get phone calls to come quick it’s an emergency, and we go. What else will people do.

The reason for highlighting primary healthcare in Genadendal was not to do an ethnography of the clinic. As mentioned in chapters 3, 4 and 5, I tried to obtain ethical clearance from the Department of Health (DOH) to do research in the Genadendal clinic but was unable to get approval in time for the research. I had to rely on interviewing nurses during their lunch breaks or after working hours where they responded in their personal capacities as nurses rather than employees of the clinic. Instead, the aim of my brief description of the clinic is to show the dire socio-economic and socio-political conditions in which a disease like TB is diagnosed, made “visible” and is done in medical practice (Mol, 2002: 2008; Gibson, 2004; Law and Mol, 2008; Law, 2009).

Mol (2002) argues that the body and disease is done through a series of people such as healthcare staff, patients or carers, and using medical apparatus, tests, and protocols which patients must negotiate in the diagnosis, treatment and management of chronic conditions such as TB. These practices bring to the fore the visibility of disease which is enacted differently in diverse settings such as the clinic by nursing staff or at patients' homes in the daily socio-material practices of talking about, making sense of, living with, consuming medication for, and experiencing symptoms of TB (Mol, 2002: 2008). Given Genadendal's primary healthcare situation, I was especially interested in how nurses do TB with the limited resources at their disposal.

## 6.2. Knowing TB in the clinic

At the Genadendal clinic, nurse A explains that there are two pathways through which TB cases become known to healthcare staff. The first, and one which I draw less attention to in this chapter, is the voluntary mass screening "parades" held in Genadendal periodically. These parades as nurse A called them, are part of government efforts carried out by institutions such as the Centre for Disease Control (CDC), the National Department of Health (DOH) and occasionally the clinic to screen high-risk populations like Genadendal for TB. This has long been a part of the DOH and CDC's basic strategy to prevent and control TB (Bloch, 1995; DOH, 2013). Pop-up centres are set up at strategic areas throughout Genadendal such as outside the clinic, HBC unit or mission square to provide information about TB, screen for symptoms of TB and, pending responses to the screening questions, administer a Tuberculin skin test (TST). TST's are not as accurate as other tests for TB,<sup>37</sup> but they do have a relatively short turnaround time; usually between 48 and 72 hours (Martinez et al., 2017). A positive response to the screening questions and the administration of a TST further prompts healthcare workers to begin contact tracing and refer the patient to the clinic for a TB blood test. Nurse A intimated that the parades spread awareness but generally do not garner enough interest from residents because it is voluntary.

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<sup>37</sup> There are two kinds of tests that are used to detect TB bacteria in the body: the TB skin test (TST) and TB blood tests. A positive TB skin test or TB blood test only tells that a person has been infected with TB bacteria. It does not tell whether the person has latent TB infection (LTBI) or has progressed to TB disease. Other tests, such as a chest x-ray and a sample of sputum, are needed to see whether the person has TB disease.

The second pathway is through the Genadendal clinic. During my research, I was not able to follow a patient through a TB diagnosis process in the clinic. Nurses at the clinic told me that it had been a while since someone tested positive. I was nevertheless interested in the process and how nurses initiate the test, subsequent prognosis and management of the disease. In a consultation room, Nurse A points to a TB symptom and testing chart from the Department of health which is mounted on the wall. She also shows me two documents laying on the desk in the consultation room. One document is called National Guidelines for the Management of TB and the other a TB symptom screening tool (**Fig. 16**). Together, these documents map a series of processes and steps which must be followed from the time of suspected TB based on symptoms, administering the test, diagnosis, and subsequent management of the disease including counselling and patient support.

Excepting vulnerable groups such as the elderly, diabetics or HIV positive patients who are tested from time-to-time anyway, nurse A tells me that nothing can be done without symptoms. When I examined the TB charts and symptom screening tool with nurse A, it appeared to me that these documents represented a process of gradually confirming or eliminating symptoms before a TB test is administered. The documents require the healthcare worker to first assess the patients' medical history, i.e. whether they have Diabetes Mellites or HIV, ask why they suspect TB, for example if they were in contact with someone known to have TB, a visual or physical exam at the discretion of the healthcare worker, and then screen the patient using a table of symptoms. The latter include a cough lasting more than two weeks, prolonged fever, unexplained weight loss, night sweats, Hemoptysis (coughing up blood) and chest pain. This preliminary screening process is mostly directed at pulmonary TB. TB in other parts the body may have other symptoms and can only be traced if a patient is later referred for further detailed tests to confirm TB. Nevertheless, the screening process is needed to rule out TB or serve as a sign of suspected TB before a TST can be administered. As nurse A intimated, "We only have so many tests (TST's) at any given time so we can't test everyone who comes in here with a cough."

## ANNEXURE 2: TB SYMPTOM SCREENING TOOL



### TB SYMPTOM SCREENING TOOL FOR ADULTS AND CHILDREN

#### PATIENT DETAILS

Surname: \_\_\_\_\_ First Name: \_\_\_\_\_

Physical Address: \_\_\_\_\_ Age: \_\_\_\_\_

Telephone Number: \_\_\_\_\_ Patient folder Number: \_\_\_\_\_

#### MEDICAL HISTORY

Close contact of a person with infectious TB: 

|     |    |         |
|-----|----|---------|
| Yes | No | Unknown |
|-----|----|---------|

 (Tick v)

Type of index patient:

|          |                  |                  |
|----------|------------------|------------------|
| DS-TB    | Rif Resistant TB | MDR-TB or XDR-TB |
| Yes      | No               | Unknown          |
| Positive | Negative         | Unknown          |

Diabetic:

HIV Status:

Other: (Specify) \_\_\_\_\_

#### TB SYMPTOM SCREEN

##### 1. ADULTS

| Symptoms (Tick v)   | Yes | No |
|---|-----|----|
| Cough of 2 weeks or more OR of any duration if HIV positive |     |    |
| Persistent fever of more than two weeks                     |     |    |
| Unexplained weight loss >1.5kg in a month                   |     |    |
| Drenching night sweats                                      |     |    |

##### 2. CHILDREN

| Symptoms (Tick v)   | Yes | No |
|---|-----|----|
| Cough of 2 weeks or more which is not improving on treatment          |     |    |
| Persistent fever of more than two weeks                               |     |    |
| Documented weight loss/ failure to thrive (check Road to Health Card) |     |    |
| Fatigue (less playful/ always tired)                                  |     |    |

*If "Yes" to one or more of these questions, consider TB. If the patient is coughing, collect sputum specimen and send it for Xpert testing. If the patient is not coughing but has the other symptoms, clinically assess the patient or refer for further investigation.*

Date of last TB test: \_\_\_\_\_

Patient referred for assessment and investigation:  Yes  No

Date of referral: \_\_\_\_\_ Facility name: \_\_\_\_\_

Name: \_\_\_\_\_ Date: \_\_\_/\_\_\_/\_\_\_

Figure 16: Author scanned copy of TB screening symptom tool

Should a patient present with the above-mentioned symptoms, a Mantoux TST will be administered. Nurse A again pointed to a chart mounted on the consultation room wall (**Fig 17**) which outlines the process of administering, reading and interpreting the results of the Mantoux TST. She also said that TB blood tests (QuantiFERON blood tests) and sputum tests are done at the clinic. These tests usually take much longer to yield a result when compared to the Mantoux TST,<sup>38</sup> and is used less often by healthcare staff for this reason. The Mantoux TST is performed by injecting a small amount of tuberculin into the skin. This is normally done on the lower part of the patients' arm. Nurse A explained that the patient is then sent home, asked to isolate themselves from family members until the results are known, and encouraged to have other members of the family or those with whom the patient has had contact to be tested. The patient is also asked to return to the clinic after three days to read the results. Nurse A grasped my arm and demonstrated how she would read the results,

Look. After about three days your immune system will react to the tuberculin. You will get a red blister. Inflammation. It will look like a big puss pimple. This is called a hypersensitive reaction. T-cells and myeloid cells will come to this area where I inject you. So, when you come back I will measure this pimple. You get 5mm, 10mm and 15mm. All the measurements can be positive, but they will be different if you already have other sickness. A patient with Hypertension, sugar, HIV or pregnant can all give different readings. So, when I read this it is important to know, like we said before, if the patient has other risk-factors.

In addition to her response above, nurse A told me that the results will be confirmed by other nurses or a medical doctor at the clinic before the patient is given a final diagnosis. The patient is also referred to the Caledon District hospital for additional tests required to confirm TB. This includes a chest radiograph to detect lesions in the lungs, a sputum smear test, and to test for drug resistant strains of TB. These subsequent tests will provide a definitive diagnosis. After a confirmed positive diagnosis, the patient is enrolled in a nationwide TB register as required by the DOH. The purpose of registering as a TB patient is to link patients to the nearest clinic for treatment but it is also about tracking TB cases, treatment adherence and non-adherence, health outcomes, and providing epidemiological information on TB in South Africa (Abney, 2011; Jamieson et al., 2019). Nurse A intimated that in the past there were no TB patients requiring Directly Observed Therapy (DOTS).

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<sup>38</sup> This is because blood and/or sputum samples are sent to the Caledon District hospital for analysis.



Instead, it is obligatory that patients report to the clinic monthly to receive medication and undergo a physical examination. This is also used as an opportunity to ask whether patients are following their treatment regimens and caution them about drug-resistance, and the possibility of the disease re-emerging should medication not be taken.

## Mantoux tuberculin skin test

### 1 Administration

For each patient, conduct a risk assessment that takes into consideration recent exposure, clinical conditions that increase risk for TB disease if infected, and the program's capacity to deliver treatment for latent TB infection to determine if the skin test should be administered.

- Locate and clean injection site**
  - 2 to 4 inches below elbow joint
  - Place forearm palm side up on a firm, well-lit surface
  - Select an area free of barriers (e.g., scars, sores) to placing and reading
  - Clean the area with an alcohol swab
- Prepare syringe**
  - Check expiration date on vial and ensure vial contains tuberculin (5 TU per 0.1 ml)
  - Use a single-dose tuberculin syringe with a 1/4- to 1/2-inch, 27-gauge needle with a short bevel
  - Fill the syringe with 0.1 ml of tuberculin
- Inject tuberculin**
  - Insert slowly, bevel up, at a 5- to 15-degree angle
  - Needle bevel can be seen just below skin surface
  - After injection, a tense, pale wheal should appear over the needle
- Check skin test**
  - Wheal should be 6 to 10 mm in diameter. If not, repeat test at a site at least 2 inches away from original site
- Record information**
  - Record all the information required for documentation by your institution (e.g., date and time of test administration, injection site location, lot number of tuberculin)

### 2 Reading

The skin test should be read between 48 and 72 hours after administration. A patient who does not return within 72 hours will probably need to be rescheduled for another skin test.

- Inspect site**
  - Visually inspect site under good light
  - Erythema (reddening of the skin) – do not measure
  - Induration (hard, dense, raised formation)
- Palpate induration**
  - Use fingertips to find margins of induration
- Mark induration**
  - Use fingertips as a guide for marking widest edges of induration across forearm
- Measure induration (not erythema)**
  - Place "0" ruler line inside left dot edge
  - Read ruler line inside right dot edge (use lower measurement if between two gradations on mm scale)
- Record measurement of induration in mm**
  - If no induration, record as 0 mm
  - Do not record as "positive" or "negative"
  - Only record measurement in mm

### 3 Interpretation

Skin test interpretation depends on two factors:

- Measurement in millimeters (mm) of the induration
- Person's risk of being infected with TB and progression to disease if infected

The three cut points below should be used to determine whether the skin test reaction is positive. A person with a positive reaction should be referred for a medical evaluation for latent TB infection and appropriate follow-up and treatment if necessary. A measurement of 0 mm or a measurement below the defined cut point for each category is considered negative.

**Induration of  $\geq 5$  mm is considered positive in**

- Human immunodeficiency virus (HIV)-infected persons
- Recent contacts of TB case patients
- Persons with fibrotic changes on chest radiograph consistent with prior TB
- Patients with organ transplants and other immunosuppressed patients (e.g., receiving the equivalent of  $\geq 15$  mg/d of prednisone for 1 month or more)

**Induration of  $\geq 10$  mm is considered positive in**

- Recent immigrants (i.e., within the last 5 years) from countries with a high prevalence of TB
- Injection drug users
- Residents and employees\* of the following high-risk congregate settings:
  - prisons and jails
  - nursing homes and other long-term facilities for the elderly
  - hospitals and other health care facilities
  - residential facilities for patients with acquired immunodeficiency syndrome (AIDS)
  - homeless shelters
- Mycobacteriology laboratory personnel
- Persons with the following clinical conditions that place them at high risk:
  - silicosis
  - diabetes mellitus
  - chronic renal failure
  - some hematologic disorders (e.g., leukemias and lymphomas)
  - other specific malignancies (e.g., carcinoma of the head, neck, or lung)
  - weight loss of  $\geq 10\%$  of ideal body weight
  - gastrectomy
  - jejunoileal bypass
- Children  $< 5$  years of age
- Infants, children, and adolescents exposed to adults at high risk for developing active TB

**Induration of  $\geq 15$  mm is considered positive in**

- Persons with no known risk factors for TB

\* For employees who are otherwise at low risk for TB and who are tested as part of an infection control screening program at the start of employment, a reaction of  $\geq 15$  mm is considered positive. Some health care workers participating in an infection control screening program may have had an induration  $> 10$  mm that was considered negative at baseline. If these health care workers have an increase in induration size upon subsequent testing, they should be referred for further evaluation.

Note: Reliable administration and reading of the tuberculin skin test involves standardization of procedures, training, supervision, and practice. Always follow your institution's policies and procedures regarding infection control, evaluation, and referral. Also remember to provide culturally appropriate patient education before and after administration, reading, and interpretation of the skin test.

For more information on tuberculosis, visit [www.cdc.gov/tb](http://www.cdc.gov/tb)



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Figure 17: An example of a Mantoux Tuberculosis Skin Test flow chart. Available from: [www.cdc.gov/Posters/images/Mantoux\\_wallchart](http://www.cdc.gov/Posters/images/Mantoux_wallchart)

### 6.3. A note on reality in medical practice

Although I was not able to follow a patient through their diagnosis in the clinic, I used my own body as an example to move through but also experience patient waiting lines, the waiting room, consultation with a nurse, and the TST at the clinic. In the clinic, a TB diagnosis is a procedural and circulatory practice (Mol, 2002: 2008). It starts with an unidentified illness which manifests as symptoms such as chest pain, fatigue and cough. These symptoms are severe enough that it warrants a consultation at the clinic. At the clinic, the patient must negotiate the burden of waiting lines, appointments, the anxiety that an institutional setting like a clinic can bring about, and a consultation. During the consultation, the patient is interviewed and must perform symptoms (Mol, 2002: 32)<sup>39</sup> so as to convince the nurse that he or she is not suffering from a common cold or trying to get a sick note to skip work but that the symptoms are real and serious enough to legitimate a test. In this process, the nurse probes the body; she taps on the patient's chest, listens to the heartbeat and lungs through a stethoscope, and asks more diagnostic questions. She is trying to gather enough medical evidence to confirm that a test is needed or whether a limited resource in the clinic will be wasted despite the DOH and CDC's efforts to curb the spread of TB.

This consultation marks an important liminal<sup>40</sup> moment for the patient and the nurse. Up until now, the objects under scrutiny that is, the body and the disease, were "unmarked categories" (Mol, 2002: 11). The patient, although classified as such on the folder which administrators and nurses use to identify the patient and their medical histories, are not yet formally diagnosed and therefore not yet categorized. Similarly, the patient and his/her body has not yet been touched with the subjective and socially defined reality of being sick (Mol, 2002: 2008), at

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<sup>39</sup> I Draw on Mol (2002: 32-43) to refer to the performance of symptoms experienced by patients, e.g. as bodily symptoms of TB such as a chronic cough or fatigue, but also use Mol's idea of performance to conceptualise how nurses understand TB as, for example, the results of TST, X-ray, sputum smear test, and so on. This will be discussed later in the chapter.

<sup>40</sup> Parker (2015: 42) draws on Turner's (1969) idea of liminality to "describe how the Genadendal clinic is in a constant process of development within the larger social structure of health care." She also uses the concept to symbolise how Diabetes Miletus sufferers are in a constant state of flux, "neither sick nor healthy" (Parker, 2015: 42). I use the word liminal here in a similar way but realise that I was not able to follow patients through their diagnosis and therefore unable to see, sense or represent such a state. Instead, my description is based solely on a moment of uncertainty which I experienced at the time, and as part of a larger, somewhat unstable process of making TB known for the patient and biomedically.

least not with TB. After the consultation, when the body, symptoms, and the TB disease have been enacted, spoken about, tested and confirmed, they become facts. The consultation and test have implications going forward. The reality of TB, the patient status in the clinic, and the embodiment of the sick role inside and out of the clinic is interpreted differently for the patient and the nurse. For the patient, the consultation is, among other things, about finding out whether these symptoms have a cause, a name, its treatment, its duration, and how the disease may affect close family, friends and others in the community. For the nurse, it is about employing a “biomedical gaze” (Foucault, 1973: 2000; Gibson, 2004), which is mediated by protocols, ethics, and whereby the nurse must draw on her training, experience, knowledge of symptoms and follow a series of posters, documents, symptoms, and make referrals in order to make TB medically visible. In a way, the consultation renders the nurse a kind of intermediary between her patients and access to a test, diagnosis and further care.

However, as Mol (2002: 24) points out, healthcare staff cannot diagnose a chronic condition like TB by themselves. In the clinic, a diagnosis is contingent on and influenced by medical training, medical apparatus, tests, interactions with colleagues and patients, and the day-to-day practices in the clinic. The posters, DOH guidelines and symptom tool serve only as a point of reference which nurses use to confirm or not whether a patient needs to be tested. It is ultimately a combination of the symptoms, physical exam and references which guides the nurses’ decision to test or not.

It is important to note that the patient also plays a vital role in configuring the diagnostic process (Mol, 2002; Dixon, 2012; Abney, 2014). Patient’s experiences of symptoms are subjective and can vary significantly. As I showed earlier in this chapter, diagnostic screening questions seem to lean more towards active pulmonary TB, while other forms of TB can only be identified through further, more stringent tests. A range of pre-existing conditions may affect the skin’s reaction to the TST, and nurses must accordingly try to interpret this with the patient’s medical history in mind. Conversations with nurses at the clinic served to highlight the ambiguities and intangibility of TB diagnosis protocols. Nurses told me about past cases where patients were mistakenly diagnosed with pneumonia, Influenza, meningitis, or chronic obstructive pulmonary disease (COPD). The initial diagnostic process is therefore not as rigid as it first appears and what qualifies as medical evidence is quite fluid in this instance.

Nevertheless, if the patient has made it thus far, he or she must now endure the briefly painful tuberculin injection and wait at home, return to the clinic after 48 to 72 hours, have the skin

reaction measured and receives a preliminary diagnosis. It does not end there. The patient must, by his or her own means, find their way to the district hospital where they are again interviewed, and the body is further probed and tested with instruments of medical practice. At the hospital, the medical and technological processes used to test for TB permits a certain interpretation of the body as a physical and analytical site (Lock and Nguyen, 2010). The symptoms, the body, and the patient are reduced to objects of scrutiny necessary to make TB medically visible (Law, 2002; Mol, 2002; Law and Mol, 2008). To quote from Abney (2014: 121), biomedical procedures relate to “how bodies and lives are inscribed and choreographed.” In as much as a prior/initial diagnosis confirmed TB at the clinic, it is arguably through such protocols, instruments and medical knowledge at the hospital that the patient becomes a patient.

The patient, after some time, then receives the final diagnosis from the clinic where it all started. Back at the clinic, nurse A explains,

We read the results to the patient. We go through the X-ray with them. This is the time when they have questions and we must educate them. We must also be sensitive to their symptoms and their experiences. I've known patients that respond well to the pills, no symptoms. Other people call us and say it feels like they are dying. The thing is, we must be sensitive and approachable. This is the time that people refuse treatment or think it's a death sentence.

Although nurse A stressed the importance of being sensitive to patients' symptoms and experiences, she also told me about protocols which patients have to follow, and which nurses must enforce. Patients must, for example, collect their medication from the clinic, undergo further physical exams, be tested from time-to-time and, during stages of their treatment when they are still infectious, isolate themselves from friends, family and the rest of the village. In other words, after formal medical diagnosis patients must adapt to patienthood (Mol, 2008; Abney, 2014). This involves becoming accustomed to consuming pills at regular intervals, following a diet, abstaining from alcohol, and adapting to universal treatment ideas around TB such as embodying an attitude of adherence (Dixon, 2012; Abney, 2011: 2014). This is reinforced by nurses in follow-up consultations by interviewing patients about their symptoms, side-effects of medication, and stressing the importance of adherence. The clinic and nurses therefore become a locus of support, instruction, but also of observation (Foucault, 1973; Gibson, 2004; Dixon, 2012; Abney, 2014).



The process of diagnosing TB in the Genadendal clinic, which was as far as I was able to follow it, represents one way of knowing or enacting TB medically (Mol, 2002; 2008). The TST is a way of making TB visible, but the test, the medical apparatus used, the medical language, the knowledge of nurses, and the clinic as a medical institution also served to construct and classify people as patients. As Mol (2002) argues, the objects that is the body and disease, are not singular entities but are multiple depending on the practices and people which enact them. In the process described above, the body and TB are known and is done differently by nurses, administrators, doctors at the hospital and by patients. Consequently, objects are made real, are brought into existence and are meaningful for those who do them differently. Studies which have used Mol's (2002) line of "multiple-thinking" have shown how ontologically unstable medical practices which categorize bodies into objects of scrutiny can be (Dixon, 2012; Abney, 2014; Parker, 2015). They have also highlighted the very different "figurations" (Mol, 2002: 25) of the body, illness and disease, from the patient's point of view. The purpose of highlighting both medical and patient perspectives in the aforementioned studies is not to draw on or (re)construct stale dualisms between biomedical and local (lay) knowledge but to show that disease represents a series of different perspectives through the practices in which they are "manipulated" (Mol, 2002: 5). Since the practices which do the manipulation are different in, for example a hospital, clinic, or at the patient's home, realities of disease multiply (Mol, 2002).

The time I had spent in the Genadendal clinic was almost completely dedicated to understanding the diagnostic process and the medical perspective on TB from the nurse's point of view. As already mentioned, I did not have a patient to follow through the clinic or diagnosis, and the agency of patients; their experiences and perspectives of TB, is largely left out. In part, this was because I found it difficult to find participants who were suffering from TB and were willing to participate in my research. The Ethnobotanical and RTO studies discussed in chapters four and five served to introduce me to a small group of TB sufferers. However, the questionnaires, and the hour or so it took to complete, was far less intrusive in participants lives.

As I show in the next section, TB is still very stigmatized in Genadendal and participants were not always easy to approach as a result. In the next section, I follow the instructive lead of the studies outlined above. I draw on three cases which happened mostly by chance- and did not involve me actively recruiting participants- to take an in-depth look at three "figurations" of TB from the sufferer's point of view.



## 6.4. Three figurations of TB in Genadendal

### 6.4.1. Aunty B: Negotiating *tering*

In the early days of my fieldwork- when I was still familiarizing myself with my surroundings and because I did not yet know of shops nearby to stock up on groceries- I would habitually visit the information centre, a short walk from the room where I stayed in the mission square, to buy food, eat and chat to the two elderly aunties who worked there. The information centre<sup>41</sup> is meant to be a stop-off point for tourists, or to view and/or purchase relics which is on display at the centre. These include artefacts made by the working “outhouses” in and around the square such as the printing press, pottery house, museum, blacksmith and nursery. In the time I spent there, tourists were few and far between, but the information centre was a frequented space for locals to chat, catch up on village news and *skinner* (gossip).

I was at the centre eating breakfast one morning when two *Genaalers* saw me there and inquired about my visit to Genadendal. I told them that I was doing research on TB and *kruie*. The two elderly women and the centre staff in turn told me about aunty R<sup>42</sup> who worked in the pottery house at the time. One said, “You should go speak to her, but you must be careful. She’s got *tering*.” Obligated by the information but apprehensive about how I should approach aunty R, I went to the pottery house hoping to meet her. Aunty R was busy turning pottery bowls in one of the backrooms. She invited me in but said that I should stand at the entrance door to the room because she has TB but also did not want me to get dirty given the thick haze of dust which filled the room. I was relieved that she, almost immediately, told me about her TB status which avoided the awkward task of having to circumnavigate the conversation in the direction of TB. After informing her about my research, she invited me to her house later that week.

At her house, Aunty R discussed her symptoms, diagnosis and shared her TB story with me. She had been coughing for some time. She started to lose weight, suffered from severe headaches and became progressively weaker. Aunty R initially thought that these symptoms were possibly as a result of her Hypertension or Diabetes Miletus Type 2 but also attributed the symptoms to longtime exposure to clay dust at the pottery house where she worked. She had been using prescribed chronic medication for Hypertension and Diabetes Miletus in addition to over-the-counter medication and *kruie* to alleviate her symptoms. These reportedly helped, but when the symptoms did not subside she went to the clinic. Nurses at the clinic

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<sup>41</sup> See number 9 on Figure 4 of Chapter 3.

<sup>42</sup> A pseudonym

examined her but said that the symptoms were due to her skipping doses of chronic medication. Her blood pressure and sugar levels were reportedly high. Aunty R said that “I don’t blame them I was not taking my medicine like I was supposed to, and I did tell them that I drink (alcohol) now and again which probably doesn’t help.” The nurses instructed aunty R to take her medication and return if the symptoms did not go away after a few days.

Aunty R’s symptoms continued and worsened. She was coughing up blood and found it difficult to breathe at times. She pointed to her chest and described the pain as second only to when she gave birth to her daughter. The symptoms began to affect her day-to-day activities and she decided to visit the clinic again,

When I started to cough up blood I knew something was very wrong. The sweating at night- I was washing my sheets every morning. I couldn’t anymore. I struggled to get out of bed. I couldn’t go to work. I was really in a lot of pain. I was thinking of my daughter and what would happen if I died. I am the bread winner. She is at the high school here. I have no family in Genadendal. I don’t know what would’ve happened to her, so I decided to get help to find out what this thing that is eating me inside.

She showed me the part of her arm where a nurse injected her to do the TST test. A small scar was still visible on her fair skin. She told me that she had to go to the Caledon district hospital where “they took my blood and I had to go into this machine for x-rays.” A few weeks later, unable to recall the length of time, aunty R said that the clinic called her in for consultation, “The doctor explained everything to me, he showed me the x-ray of my chest where the TB was, and you know what I cried but I was happy. I was so happy that finally I knew what it was, and I can get the right tablets.” Aunty R had to isolate in her house for two weeks and limit contact with everyone. She expounded that the first two weeks of treatment was the worst,

I had to ask a church woman to look after my daughter. I stayed alone in this big house. But I pray to God that I never experience what I experienced in that first month. Those pink pills. I was nauseous. Denver! I tell you. You never want a migraine like the migraines I had. I am glad, so glad that it’s over. I have to take tablets for another three months I think, but I can’t give it (TB) to other people. To you. As long as I take the tablets and get tested.

Although aunty R emphasized the pain of her symptoms before diagnosis, the brief separation from her daughter, and the first few weeks of treatment as particularly hard, it was the constant

stares, evasion and *skinnering* which she grappled to cope with in the first two months after diagnosis. Aunty R intimated that people in the village are *bus* (busy body). Villagers rarely came to the pottery house as they used to because they knew she had TB. Her co-worker refused to be in the same building as her and, neighbours and friends whom she regularly visited and socialized with started avoiding her when they found out she had TB. People *skinnered* about aunty R and this resulted in numerous confrontations and arguments between fellow villagers and her. Aunty R told me that her daughter was bullied at school and labeled as the girl whose mother had *tering*. When I walked through the village with aunty R, people would cross the road to avoid us. I observed people covering their mouths and noses when walking past aunty R. Villagers, who had seen or heard that I was with aunty R, cautioned me to get tested or asked me, “do you know she has *tering*?” Consequently, aunty R claimed that she felt deserted by fellow villagers since her diagnosis,

I thought that by telling people I would get support. I thought these people would pray for me. I wish when I was in pain at night I could call someone to come help me. I am a single mother. I was already struggling. Why? I am a *kerk mens* (church person). I thought that if I told the minister he would pray for me. You know what he told me? He said maybe its best if I stay away for a while. Huh! Can you believe it? When the old people are sick, did I go to look after them? Who looked after these people’s children? I raised so many of these children! Then I was good enough. TB is curable. I’m not going to die. I am worried I will get it again, but I know I won’t die. I told my friend I am not infectious anymore. But no. That’s how you see who your friends are. I don’t worry with anyone anymore. They mustn’t ask me for anything!

Because of the shame and sense of solitude aunty R experienced, and wanting to avoid further stigma, she arranged with nurses at the clinic to collect her medication through the clinic backdoor. She explained that nurses were possibly the only people in Genadendal who knew what she was going through, were supportive, and came to visit and inquired about her well-being. Aunty R stressed that she felt like an outsider in the place where she grew up, went to school, attended church and had many friends. Although she could not leave Genadendal, she repeatedly told me that given the opportunity she would. Much later in my research, I followed up with aunty R. She had completed her TB treatment regimen and was “cleared of TB.” She left her job at the pottery house and started to work at a tavern on the outskirts of Genadendal. This was partly due to a lack of demand for products manufactured at the pottery house which

subsequently left staff with reduced salaries. However, when I visited aunty R at the tavern, she appeared to be somewhat intoxicated and told me that she also left her previous job because “drunk people don’t care if you have TB or not. As long as you can give them beer, they love you.”

#### 6.4.2. Aunty W: TB and death

In stark contrast to aunty R’s story above, aunty W’s is not of diagnosis or stigma but of undiagnosed TB and death. I had met aunty W,<sup>43</sup> a widow in her mid-70’s, during the ethnobotanical survey. After the survey was completed, we struck up a lengthy conversation about TB and *kruie* in the garden in front of her house. She pointed out at least ten of the plants I was planning to later collect during the ethnobotanical survey in her garden. It was clear to me that she was very knowledgeable about *kruie*. Her garden was well-kept, and she claimed to regularly use *kruie* and made remedies for family and neighbours. She told me that people in the village occasionally ask her for *kruie* from her garden or come to pick from her flowers and lilies. Aunty W also briefly told me about her husband who died of TB more than ten years ago. I did not have the time that day to listen, but aunty W was nevertheless adamant that I should return to talk about TB and *kruie* when I next visited Genadendal, which I did.

When I later returned to Genadendal, Aunty W articulated her life story to me which revolved around her husband, their children, the house they built, and her husband’s subsequent death of undiagnosed TB. Aunty W reminisced about her husband, uncle G.<sup>44</sup> She told me that they married young and lived with her grandmother initially. Aunty W worked as an embroiderer from home and sold items to fellow villagers and neighbouring towns such as Berea and Voorstekraal to eke out a living. They later could afford to build a house on the mountain side overlooking the Genadendal valley when Uncle G started working at the now ceased Genadendal petrol station.

Aunty W claimed that uncle G lead a very active and healthy lifestyle. He regularly hiked up the surrounding mountains with their grandchildren to collect *kruie* on weekends. He often socialized with his fellow villagers and helped in the communal garden allotments. It therefore came as a surprise when, shortly after the petrol station closed, he became very ill. He was 58 then and, in contrast to his active social life while working, was mostly indoors. At first, he

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<sup>43</sup> A pseudonym

<sup>44</sup> A pseudonym

started to cough, complained of chest pain, tiredness and occasional difficulty breathing. Aunty W recalled that “we were still working in the garden together and we joked that his symptoms were just because we were getting old.” Aunty W also said that her husband and her had never been keen on visiting the clinic or seeing doctors for illness,

We grew up in a time when there were no tablets or doctors my dear. We (referring to her siblings) had to be dying before our mother would take us to see a doctor. If you were sick you prayed, you got in bed and slept it off and our mother and grandmother went to the berg (*veld*/mountain) to get *kruie*. So, uncle G and I are the same and for our children. These children don’t know doctors or tablets. That’s why we never thought to go to a doctor when he got sick.

Uncle G’s symptoms worsened, and he went *af fast* (deteriorated/wasting). He became less and less interested in the home-cooked meals Aunty W prepared, something she reported as very strange. He coughed uncontrollably, especially at night. He lost weight rapidly and his movement in the house was mostly confined to the bedroom and the *stoep* (porch) outside their front door where uncle G often sat on his wooden rocking chair overlooking their garden and the valley. During, what aunty W described as his *laaste* (final and very sick days), she had to wash him, attempted to feed him and helped him move around the house because he was too frail to do so by himself. It was around this time that Aunty W suspected that uncle G might have cancer, a disease she reportedly observed in the past and the manner in which it *vreet die lyf* (eats away at the body). On one occasion, shortly before his death, uncle G was very weak and aunty W called for an ambulance,

They took him away on a stretcher. I thought that was his *laaste*. They wouldn’t let me go with (in the ambulance) so I was struggling the whole day to get a lift to Caledon (to the hospital). It was late afternoon, maybe four o’clock. I was standing at the gate waiting for a lift and the ambulance pulled up in front of the house. He got out. He was walking by himself. He looked angry. He was *skelling* me (scolding me) because I let them take him away, but I was just happy to see him walking and he looked fine. He walked in the house, came back out and sat on the *stoep*.

It did not last long. Uncle G was again symptomatic and very weak shortly after being dropped off by the ambulance. Aunty W recalled in vivid detail that he died two days later,



I was folding washing in the bedroom. I heard him coughing on the *stoep*. He was sitting just outside the bedroom window. I thought I heard him *gorrel* (gargling) and went to see what was going on. When I got outside he was sitting there in that old chair. Gone.

Because uncle G was relatively young at the time of his death and did not have a medical history to speak of, his children requested an autopsy. The autopsy revealed that Uncle G had been suffering from and died of TB.

#### **6.4.3. Uncle S: *Dus in jou bors*<sup>45</sup>**

In November 2014, I accompanied G<sup>46</sup> to a regular patients', uncle S,<sup>47</sup> house. The patient's daughter called G directly to his cellphone concerned that her father was unwell during the previous night. Over the phone she explained that uncle S was restless, did not sleep much, was coughing persistently, and feverish but would not allow her to call for an ambulance. G and I walked as fast as we could to uncle S's house at the outskirts of Genadendal. On the way, G explicated that uncle S was one of his "problem" cases, "he doesn't take his tablets. His one of those patients that believes in *kruie*, so he sometimes has these episodes." When we arrived at uncle S's house, his daughter invited us in and then helped uncle S into the lounge from his bedroom. Uncle S's eyes were bloodshot, and he appeared weak. G took out his digital blood pressure monitor and tested uncle S' blood pressure,

**G:** Wow! Its high. 180 over 120.

**Uncle S:** I feel fine. Just a slight headache and very tired since last night.

**G:** Did uncle take uncle's medicine this morning. I am worried now. This is high.

**Uncle S:** No. Don't worry. I am going to take some *wilde als* (*Artimisia afra*) now. Can you excuse me please? Come back in one hour. Can you go see another patient maybe in the road and come back?

G reluctantly agrees to go see another patient but cautions uncle S that when we return we will test his blood pressure again and possibly inform the clinic if it is high. Approximately an hour later we returned. G again reads Uncle S's blood pressure.

**G:** Its 140 over 90?

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<sup>45</sup> It's in your chest

<sup>46</sup> Pseudonym. HBC nurse.

<sup>47</sup> A pseudonym

**Uncle S:** Yes, I drank the *wilde als*. It worked. I feel better. I need to eat and lay down then I'll be fine

**G:** Ok, but you must take your medicine later. You can't skip the tablets.

**Uncle S:** Ok, I will... Sometimes I take *wilde als*, sometimes I take my medicine. It depends how I feel...

Uncle S, a man in his late 70's, had been suffering from multiple unrelated chronic conditions and injuries for a number of years. Uncle S's legs are both amputated due to a car accident in 2005. Shortly thereafter, he was diagnosed with hypertension, suffered a stroke and, at the time of my interviewing him in 2014, was in the fifth month of TB treatment. Uncle S is wheelchair bound and mostly confined to his house. He relies on his two daughters and HBC nurses for primary care. Despite his physical condition and chronic illness, uncle S's upper body functions normally and he is still of sound mind. According to HBC nurses and uncle S's daughters, he is notoriously stubborn, refuses to take the recommended doses of his prescribed medicine on time each day, or substitutes his allopathic medicine with *kruie* remedies from time-to-time.

When I later spent some time interviewing uncle S, he told me that he probably contracted TB from *kieme* (germs) brought home by his daughters. Uncle S's daughters both work as seasonal farm laborers on a farm in between Genadendal and Caledon. Uncle S had worked on the same farm for nearly forty years. According to uncle S, the farm is a busy place with lots of people. The vineyards and storehouse are overcrowded, *mense loop soos miere* (people walk like ants) there and it is *vuil* (dirty). Because most of the work required on the farm is seasonal, it attracts laborers from afar who do not live in Genadendal or surrounds. Uncle S explained that,

These people are not from here. They don't live like us (in the clean mountains) and bring their *kieme* (germs) here. You see, TB is a *vuilsiekte* (dirty sickness). It's not like *griep* (flu). It *broei* (breeds) in filth and you breathe it in then you get it in your lungs. I used to get sick a lot when I was working between that people. Now, my daughters are young, they didn't get TB, but they brought that germs here and I breathed it in. That's how I got sick. I don't leave this house, where else could I have got it?

Unlike the cough described by aunty R or uncle G earlier, Uncle S's initial symptoms of TB differed because he had been suffering from a chronic cough for years. Nurses at the Genadendal clinic told him that a chronic dry cough is a common symptom of Pharmapress, the blood pressure medication he uses to manage his Hypertension. At times, when the cough was unbearable, uncle S would cut his prescribed tablets in half, consumed them once instead

of twice a day, or did not take them for a few days. The cough would then subside. Uncle S therefore did not pay further attention to his chronic cough, nor did he have any other symptoms. He was tested for TB at the clinic as part of a bi-annual doctor's appointment to renew his chronic medication. The test was positive, and Uncle S was referred to Caledon district hospital and then returned to the Genadendal clinic where a doctor explained the outcome of his tests at the hospital.

At the Genadendal clinic, a doctor showed uncle S the lesions in his lungs on an X-ray. The doctor also explained how TB is contracted. After this consultation, uncle S was referred to one of the nurses who would handle his monthly visits, issue his medication and monitor his condition. Because uncle S is immobile, the HBC unit was responsible for visiting uncle S weekly, and sometimes also delivered his medication. Despite the doctor, nurse and HBC nurse's instructions and visits, uncle S had his own interpretation of how TB should be treated,

Denver, the man (doctor) told me that the TB is in my lungs. Now, I asked him, if this *tering* came through my nose then it went through my *pype* (airways) into my lungs and stopped there? Why does he give me tablets that goes to your stomach? I saw my stomach on the X-ray. There was nothing. Why must I take tablets that make my stomach sore for my lungs? I was throwing up the first two months when I took that tablets. You see, this thing *dus in jou bors*. You can't treat the stomach for the *bors*. When I drink honey and *als* (to manage TB), it coats my throat and I can feel it go to my lungs. I can feel my *bors* open up.

In uncle S's lounge, he showed me the white resealable packets of prescribed medication he was given for TB. Many of these packets dated back to when he was first diagnosed five months prior and were still full of tablets. He also displayed the *kruie* and salves he had been using to treat himself on the small coffee table in his lounge. According to uncle S, his prescribed allopathic medicine gave him side-effects such as headaches, stomach pain, nausea and he was vomiting often. At first, he consumed less and less of these tablets and did not tell the nurses. He used a combination of three *kruie* remedies instead. The first was *suurvy* (*Carpobrotus edulis*), a common plant found throughout Genadendal. He boiled the leaves in milk and consumed this once a week. The second was *wilde als* (*Artemisia afra*) which he brings to a simmer in water and consumes twice daily. Finally, uncle S reportedly uses the left over *als* leaves and mixes it with petroleum jelly. This salve is rubbed on the forehead and/or chest when he coughs, has chest pain or is feverish.

Uncle S explained that he learnt about these remedies from his grandmother and mother. As a child, his mother treated him with similar mixtures when he suffered from fever, common cold, flu, and chest related symptoms. He had been consuming remedies now and again as a general tonic but intensified doses when he learnt about his TB infection. Because he is largely immobile, he grows *kruie* in his garden and sometimes purchases from local Rastafari bush doctors. According to uncle S, these remedies have helped him to overcome TB because he tested negative at his three and six-month TB sputum tests at the Caledon district hospital.

### **6.5. Sufferers' figurations of TB**

As shown above, my participants stories are fragmented, but they converge in one way or another around TB. The stories are very different and offer only a glimpse of TB, *kruie*, screening tools, diagnosis, symptoms, the body, treatment and care. Figurations of disease, medical practice, the body, treatment and subjective experiences of all of these are, according to Mol (2002), enactments of disease. Thus, when a participant raises stigma, for instance, as important in their TB narrative, this should be read as significant for them and seen as part of a series of practices which are enacted. Like Mol (2002), I do not aim to present absolute truths about TB or the many practices surrounding the disease. Rather, I use the above figurations to highlight the inferences and complexities which are in turn raised as part of these practices, and which are meaningful for actors such as nurses or TB sufferers.

In aunty R's figuration, for example, her experience of TB was less about the initial symptoms, diagnosis, or treatment but more about the response of the rest of the community and the stigma she had to endure. TB continues to be a highly stigmatised condition in South Africa (Abney, 2011: 2014; Dixon, 2012; Macdonald, 2016). In the past, much of this stigma was associated with ideas around how the disease is spread (Pebody, 2012). According to a survey done by Pebody (2012) on TB and HIV stigma in South Africa, most people in his study thought of TB as a natural disease which is nonselective. TB is not associated with morality, promiscuity or the sufferer's own actions. Yet, sufferers and the public still view TB as socially unacceptable (Brown, 2013; Stangl, 2019). Consequently, "some people use such ideas [of unacceptability] to assert dominance over other people, especially people who are already marginalised for reasons linked to gender, sexuality, poverty or other reasons" (Pebody, 2012: 223). Abney (2014) similarly shows that the "social diagnosis" of TB plays a role in social stigma and has implications for sufferers. Abney (2014: 25) draws on Kearns (1997) idea of metaphorical language to illustrate "the human desire to give meaning to illness and the experience thereof."

She argues that metaphors such as *tering*,<sup>48</sup> emerge and evolve over time and so too does societal attitudes towards TB.

In aunty R's case, the above may be part of the reason she was socially excluded by the rest of the village. In comparison, many of the other TB sufferers I interviewed were older, retired, more-or-less financially stable,<sup>49</sup> and already suffered from "socially acceptable" ailments associated with elderly people such as Hypertension, Diabetes Miletus or Arthritis (Davids, 2010; Pasquallie, 2015; Parker, 2015). They therefore did not report experiencing stigma from fellow villagers. Trends in the literature suggests that TB stigma has gradually declined over the years (Abney, 2011: 2014; Pebody, 2012; Dixon, 2012; Macdonald, 2016). Aunty R's case nevertheless suggests that TB remains a point of discrimination for some. Although aunty R diligently stuck to her treatment regimen, her story also shows that there are other social elements such as stigma, communal, institutional and relational factors which may hinder others from successful TB treatment or access to healthcare (Andrews et al., 2007; Karim et al., 2009; Courtwright and Turner, 2010; Brown, 2013).

In relation to the second figuration, I initially was uncertain about the inclusion of aunty W and uncle G's stories. I was however, reminded and persuaded to do so when I reviewed my ethnographic material and reflected on my first formal interview with aunty W. She recalled her husband's symptoms, pain, suffering, and later death more than twenty years ago in vivid and emotional detail. Her figuration of TB and caring for her husband, while dissimilar to the other two cases, brings to the fore the many structural issues which plagued TB diagnosis and access to care at the time. Uncle G's TB infection and death occurred in the early-90's when the Genadendal clinic was still operative as a small satellite clinic and only served the village on certain days of the week. Villagers had to travel to the Caledon District Hospital for diagnosis or emergency care. Aunty W intimated that uncle G would probably still be alive had she known more about TB; its symptoms, diagnosis and treatment then or at least would have insisted on taking him for more regular doctors "check-ups" in the wake of his symptoms.

Although TB is considered treatable and curable, it is widely accepted as a chronic disease which needs a systematic approach to achieve a cure (Karim et al., 2009; Fried et al., 2015; Naidoo et al., 2017). Government policy documents, the DOH guidelines for TB and

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<sup>48</sup> A colloquial Afrikaans term with strong references to mange in dogs.

<sup>49</sup> Many of my elderly participants had their own houses and lived off a state-funded grant.



organisations such as TB/HIV care or the WHO for example, state that successful TB treatment relies on three overarching steps namely, early diagnosis, treatment, and future prevention. It is vital that each step is followed by patients and closely monitored by healthcare staff. Each step broadly corresponds to a time-frame. Allopathic medicine for TB changes during the treatment steps. This is usually done in three-month increments depending on the sufferer's progress. Research has shown that a combination of factors, such as individual patients susceptibility to drug-resistant strains of TB, non-adherence to treatment, misdiagnosis, or no diagnosis as was the case in uncle G's case, can lead to reinfection and/or death (Naidoo et al., 2018; See also Uys et al., 2015).

Death is an often-overlooked part in the study and description of pain, medicine, chronic illness, and suffering (Rothman, 1995; Turner and Kelly, 2000; Van Dongen, 2005). A theme which runs parallel through Auntie W, auntie R, uncle S's and other TB sufferers that I interviewed is that they all highlight important and potential uncertain moments of TB during various stages of the disease and its treatment which vacillates between health and illness, and life and death. These include experience of symptoms, consuming medication, side-effects of medication, interactions with the clinic and healthcare staff. In conversations, participants discussed adapting to life as a TB sufferer and chronic patient, which entailed changes to lifestyle, living arrangements, and employment. They also told me about their aspirations for life after TB, without tablets, clinic visits and side-effects of TB medication. Such conversations always seemed to contrast with moments of uncertainty, mention of reinfection after treatment and the ubiquitous fear of death. This was especially evident during the diagnosis and initial treatment phase when symptoms and levels of physical discomfort were at their worst. All were nonetheless aware that they would not die if they followed their treatment regimens.

Another important theme to consider is the complexities and understandings surrounding TB, and how these influence treatment choices and behaviour. In particular, uncle S's figuration highlights the ways in which TB sufferers understand and speak about the body and the perceived physiological effect of medicine<sup>50</sup> on bodily processes (Lock and Nguyen, 2010). His story also evokes recognized debates in medical anthropology which argues that experience and treatment [choices] of illness and disease cannot be isolated from the socio-cultural and environmental contexts in which they occur (Farquhar, 1994; Van der Geest et al., 1996;

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<sup>50</sup> Allopathic medicine or *kruie*

Reynolds Whyte et al., 2002; Helman 2007; Cohen, 2009; Hsu, 2009; Laplante, 2009; Davids, 2010).

Uncle S and many of the chronic patients who suffer from Hypertension and Diabetes Miletus, for instance, told me about their experiences of illness, their understandings of how disease or chronic ailments affects the body, impacts their day-to-day lives, and about their interactions with the clinic and nurses. Understandings of illness, disease and treatment also have a social dimension (Reynolds Whyte et al., 2002; Hsu, 2009; Laplante, 2009). I observed the ways in which elderly chronic patients share their experiences of illness with one another, discuss symptoms, exchange prescribed medication, asked for prayer and advice. This is part of the sociality and reciprocity which exists in small close-knit communities. It is, on the one hand, also about caring for, and being concerned about, others, but it is simultaneously about how participants make sense of health, illness and treatment (Du Toit, 1994; Spiegel and Watson, 1996; Davids, 2010; Ross, 2010; Makiwane, 2011). Thus, for many of my elderly chronic participants including uncle S, illness, disease, and treatment, is influenced by and inseparable from the perceptions of the community, religion, interactions with healthcare staff and the clinic, and past experiences of illness and disease.

TB awareness is good in Genadendal. Most villagers are familiar with poster's in the clinic, understand that TB is spread virally, and that treatment lasts roughly six months and should be strictly adhered to. Yet, uncle S was suitably informed about the cause, diagnosis and treatment of TB by healthcare staff but arguably drew on his own analogous interpretation of the disease and how it should be treated with *kruie*. In part, uncle S stopped his TB treatment because of the negative side-effects of TB medication such as nausea, vomiting, headaches, fatigue and so on. However, it was also about his rejecting the instruction and regulation of biomedicine and finding a way of coping with and making sense of illness and treatment outside of the biomedical paradigm or clinic (Lupton, 2012). As a result, participants like uncle S and other elderly chronic patients I interviewed in Genadendal, adjust their prescribed chronic medication, cut dosages in half, skip doses, discontinue treatment, and/or use *kruie* remedies. I also observed participants exchanging *kruie*, advising one another about its use for specific ailments and using *kruie* in combination with prescribed allopathic medication.

## Conclusions

In this chapter, I examined TB as a disease which is identified, diagnosed and managed in the Genadendal clinic by nurses, and to a certain extent, by home-based-care staff. I explored the ways in which nurses and healthcare institutions such as the clinic and district hospital do diagnostics, categorise patient bodies according to biomedical referents and manage a disease like TB. This is done in a setting and against the background of a historically disadvantaged community and primary healthcare system which continues to grapple with limited resources, inequality, marginalization, and poverty. I then look at a different reality of TB by articulating the figurations of TB sufferers. These figurations appear as fragmented imageries of TB which speak to the ways in which the disease is negotiated, spoken about, managed, influences social and physical bodies, and is enacted (Mol, 2002). Drawing on these perspectives, and as is evidenced in the clinic and sufferer's figurations, TB is not a single or autonomous entity but is always in flux; it is conveyed, recounted, treated and represented differently in the clinic, hospital and patient homes.

Although I did not extensively emphasize the use and role of *kruie* in sufferers' figurations, *kruie* weave in and out of these narratives and feature prominently in the management of TB symptoms. The use of medicinal plants for infectious disease such as HIV and TB is a contested terrain in South Africa (Nattrass, 2007; Green, 2012). Healthcare practitioners discourage the use of medicinal plants because they believe it may have negative side effects when combined with pharmaceuticals or hinder TB treatment (Abdullahi, 2011; Marais et al., 2015). However, many of the plants used to manage symptoms of TB have been studied in ethnobotanical surveys and the use of medicinal plants for both communicable and non-communicable conditions are widely documented in South Africa.<sup>51</sup> In Genadendal, people consume *kruie* and allopathic medicine simultaneously, and healthcare staff are often aware and/or also use *kruie*. In most instances, *kruie* is used to combat the side-effects of allopathic medicine, however, *kruie* is also used because they are considered more natural with less side-effects, connected to God, and are *lewende wese* (living things). This aspect of *kruie* will be discussed in more detail in the next chapter.

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<sup>51</sup> See for example chapter 4 and 5

## Chapter 7:

### *Kruiekennis, kruie and the veld: Three encounters with plants*

#### Introduction

In the previous chapters, I emphasised practices surrounding plants. In chapter 4, living plants were collected, measured, photographed, dry pressed, transported and categorised. The plants had become linked in new assemblages and through processes were translated into reference collections as specific singular botanical entities (Latour, 1999; Mol, 2002). The aforementioned chapter also draws attention to *kruiekenners*' knowledge, use and relationships with plants and the *veld*. These relations, however, become invisible or are severed once the plants were done as botanical facts or knowledge. In chapter 5, the plants, again, underwent a process of translation. This chapter did not encompass physical plants. Instead, plants were represented in tables, graphs and figures created by scientists (A medical professional and biostatistician), which were descriptive of but also served as referents for the plants and the environment from which they were collected. Plant and their knowledges were thus moved, transformed, shaped, and coded according to scientific ways of knowing, testing, and translating plants into objects of scrutiny (Latour, 1999: 2004; Turnbull, 2009). In chapter 6, plants appear momentarily as “agents” of treatment and healing (Low, 2011; Green, 2012; Gibson and Killian, 2013; Cohen, 2015). These chapters and plant practices all highlight different perspectives on plants. They are illustrative of the ways in which actors such as scientists, statisticians, medical professionals, *kruiekenners* and plant users describe plants, how knowledge about plants is conceived, how such knowledge is performed, how plants are used and are *acted upon*.

As is evidenced in previous chapters, much of the narratives are written from a human-centred view (Tsing, 2010; Hall, 2011; Ryan, 2012: 101; Myers, 2015: 2017; Rival, 2016: 147; Gibson, 2018: 92). In part, this happened because of my own human investments in plants driven by the need to collect plants as part of the objectives of the MUTHI project, study the experiential science and scientific scrutiny of plants at SAHSMI, and to understand the interfaces between biomedical healthcare and medicinal plants in Genadendal.

In addition, and despite previous ethnobotanical surveys I had done (Davids, 2010; 2012, Davids et al., 2014; Hughes et al., 2015; Davids et al., 2016), I felt that I had engaged with plants more intimately during the Genadendal ethnobotanical survey than in previous ones. In

previous surveys, I was arguably participating as a student learning from senior scientists and botanists but in Genadendal was following plants through a series of practices in which I was also actively involved. Yet, despite my attempts to better understand the liveliness and sociality of plants (Tsing, 2013; Myers, 2015) using these methods, and as is evidenced in the above encounters, was still viewing them as objects of my research (Latour, 1999).

In part, I attribute the above to what has been called “plant blindness” (Wandersee and Schussler, 1999; Wandersee and Schussler, 2001). In this case I relate plant blindness to my own preoccupation and interest in ethnobotany, experiential science, and to the biomedical practices of identifying, treating and managing patients with TB. All of these, as I show in chapters 4, 5 and 6, encompass practices and methods which I had become deeply accustomed to but that, at times, can be inherently rigid and reductionist (Latour 1987; 1999; 2004). Latour (1999) and others (Cohen, 2009; 2015) have cautioned that rationalising nature has the tendency to reduce plants to by-products of their socio-cultural and environmental contexts. I was, for example, still searching for plants, collecting them, photographing, making inventories of them as dry pressed specimens as well as listing them in my notes as I had done earlier. I was also relying exclusively on sight as a methodological tool to become more attentive to plants.

As I intimate in chapter 2, anthropologists and scholars from cognate disciplines such as geography, history, and philosophy for example, have critiqued conventional ethnography and human-centred epistemologies as it relates to studies of plants (de Ruiter et al. 2005; Kirksey and Helmreich, 2010; Ogden et al., 2013). Anthropologists along with recent trends in the literature on more-than-human (Myers, 2017) or other-than-human (Kohn, 2013) studies, have attempted to rethink approaches to studying plants by shifting the focus from humans to plants as “agentive beings” (Kirksey and Helmreich, 2010; Ryan, 2012; Ogden et al., 2013: 6; Tsing, 2017; Myers, 2015; 2017a&b). By examining plants as “agents” or “actants,” the aforementioned studies offer diverse ways to think about plants and our relationships with them, challenge conventional forms of representing plants and suggest potentially new methodologies for engaging with plants (Plumwood, 2002; Ryan, 2012; Marder, 2013; Pitt, 2015; Gibson, 2018).

Drawing on the above literature, this chapter is an attempt to do what Myers (2015) calls a “planthropology.” In other words, I scrutinise my own experiences of becoming more intimate with plants and unpack how I developed attentiveness to their “liveliness” (Myers, 2016). To



do so, I reflect on three encounters I had with plants during the final six months of my long-term fieldwork in Genadendal.

The first is a period of personal sickness followed by a healing experience which involved *wilde als* (*Artemisia afra*) and *kruiekenners*. This experience led me to hone in on *kruiekenners*' plant practices and understanding of plants again. Unlike in the ethnobotanical survey, I was not trying to follow *kruiekenners* as they searched for and collected plants in the *veld* or describe their medicinal uses for various ailments. Rather, and because of my personal interest in one plant namely, *wilde als*, I wanted to gain insight into the lively capacities and sociality of this plant (Head et al., 2012; Myers, 2017, Gibson, 2018), by learning from *kruiekenners* as plant experts (Pitt, 2015). Thirdly, I then spent time in the *veld* with *wilde als*. Using some of the sensory and perceptive methods proposed by more-than-human studies (Plumwood, 2002; Pitt, 2015; Gibson, 2018), and the ecological knowledge and skills of *kruiekenners*, I was able to see, learn about and encounter *wilde als* in a different way which made me rethink the objective and insensitive ways in which I approached plants in earlier chapters.

## 7.1 Sick in the field

The last five or so months in Genadendal were arguably my loneliest, scariest, and perhaps most trying times in the field. I returned to Genadendal from a brief period in Cape Town hoping to dedicate this final spell of fieldwork to learning more about plants and spending time in the *veld* with *kruiekenners*. Initially, this goal which I had set for myself was hindered by a series of unanticipated happenstances. Firstly, despite my three years of prior, albeit intermittent fieldwork in Genadendal, I did not take into consideration that many *Genaalers*, including my older participants, rely on additional income they can get by working as seasonal farm labourers during August to September. *Genaalers* were picked up by truck from as early as 04:00am, finish harvesting around 14:00pm and then returned late afternoon. Many therefore did not have the time or physical energy for interviews. Secondly, and perhaps unrelatedly, was the overwhelming sense of solitude I felt during this same period.

The Hester Dorethea conference centre (HDC: **Fig 18**) where I lived usually had at least one other guest, however the centre, for a period of nearly three months had no visitors staying over for more than a night. In the daytime, when staff were present, and I supplemented my lack of time with key participants by doing Home-based care (HBC) rounds or ventured into the *veld* in search of plants, things were fine. At night, I was fairly isolated with the nearest people about

a kilometre away. My room was small, poorly lit, and Genadendal was often hit by electricity outages. There was little to no cell phone coverage or access to internet. Repeated break-ins at my room coupled with the fact that many *Genaalers*, who knew that I lived by myself, warned me about *spoke* (ghosts) roaming the grounds. I suffered from sleeplessness and anxiety and at night the dark, lonely place developed an air of malevolence which disturbed me.



**Figure 18:** Author photo of the Hester Dorethea Conference centre from the front. The room where I stayed is situated in the yard on the grounds bordering the river.

In addition to the above (and possibly contributing towards), I became ill. I do not have the space in this thesis to reflect much on my illness, but it has bearing on my experience with plants. Thus, I offer some history, which informed my subsequent experience.

In 2011, I did fieldwork with traditional healers (*amagqirha*: diviners and herbalists: *nyanga*'s) in Lwandle Strand, Cape Town for another leg of the MUTHI project on HIV/AIDS and traditional medicine, and also as part of my master's studies. On one of my final days of fieldwork there, a traditional healer, Ma B, who was also one of my key gatekeepers, became hostile towards me when I informed her that my time with healers would soon end. Ma B, who had been very accommodating, sincere, and helpful in the past, became unusually argumentative and insisted that I go to the nearest ATM to draw money for her. She told me that R50000 would appease the other healers I worked with and the ancestors who were now "upset" at the news of my leaving and would not tolerate me in the area for future research if I

did not pay. I sensed that the situation could become unpleasant as Ma B called for more healers to come and speak to me.

I was increasingly uneasy and told Ma B that I did not have so much money and would return to speak to her later. As I turned to leave, she placed her right hand on my chest and held it there for a few seconds. Simultaneously, Ma B looked into my eyes and hissed a few words in IsiXhosa. I did not understand what she said but was suddenly overcome with a feeling of dread. Cold shivers instantly ran through my body. I was unexpectedly overwhelmed by anxiety. It felt as if I was having a panic attack. My heart was racing, and my forehead started to sweat. Thinking that I was having a heart attack, I rushed away and hurried home. In the weeks following this encounter with Ma B I had fever, heart palpitations, chest pain, headaches, felt listless and weak. In addition, I had hallucinations and nightmares. I dreamt of waking up and finding beads, hair and snakes under my pillows, baboons gnawing away at my face, and of drowning in a river. Deeply concerned I visited a doctor who diagnosed me with chronic Hypertension, Diabetes Miletus type 2 and depression. I was put on chronic medication for life. This came as a surprise, I was only 22 at the time and had no family history of Hypertension or Diabetes.

I did not talk or write about the above incident and subsequent experience because I was unsure how people would respond. Like Favret Saada (1980) wrote, I was concerned that I would be seen as irrational, yet I somehow felt that Ma B had brought about my ill health through her words. At the same time university research guidelines, methods handbooks and ethical discourse in anthropology tend to focus on the researchers' responsibilities towards their participants whom they should ideally protect and not expose to any form of harm (Hall, 2004). At the time I examined anthropological literature and did systematic reviews on pragmatic strategies for negotiating difficult fieldwork encounters and how these affect a researcher's observations, experiences, and analysis of data. Much of the discourse in anthropology tends to focus on ethnographer's exposure to violence (Bernard, 1998; Kovats-Bernat, 2002; Johnson, 2017), health and safety risks (Howell, 1990), or gender-based violence (Schneider, 2020). Kovats-Bernat (2002: 208) points out that researchers' accounts of the lived reality and effects of field work are often omitted in their texts. At the time I felt that my experience with Ma B was, as Favret Saada (2012:7) wrote about bewitchment "all but untellable. It was so complex that it defied memorization and, in any event, it affected me too much". In 2015 I read Cohen's (2015) account of his experience with *toor* (bewitched or witchcraft) while doing

fieldwork in the Northern Cape amongst *bossiesdoktors* and *toordoktors*. I realised and could now admit to myself that I could make sense of my own experience and subsequent ill health as “being affected” experientially by Ma B’s malevolent words and acts (Favret Saada 2012:235, See also Favret Saada 1980). This would come to haunt me in Genadendal.

In the midst of a week-long rolling blackout I was not only alone in my room in a large building, but also suddenly became acutely ill. I had fever, migraine, was profusely sweating, had convulsive cold shivers followed by fever, diarrhoea, muscular cramps, and spasms. I had bad dreams again. Initially, I thought that this was the result of drinking the local tannin infused river water or because of something I had eaten. The symptoms persisted and my health rapidly deteriorated. I realised that I only had a day or two’s supply of my chronic medication left. I felt too weak to get up out of bed. Concerned about getting more medication I managed to shuffle to my car outside. The battery was flat. I could not charge my phone to call someone for help.

Three days passed, but in the confinement of my bed and in a continual half-awake, half-asleep, half-nightmare state, it felt like much longer. I was too weak to get out of bed for water. I became increasingly dehydrated, had hallucinations and dreamt incessantly, haunted, as in the past, by healers’ beads, baboons, snakes, frogs<sup>52</sup> and the sound of water.

I was woken from my fevered sleep and dreams by the sound of tapping against the window. As I opened my eyes I saw masses of purple flowers against the glass. The wind was moving branches of blossoms of a Jacaranda tree (*Jacaranda mimosifolia*) across my vision (**Fig. 19**). The flowers swayed back and forth in the wind and tapped rhythmically against the pane. The sight of the flowers infused me with a delighted feeling of being alive, my fears disappeared, the flowers and leaves captivated me, and I lay for an hour simply watching their movement, shapes, and colours, listening to the incessant, soothing tap-tap of the foliage against the glass.

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<sup>52</sup> It is important to note that *toor* (witchcraft) was not part of the scope of my study. This is because I learnt early on that *Genaalers* do not attribute or understand disease, especially TB and other common chronic conditions such as Hypertension or Diabetes Miletus to *toor*, misfortune, jealousy, or as a form of punishment from die *Here* (God). *Genaalers* did, however, tell me about the ghosts of old missionaries roaming the mission square, the bad luck brought about by *boomslang* (tree snakes) in trees near houses, and frogs from the ravine which refuse to leave the house. In the case of my illness; the presence of frogs, the darkness, loneliness, and accumulation of symptoms filled me with unease and reminded me of the incident with Ma B and how I felt then.



Eventually someone knocked on my door and asked if I was there. Still weak, I could barely muster the energy to reply but managed to clench my fist and bang on the wall. Uncle AB, a *kruiekenner*, his wife aunty A, the Hester Dorethea centre's (HDC) administrator, B, and the gardener, uncle T, opened my door. They had been concerned when HBC nurses told them that I had not done rounds with staff for several days, and the HDC staff had not seen me either.

They all decided that I had to be moved to another room with an indoor bathroom at the HDC. Uncle AB and B debated about calling an ambulance but decided not to because neither had the cash to pay the R150 call-out fee. It was Saturday and the clinic was closed. Aunty A told everyone to make me comfortable while she went home to fetch medicine and food.



Figure 19: *Jacaranda mimosifolia* in bloom (Stock photo)

When she returned, aunty A instructed B to run a hot bath. She placed *wilde Als* in the water and uncle AB helped me into the yellow, plant-infused, steamy bath water. After the bath, aunty B fed me warmed-up vegetable soup, gave me two paracetamols, and prepared a *salf* (ointment) for my *koors* (fever). Aunty A massaged a mixture of dried *wilde Als* leaves, *pere salf*<sup>53</sup> and *kamferolie* (camphor oil) onto my chest and head. Uncle AB and aunty A then said a long prayer at my bedside and left me to sleep while they stayed over for the night next door. Two days later, strengthened by aunty A and uncle AB's home-cooked meals, paracetamol, three cups of *wilde als* tea a day, and their constant care and company, I was fit enough to visit the clinic and refill my chronic medication.

Later that week, mostly recovered, I returned to my own room. Inside I found many frogs and insects crawling on the mattress. I had been dimly aware of them during my illness. The frogs had entered from outside and insects had crawled out from between the mattress and bed-base where I pressed and stored my collected plant specimens.

My attention was once again drawn to the window and the purple flowers which had beckoned me back into consciousness during my illness. I realised that the movement of the colourful

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<sup>53</sup> A smooth, usually oily preparation, consisting of a petroleum jelly base that is rubbed on the skin for medicinal purposes.



flowers in the wind had had a therapeutic effect on me, they had enchanted me, drawn me into contemplation of them, had surprised and engaged me in a momentary relationship which, in turn, had “ a transformative effect “ on me as I opened myself “to other ways of ... being in the world” (DeSesto, 2019:201) than through the fog of my illness. I opened the window and drew the branch bearing flowers closer to touch and smell them. They had a mild but sweet smell of honey. I could hardly believe that I had overlooked these tiny (beautiful) flowers right outside my window for the almost three years I had been staying in the same room in Genadendal. I had arguably been “plant blind” (Parsley, 2020) in a very particular way, while I had become attuned to attending to medicinal plants, there had been a disparity in my awareness of other plants, which, up to my sickness, had remained a backdrop of foliage in my attention. This realisation was what Anna Tsing (2013: 27) calls a “wakeup call” and helped me to reattune my senses to plants and their complex lives.

## 7.2 A short walk in the veld

I will return to the story above, but first want to consider another encounter with plants. Uncle AB and his teenage grandson, whom he was teaching *kruie*, passed by my room one morning shortly after my illness. They enquired about my health and invited me along to collect *kaalmoes* (*Acorus calamus*) for a neighbour with stomach ache and diarrhoea. We subsequently set off along a hiking trail which runs parallel to the riverbed near my room. Uncle AB often collected *kruie* along this route. As we walked, he ‘taught’: pointing to the plants growing beside the riverbed and along the trail; told us what they are used for, where they naturally grow, in which seasons to collect them, how to prepare them, and when and from whom he learnt about them.

Uncle AB explained that *kaalmoes* can only be found further up the river where the water is cleaner, “he (the plant) doesn’t like dirty water.” We walked along the riverbed and up into the foothills of the mountain. By then we were carrying hands full of different *kruie* we had not initially set out to collect.

I told uncle AB and his grandson about the Jacaranda flowers outside my room window, and the trouble I had with frogs and bugs in my room and small garden. Uncle AB replied:

You see, they were watching you. Also, those frogs and goggas. While you were sick, they took chances but when you went back to your house they knew you were back, so they left.

At the time, Uncle AB's grandson and I giggled and decided to tease him. We probed and asked how the frogs knew I was gone. Unamused, uncle AB walked on ahead of us and then stopped,

Uncle AB: *Luister D* (Listen D)

Denver: *Ek hoor niks* uncle AB (I don't hear anything).

I listened but did not hear anything. Uncle AB was very serious. I looked around. Having witnessed previous baboon attacks in the village and a recent incident of a cape mountain leopard sitting in the mission square, I thought uncle AB was alerting us to possible danger.

Uncle AB: *Nee luister D!* (No listen! Pulling his ears).

He seemed annoyed by my lack of hearing/listening and walked on a short distance further before gesturing for us to be seated under the canopy of an oak tree (*Quercus robur*). He explained that we [including his grandson who was by now equally interested] were not hearing because we did not yet have the *kennis* (knowledge) to do so. He indicated the sound of the frogs ribbeting in the river, water flowing, small birds hopping from one tree to another, a herd of cattle grazing quietly not far from where we were walking (but had not noticed), and the wind gusting through the trees. He also pointed to the spoor of animals left in the trail where we were walking. He crouched down and pointed to the spoor of dogs, cows, baboons, and horses which frequented the trail. Before I could interject and respond to the obvious things I had missed, he continued:

No! You two listen now. You cannot notice these things because you have not yet spent enough time in the *veld*, learning it, studying it. It is not something you learn overnight... Do you think we are here looking for *kaalmoes*? No master! I dreamt last night that A<sup>54</sup> (neighbours' child) was sick, that something was wrong with her stomach. I was restless in my sleep. I kept tossing and turning. I was sweating a lot. Just before I woke up I dreamt of *kaalmoes* at the rivers' edge. I saw it there. It was near the white rocks at the water's edge. There was a lot [*kaalmoes*] growing there. I woke up to her mother's knocking on my door this morning. When she told me, I knew. I knew that it (gees [spirit] of the plant) was talking to me and guiding me, on this morning.

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<sup>54</sup> A pseudonym

### 7.3 Re-attuning the senses

My illness episode, subsequent recovery, and the instructive walk in the *veld* with uncle AB and his grandson served as signals to me to pay attention, to be aware of plants in their many, many entanglements. Looking back at these encounters, I realised that up until that point I had not thought (or was not entirely convinced) about plants' agentivity, even as their *lewendigheid* (liveliness) – as with the purple Jacaranda- had drawn my attention to them in new ways. The latter, like the bitter als (*Artemisia afra*) I had ingested, had had effects on and in me in some or other way. My study participants had constantly tried to alert me to plants as actants, entangled in “becomings-with” (Dev, 2019) water, wind, animals, insects, other plants, the environment and their transformative ability to bring about therapeutic effects. Such healing, Dev (2019:151) argues

can be viewed as a type of embodied orientation or engagement with the world, which has the potential to reach across boundaries of the skin, blur distinctions between self and other, and allow for both transpersonal and trans-species reconciliation.

Uncle AB's insistence that I not only listen, but that healing plants have spirits, bring dreams, affect, have effect, brought my attention to his intimation that certain

concepts of healing ... traverse species boundaries through communication with and embodiment of plant spirits... offer ways of coming into being within an ecology of selves—both internal and external, human and non-human— through listening ... (ibid).

Throughout my final months in Genadendal, I honed my awareness and perceptual skills and spent much time in the *veld* searching for, collecting, and photographing plants. I planted and took care of a small garden outside my room on weekends; spent time volunteering at the communal vegetable allotments as part of the Genadendal feeding scheme, collected plants in the *veld* with *kruiekenners*, and on many occasions, observed gardeners singing and talking to their plants, as well as the significant amount of time and effort lavished on their gardens.

In the process I gave more attention to literature regarding the so-called ontological turn, which underscores Anthropology beyond the human and which interrogates to assumed epistemological order of “modernity” (Kohn, 2015). In other words, and in relation to plants, it seeks to decentre the exceptionality of human agency in human-plant relationships (Jones

and Cloke 2002; Hitchings and Jones, 2004; Head and Atchison, 2009), take seriously the vitality of non-humans such as plants (Kirksey and Helmreich, 2010; Hall, 2011; Ryan, 2012), and counter the perceived “still life” of plants and the ecological dangers of such a view (Latour, 2014: 2017). Consistent with this mode of apprehending the reality and agency of non-humans such as plants, and our entanglements with them, is perhaps also a methodological turn with sensory tools directed at being more attentive to plants. Research such as Pitt (2015), Myers (2015), Latour (2017) and Gibson (2018) to name a few, have proposed methods aimed at being more sensitive to plants to learn from them and co-produce knowledge. Some of these studies have looked to Ingold’s (2000; 2011; 2013) thoughts on practice and skill, and on the nature of learning for direction. Others have drawn on and highlighted the reality of plant worlds produced through the senses of taste, smell, touch, and hearing, which have previously been overlooked in research on humans and plants (Latour, 2014: 2017; Pitt, 2015). Embodied and sensual engagement is progressively being recognised as mutually constitutive of the dynamic relationship occurring between people and plants (Pitt, 2015; Gibson, 2018). Therefore, attempting to explore worlds which are not socially constructed by humans through sight alone, as I had initially been prone to do, is deficient and should draw attention to the importance of the other senses.

Reflecting on the above and my own plant encounters, I realised that my illness episode was a moment of fluid possibility. The encounter prompted a new insight for me to experience the sensuous presence of the flower and my garden in a way which ultimately gave me the strength to get out of bed and feel better. The illness episode forced me to notice and become attentive to all plants and their complex assemblages. My body had inadvertently become a medium to encounter the plants surrounding me differently. Latour (2004: 205) argues that the body is “an interface that becomes more and more describable as it learns to be affected by more and more elements” in networks of associations. Only by moving away from the subject-object dialect do actors realize that they are actors among actors (Ibid). Thus, my illness episode drew my attention away from the detached view that “still life” is symbolic of “matters of fact,” and have the tendency to cloud the senses (Latour, 2014). My encounter reformed the relation from one of materiality and observer-object to the recognition that I was moved, affected by, and changed by the medicinal decoction and Jacaranda flowers swaying in the wind (Archambault, 2016). This sensuous but also physical experience persuaded me to think differently about the transformative and lively ability of plants.

In a similar way, when uncle AB pulled at his ears to encourage me to listen to the *veld*, he was imploring me to use all my awareness and senses: smell, hearing, taste and touch to enable me to regard the *veld* and the plants in it differently (Tsing, 2013). Observing and gathering plants is not enough: I had to experience and interact with the subtle, and sometimes overlooked, nuances and interactions within and between plants, the *veld* and myself (Plumwood, 2002; Head and Atchison, 2009; Pitt, 2015). Uncle AB wanted me to slow down, sit down, and acclimate my senses to my surroundings. Latour (cited in Lacey, 2014: 1) stresses,

to be aesthetic – in its true etymological sense, meaning “to make oneself sensitive to”  
– it is better to imagine oneself in motion in the world.

As Uncle AB pointed out, *kruiekennis* (plant knowledge) is not something that is acquired overnight. One must, over time, learn the *veld* and become sensitive to plants and their milieus (Marder, 2012; Van Dooren, 2014; Aisher and Damodaran, 2016). In addition, for many of the *kruiekenners* I interviewed, plant knowledge and relations with plants is not something that exists in isolation but are also entrenched in relationships with the *veld*, with fellow villagers, God, dreams, and the spirits of plants.

My encounters necessitated a shift from methods of observing and talk (Head and Atchison 2009), to also include phenomenological approaches that can better describe embodied connections and encounters with plants. Here, Latour (2017), for example, argues that engaged experience does not simply contribute to, but has a dominance and authority in encounters with non-humans, such as plants and the *veld*, and should be studied. In the passages which follow, and with my senses adequately re-attuned, I turn my attention to the human-plant assemblages which converge in the *veld*. Returning to and extending arguments from chapter 4, I noted that *kruiekenners* link *kruie*, relations with fellow villagers, God, and also the transmission of plant knowledge to the *veld*. It was therefore necessary for me to revisit *kruiekenner*'s ecological and plant knowledge as people who “live, work, play, and/or otherwise occupy” the *veld* to learn from them (Williams et al. 2013: 19; Pitt, 2015: 48).

#### **7.4. *Kruiekenners, kruie, and the veld***

As indicated above, I wanted to engage with the agency, materiality and sociality of *wilde als* (Tsing, 2013; Pitt, 2014). To do this kind of research necessitates a mode of learning with plants rather than about them (Myers, 2016; Nathen, 2016). Although I was interested in later encountering *wilde als* in the *veld*; in its own bionetwork and, as far as possible, without much



human intervention, I had to first enlist the help of *kruiekeners* to explore *kruie* as part of human-plant assemblages. This was necessary because *kruiekeners* continually interact with plants (*kruie*). They are skilled in the practice of finding, knowing how to approach and collect *kruie* in the *veld*, and are experienced in handling and consuming them as medicine. Brice (2014) contends that people who frequently work with plants are focused on them, experts at attuning their senses to them, and are sensitive to the agency of plants. I therefore approached specific *kruiekeners* such as uncle AB, aunty A, H (the mission square gardener) and R (a Rastafari bush doctor) who are well known and respected in the village as elders and *kruiekeners*. In particular, I spent most of my time in the *veld* with uncle AB. He is the oldest and most outgoing of this group and regularly dominated discussions about *kruie* when we conversed as a group. As a result, much of the quotes and stories discussed in the next two sections are attributed to him but his thoughts and opinions often represented that of the others as well.

#### 7.4.1. Seeing Genadendal's landscape afresh

Returning to my earlier encounter in the *veld* with uncle AB; he and other *kruiekeners* who I had been interviewing knew by now that I spent part of my childhood in Elim and then went to Cape Town to pursue my studies. They also knew that I had stories and experiences of the *veld*; of being taught about *kruie* by older relatives and, like *kruiekeners* in Genadendal, consumed *kruie* regularly for remedial and prophylactic purposes. They asked me, “Why do you want to learn about *kruie*? You are from Elim. I thought you would know these things already?” These questions became of import when later I hiked with *kruiekeners* in the *veld*. *Kruiekeners* showed me species of plants that I was not accustomed to, modes of approaching plants to harvest their healing powers, and pointed out features in the landscape which I had often overlooked in the past. This plant landscape, as *kruiekeners* advised, is very different to those of Elim and Cape Town. The latter, in particular, is a dense human environment and its built-up areas have the tendency to isolate people from plants. As Abram (1997: 64) argues, “urbanization teaches the senses to look for nothing further, as everyday objects and spaces become unable to surprise us.” It is important, as *kruiekeners* told me, to know the *veld* intimately and pay close attention to the things in it if I wanted to acquire *kruiekennis* (plant/herb knowledge) as they did. *Kruiekeners* encouraged me to spend time alone in the *veld* to listen to, smell and observe plants in their own specific ecological setting.

I followed *kruiekenners*' advice in an attempt to familiarise myself and attune my senses to Genadendal's landscape afresh. I went a distance from the village and pulled to observe Genadendal and its green landscape. I walked through the village to observe people's gardens and their interactions with plants. I hiked up the mountain slopes to carefully observe, listen and touch plants, as well as the insects on and surrounding them. In this way, I was trying to navigate the landscape by going around in it so that I could gain knowledge about it; about plants, and how plants are in constant contact with people (Ingold, 2000: 2011; DelSesto, 2019). In this process, I was learning to acclimate my senses to plants in their own ecological setting and was also paying attention to how they affected me and the people who regularly interact with them (Latour, 2002; Haraway, 2016; Gibson, 2018). In addition, I also went through my earlier fieldnotes which detailed my observations of plants, gardens, the *veld* and their interactions with people in Genadendal. As I made new notes and reviewed the old, I became attentive to how I first saw and experienced the landscape; its smells, colours, plants, and people in Genadendal. I captured these earlier experiences in the following reflexive fieldnotes:

*It is hard to overlook the plant presence in and surrounding Genadendal. I recall each time I drove to Genadendal how the village appears to emerge from behind the final mountain pass as I got closer to it (Fig. 20). From a distance, the small village gives the impression of an integrated green landscape, akin to a big garden as accurately described by missionaries and early visitors to Genadendal.<sup>55</sup> The landscape, encompassing vast open farmlands, grasslands, and mountain ranges, extend well beyond the eyes can see. The setting is surreal, especially for someone coming from a busy, raucous, polluted, and congested city like Cape Town. As I got closer to the village, I would roll down my car window to smell the fresh fynbos scented air. Plants, including ferns, fynbos, succulents, as well as canopies of diverse trees envelop the village, and these are visible from afar. This adds to the sense of vreugde (tranquillity/joy/peace) I experienced whenever I returned to Genadendal and which kruiekenners often told me about and sought after when they hiked in the veld.*

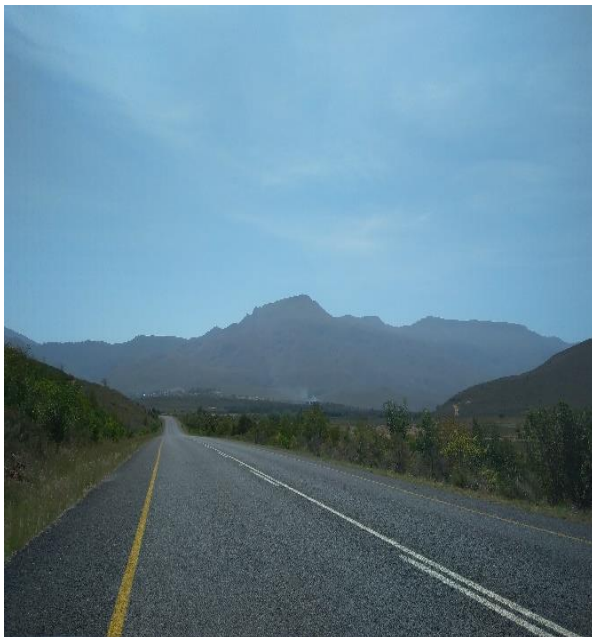
*Since most houses and public buildings in Genadendal are not separated by walls or fences, the plants surrounding these properties give the visual impression that they are extensions of the surrounding mountainous landscape. It is only when I got closer and*

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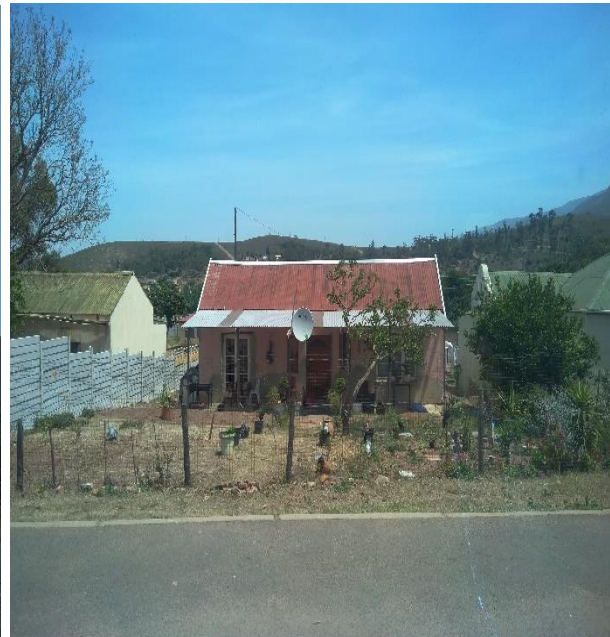
<sup>55</sup> See for examples and descriptions Appendix 6.

*drove through the village that the distinctive characteristics of gardens and the aesthetic pursuits of their owners became obvious. These include small vegetable patches, ornaments, colourful flowering plants, and a myriad of homemade containers for pot plants. What is also initially noticeable about the village is that even the most unkempt houses, with grounds composed mostly of gravel and quartz and whose owners do not seem to care much about its appearance, contain a few shrubs (Fig. 21).*

As seen above, plants are distinctive and visible “features” of the landscape in Genadendal. Plants are also significant in many ways for people who live there and eke out a living from the landscape. Villagers rely on the low-lying *soetvelde*s (sweetvelde/s/grasslands) for their animals to graze. *Suurvelde*s (sourvelde)s are less palatable to livestock but are collected, dried, and used as feed for larger livestock such as cattle in the sparser winter months when the veld is wet, slippery, and more dangerous for this high income generating livestock. Most villagers make use of trees for wood in the dense mid and mountainous high *veld*. A few villagers sell this wood to locals and surrounding towns. The outskirts of Genadendal have long been used as communal gardens which fund the village feeding scheme and provide locals with an invaluable food source. Similar parts of the village which encroach the *veld*, are used as plantations for honey bush tea (*Cyclopia macuata*). This species, as mentioned in chapter 1 and 3, is endemic to Genadendal and supports a growing market for the tea and as drive for local tourism (Slabbert, 2013).



**Figure 20:** Author photo of Genadendal in the distance



**Figure 21:** Author photo of a garden decorated with rusty pot plants

Beyond its practical imperatives, many villagers have a special relationship with the *veld*. When I walked through Genadendal, it was normal for me to see children playing in their parents' or grandparents' gardens; helping them in the garden. I observed groups of young children wandering off on adventures into the *veld*. Many of my older participants spent a great deal of time outside: in the garden, tending to animals in local stockposts, and on walks in the *veld*.

They had done this from childhood. Uncle AB intimated that he often had to go to the *veld* for his grandparents to collect *kruie* when they became older, frail, and could no longer do so themselves. Aunty A reminisced about the times she went to the *veld* to collect *veldkosse*<sup>56</sup> for her family. H evoked similar memories about his time in the *veld* with his grandmother. They would spend the day hiking in the *veld* and she would teach him about *kruie*. All of the *kruiekenners* I interviewed had at least one story about getting lost in the *veld* as children and having to find their way home again. These participants often referred to themselves as *veld kinnners* (field children), who, because of their upbringing and extensive time in and reliance on the *veld*, feel and express a special relationship with and empathy for the plants, animals, and landscapes of Genadendal.

While many of the *kruiekenners* I worked with described themselves as *veld kinnners*, their journeys with plants all arguably started with plants in gardens. Initially, I had also set out to follow the instructive lead of scholars who looked to explore human-plant encounters in private gardens. Hitchings (2003: 99), for example, argues that exploring the relationship between people and their gardens may provide a creative means of engaging practically with the material presence of non-humans. Nathen (2016) followed medicinal plants through local gardens in Klawer in the Matzikama municipal region, South Africa to explore multispecies relations from the plants perspective. Gibson (2018) similarly argues that garden studies bring to the fore the presence of non-humans.

In Genadendal, I observed the extensive amount of time and labour gardeners dedicate to their gardens to keep them *netjies* (neat) and *ordentlik* (decent). Gardeners derive a great deal of *vreugde* from domesticated plants. Some sang and spoke to their plants, dusted their leaves, and were especially attentive to the presence of and damage caused by insects. I also saw people asking for and exchanging plants, including *kruie*, vegetables and fruit with fellow villagers.

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<sup>56</sup> Lit. field food: usually tubers, bulbs, wild garlic, and small game.



Gardens serve as the meeting place for neighbours and friends to socialize and inquire about each other's well-being. As mentioned above, it is also a place of *vreugde*; a temporary escape from the strains of village life. Gardens, and especially domesticated plants, have materiality and sociality because they are part of substantial social ties which emerge from reciprocal relations with fellow villagers (Davids, 2010; Hsu, 2010; Nathen, 2016). Furthermore, gardens are also significant spaces because they draw attention to other species such as plants and insects and birds, and how they are "enmeshed" with humans in multi-species assemblages such as gardens (Holdredge, 2013).

Many of the above-mentioned gardeners, including *kruiekeners* plant *kruie* in their gardens. However, for my research, I chose to focus on *kruie* from the *veld* and to work with *kruiekeners*. This is because gardeners, people who consume *kruie* and *kruiekeners* claim that *kruie* from the *veld* are more powerful. They referred to the growth patterns, smell, taste, colour and textures of *kruie* from gardens when compared to those collected from the *veld*. The latter are thought to be stronger and more efficacious. Consistent with the beliefs and practices of plant practitioners such as *bossiesdokters*, Rastafari bush doctors, diviners (*amagirirha*) and herbalists (*nyangas*) (See for example: Gibson, 2009; Davids, 2012; Davids et al., 2014; Cohen, 2015; Nathen, 2016; Ellis, 2018, Gibson, 2018), *kruiekeners* argue that *kruie* are *lewendig* (alive or lively), are part of *die natuur* (nature) and have healing power which is gifted by God. Their healing power can only be accessed by knowledgeable people who are experienced and skilled in the art of approaching, collecting *kruie* and harvesting this power. I explore this further in the next section.

#### **7.4.2. Walking in the *veld* and learning from *kruiekeners***

To learn from *kruiekeners*, I employed what Pink (2009) calls a "walking ethnography." I joined *kruiekeners* on their excursions to look for and collect *kruie* in the *veld* while engaging them in conversation. I made field notes, took photographs, and carried a voice recorder with me to document the experience. I was trying to see the world through *kruiekeners* experiential perspectives. In a setting where cars are not easily accessible or affordable for most, walking is an integral part of everyday life for villagers (Parker, 2016: 79). People spend a considerable amount of time walking to local spaza shops, the clinic, church, or to visit friends and family. When I walked with Home Based Care (HBC) staff, for example, walking was not only about getting to and from patient houses or about trying to maintain fitness. It was also about engaging with people along the way, stopping occasionally to let domesticated animals such



as cows, pigs and horses cross the road, and being perceptive to the things around us. Our patient visits were sometimes hindered because of rain, the fear of baboons which sometimes enter and harass locals in parts of the village and snakes which frequent Koringlanskloof<sup>57</sup> during the hot summer months. Walking therefore offers an increased sensorial alertness of one's surroundings and allows for a better understanding of the lived experiences of those who take part in it (Cohen, 2009; Ingold, 2010: 2011).

It is important to note that many of the older *kruiekenners* I worked with are the descendants of *bossiesdoktors* who once were operative in Genadendal. Unlike their ancestors, however, none of these *kruiekenners* claimed to practice divination, treat *toorsiekte* (witchcraft), or serious illness conditions such as TB or HIV. *Kruiekenners* like Aunty A, for example, continue to practice and is known in the village for “*smeering uit*”<sup>58</sup> infants suffering from winds or stomach complaints. In other words, *kruiekenners* use, have a strong belief in, and sometimes prepare remedies for fellow villagers but do not view themselves as healers.

Several studies contend that such knowledge about plants and plant practices is diminishing in semi-rural areas like Genadendal (Leslie, 1980; Rau, 1991; Ferreira, et al., 1996; Thornton, 2009). However, a growing body of research also suggests that this knowledge and plant practices is transformative, dynamic and is continually being revitalised or reinvented along with the integration of different medical traditions, knowledge and pharmacopeia from European missionaries and prospectors who settled in areas like Genadendal, as well as with current western biomedicine (See for examples: Low, 2007; Van Wyk, 2008; Lindeboom, 2012; Davids et al., 2016; Gibson, 2018; Ellis, 2018).

When I hiked in the *veld* with uncle AB, H and R it was clear that their knowledge of the *veld* and finding *kruie* there entailed a great deal of skill and was embodied in practice (Ingold, 2000; 2011). I learnt that *kruiekenners* rely extensively on their senses, experience, and ecological knowledge to navigate the *veld*. They were attentive to the sounds, smell, wind, soil conditions, the *spoor* of animals and people along the trails we walked, insects crawling on plants and of the shapes, growth forms and textures of *kruie* we set out to collect. On one of our first collective hikes, *kruiekenners* pointed out the plethora of humans and non-humans which crossed paths in the trail we were moving along (**Fig. 22**). They showed me the spoor of

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<sup>57</sup> A section of houses scattered along the Western mountain slope in Genadendal.

<sup>58</sup> A traditional practice of rubbing our and massaging infants and sometime adults with *smeermiddles* such as *pere self*, *kruie* or *camfer oli* (camphor oil).

dogs, cats, donkeys, horses, cows, baboons, and birds of various kinds. They also indicated litter found along the trail. There were papers, plastic, and animal defecation, and these “*besoedel*” (pollute or contaminate) the plants there which is why *kruie* are collected deeper in the *veld* where villagers and domesticated animals rarely venture.

The hiking trail reminded me that walking is movement, but it is also an encounter (Ingold, 2011). In effect, the many humans and non-humans which traversed this single trail speak to the ways in which these actors relate to, connect with, dwell in, affect each other, and become enmeshed (Ingold, 2000; 2011). It also speaks to the perceptiveness of *kruiekenner*s as people who dwell in the environment (Pink, 2009; Ingold, 2011); learning, seeing, perceiving with the senses, and continually honing corporal and sensory capacity which connect them to the lives and activity of non-humans in the *veld* (Pink, 2009).

On another hike, uncle AB, for example, pointed out how the *suurvye* (*Carpobrotus edulis*) we passed grows differently along the hiking trail compared to higher up the mountain slopes or along the riverbed. The succulents’ thick leaves were much smaller and grew in reduced clusters compared to those higher up. Their fruit flowers had also mostly been eaten. This, uncle AB suggested, is “a sign that animals feed on them and they have to compete with the other plants around them for light [below the dense tree canopies].” Observations such as these have been an important part of *kruiekenner*’s like uncle AB, aunty A, H and R’s lives since they were children. Uncle AB intimated,



Figure 12: Author photo of a hiking trail in Genadendal

My father taught me these things. These are things you must know. You learn this when you spend enough time in the *veld*. You know, like *klip dagga* grows higher up in the mountains here in Genadendal. In Voorstekraal, you will see it growing lower down in people’s gardens and in the *sloot* (ditch) next to the road. When you spend enough time alone in the *veld* you start to understand how things work here [in the *veld*].

Today, many *kruiekeners* continue to use this knowledge and skill when they hike in the *veld* in search of plants. They tried to teach me some of these perceptive skills on our walks. On another hike, we set off along a similar hiking trail to the one above. We walked upstream into the mountain coves in search of *dassiepis* (Rock Hyrax), *aalwyn* (*Aloe ferox*) and *berg buchu* (*Agathosma betulina*). As we walked, *kruiekeners* pointed out the sound of the river flowing and encouraged me to walk in and taste its cold brown water. We stopped regularly to pick wild berries and flowering fruit. *Kruiekeners* instructed me to taste, feel and smell these. We also came across wild garlic (*Tulbaghia violacea*) which uncle AB uprooted. Everyone took a moment to smell the pungent bulb. *Kruiekeners* often use the small bulb in food as replacements for garlic and in *kruie* remedies for common cold, flu and chest complaints. By asking me to smell, taste and feel plants in the *veld*, *kruiekeners* were not only showing me plants but were inviting me to directly experience plants in the *veld* and “fine-tuning” my perceptual skills (Ingold, 2000: 21; Hitchings and Jones 2004; Pitt 2014).

Although large parts of Genadendal is still covered by a Renosterveld biome, the soil changed as we walked further up the mountain slope (Turner et al 2008). The silty loam river bed was gradually changing to a sandy loam soil and then back to Renosterveld again. He drew my attention to the fynbos and the way it adapted to the effect of wind and gradual encroachment, and at times recession, of the riverbed. The area where we walked was densely covered with fynbos. From past experience and the literature, I was able to spot some of the grass-like *Resteos* (Dorrat-haaksmaerica and Linder, 2000) which were seeding at the time. Genadendal is synonymous with Summer fires and I later learned that *Restio multiflorus* are some of the first plants to sprout after fire and thrive in such conditions (Marais, 2012). Aunty A told me that the many *suikerbossies* (*Protea repens*) we saw there are equally fire resistant. *Kruiekeners*, were familiar with and able to name some of the rare and very colourful *Erica* species which grows on lower mountain slopes and are unique to Genadendal and a few other regions throughout the Western Cape (Turner et al., 2008). In addition, we encountered some of the well-known honey bush (*Cyclopia genistoides*) and Rooibos (*Aspalathus linearis*) growing “wild” in the *veld* and *kruiekeners* collected some to make tea later that day.

As we walked on stopping occasionally to collect plants, or for a *kruiekenner* to narrate a story about a plant or past experience in the *veld*, I became aware of the multi-sensorial events (Pink, 2009) taking place around us. A very strong herbaceous smell filled my nostrils. Because there were so many plants in close proximity, it was hard to single out one particular scent. The smell

nevertheless was clean and fresh and promoted a sense of well-being. The sound of the river flowing, the gentle wind gusting through the fynbos and *suikkerbekkies* (sun birds) were chirping and sounding our presence as we moved through the *veld*. It felt surreal and was also very soothing. As we moved through the *veld*, birds and occasionally unknown animals would scurry through the dense shrubs away from us sometimes causing alarm and excitement. I was also captivated by the enormity of the mountains which surrounded us on both sides and the plants of different shapes, sizes, and colours which cloche them. We were moving as Ingold (2000; 2011), Cooper (2006), Pink (2009) and others contend between the comings and goings of human and non-human beings and experiencing these events through our own engaged bodies.

Our hike ended with another plant encounter. As we neared the peak of a mountain close to a waterfall which *kruiekeners* call Groot Koffiegat, R pointed to *berg buchu* growing next to a cluster of large boulders. This was the last plant we did not yet collect. Although there were a few large bushes growing near one another, the older *kruiekeners* instructed H (I suspect because he is the youngest of this group) to collect only a few handfuls from each bush. H kneeled in the sun so that his shadow fell on part of the bush and grasped a bunch of leaves, but uncle AB and aunty A yelled for him to stop. They called us all in closer to observe how to cut the stems. Uncle AB stood in the shade between the *buchu* bushes and boulders. He took out a pocket knife and cut a few stems below a node and towards the bottom of the bush. He said,

if you stand over a plant your shadow will taint it. The plant knows what your intentions are. It can sense that you don't know what you are doing and so won't work for you. You cut below the *knoop* (node) because that's where the roots will grow from. That's where life comes from, if you know what I'm saying. If you cut above the node, the plant will die. It loses its *krag*. By the time we get home it will be dead. The tea (medicinal remedy) won't work.<sup>59</sup>

Uncle AB further intimated that *kruie* possess healing *krag* which may be released or withheld if they are not approached correctly or handled in a certain way. *Kruiekeners* spoke of plants as *lewende wese* (living things) which are sensitive to animals, insects, soil, water, wind and humans. Thus, when *kruiekeners* collected only small portions of *buchu*, they were not only

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<sup>59</sup> Translated fieldnotes September 2015



thinking about the conservation of the plant, but they felt that the plant would recognise their greediness and withhold its healing *krag*. *Kruie* are part of nature, have strong connotations with God and hence are believed to bring the purity, goodness, and healing *krag* (power and energy) of nature and God to bear on illness (Low, 2007; Ingold, 2007; Laplante, 2009; Cohen, 2009). It is for these reasons that *kruiekeners* contend plants must be correctly approached, carefully collected and done so by someone who has *kennis* (knowledge).

*Kruiekennis* is not only about knowing where *kruie* can be found in the *veld*, how to collect them, which parts to use for specific ailments or how to prepare them as medicine. *Kruiekennis*, as I learned by walking with and engaging *kruiekeners* in the *veld*, requires a great deal of skill and a wealth of knowledge, not just about *kruie*, but about the *veld*, and all things in it, and how these in turn relate to each other (Johnson, 2007; Pink, 2009; Ingold, 2011). For *kruiekeners*, these skills and knowledge are not compartmentalised. Instead, it is the result of a network of relationships with *die Here* (God), people, the *veld*, plants, animals, seasons, wind, soil, the river, and an accumulation of knowledge and experience through which they recognise *kruie* in the *veld*; how to approach, collect them, and harvest their healing power. During my time in the *veld* with *kruiekeners*, I was conscious of the limits of my own knowledge and experience of the *veld* and of *kruie*. I became aware of the manifold layers of meaning, relationships, and realities, and as Pink (2009), Kohn (2013) and Hart (2016) reminds, had to challenge myself to think outside the confines of traditional descriptions and familiarity of the space to experience that which I encountered in the *veld* with *kruiekeners*. Although I describe the *veld* and *kruie* from *kruiekeners*' (and my) perspective above, in the next section I gingerly try to employ some of *kruiekeners* teachings to encounter *wilde als* from a plants point of view (Pollan, 2011; Pitt, 2014).

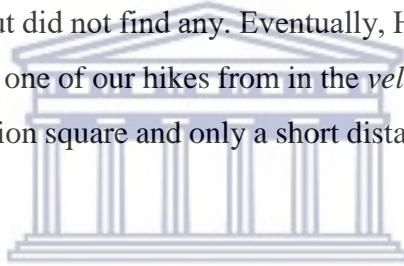
## **7.5. My own encounter with *Wilde als***

As indicated earlier, I set aside the last few weeks of my long-term fieldwork hoping to engage with *wilde als* in the *veld*. In other words, I was attempting to follow the instructive lead of scholars such as Ingold (2000; 2011; 2013) and Pitt (2014) to learn from but also share knowledge with this plant. However, here I wanted to be guided by the plant rather than *kruiekeners*. By walking with and learning from *kruiekeners* like uncle AB, aunty A, H and R, I could begin to conceive how they use their ecological knowledge and skills to navigate the *veld* but also to understand how they approach and use *kruie*. In this way, I was also able to see how plants affect others (Head et al., 2012; Head and Atchison 2012; Brice, 2014). I drew on



these experiences together with the sensory and perceptive methods proposed by more-than-human studies (Plumwood, 2002; Head et al., 2012; Pitt, 2015; Myers, 2017; Gibson, 2018) to document my own more-than-human encounter with *wilde als*.

Initially, this fine-leaved, greyish-green, aromatic shrub was hard to find despite it being one of the most widely used *kruie* in Genadendal. While *wilde als* is not a threatened species (Foden and Potter, 2005) and is readily seen growing in local gardens, *kruiekenners* reported that it had in recent times become hard to find in the *veld*. When I hiked in the *veld* with *kruiekenners* we did not find *wilde als* growing there. Similarly, I searched for *wilde als* in the *veld* and followed the advice of *kruiekenners* who pointed me to locations where they last saw the shrub or is likely to grow based on proximity to water, sunlight, and soil conditions. Some *kruiekenners* told me that *wilde als* can be found along the damp mountain slopes close to the stream while others recommended I look at areas in full sun since “the *kruie* does not grow in shade.” I went back and forth but did not find any. Eventually, H and I found a single *wilde als* bush as we were returning from one of our hikes from in the *veld*. It was growing at the foot of a mountain just behind the mission square and only a short distance from my room at the HDC centre (**Fig. 23**).



**Figure 23:** Author photo of *Wilde als* in the *veld*



**Figure 24:** Author photo of *Wilde als* depicted in winter from a garden during the ethnobotanical survey

Since the bush was located close to my room, I visited it often, spending hours at a time in its presence. I habitually walked to it in the morning, mid-day and afternoon hoping to observe the subtle processes of plant life (Pink, 2009; Kirksey and Helmreich, 2010). I took extensive photographs of the bush and on one occasion tried to draw it. I was trying to capture the plants' botanical form by photographing and drawing its stems and fern-like leaves (Holdredge, 2013; Hickman et al., 2017; Tsing, 2017). When I zoomed in on the camera still shots, I could focus on the ribbed stems which looked like thick veins running from its roots to its upper stem and eventually fades away as the stem branches off into finer divided leaves. I also observed the tiny white hairs which cover the thin upper stems and undersides of the leaves which give the plant a greyish colour from a distance. At the basal stem, I had to clear some of the tall grass growing around the *wilde als* bush to get a better look at the soil and insects. Early on in my research, an etymologist, Zeta, local gardeners, and people tending to the Genadendal communal gardens told me that *wilde als* is widely used as an insecticide and this is probably why I did not see any insects close to the plant. *Wilde als* flowers in late summer into autumn (Van Wyk et al., 1997; Goldblatt and Manning, 2000), but while clearing the surrounding grass, wilted brown remnants of these flowers and seed were still scattered on the soil beside the plant in late spring.

I used my voice recorder to document the sounds near the shrub. I also made video recordings of the plant and my surroundings, sometimes leaving the camera there focused on the plant. When I listened and watched these recordings, I saw the *wilde als* leaves swaying back and forth in the wind. I could also see and hear birds, the sound of the wind gusting through the fynbos and trees overhead. I distinctly heard the river burbling and bubbling over rocks and decaying tree branches in the distance. I saw the vast fynbos and mountain ranges in the backdrop. At other times, the voice recordings and video footage showed very little and was quiet. Each time I watched the recordings back on my cell phone or computer, it nevertheless reminded me of the serenity of the space but also of feeling a sense of connection with the environment; the wind, river, plants, smells and mountains.

Sitting in the environment and documenting plants, wind, sun, and generally spending time there can, as Delsesto (2020: 202) argues,

have a transformative effect as they open the self to other ways of thinking and being in the world, perhaps even in a “whirlwind of passion”. This insight is especially relevant for a wide range of people–plant interactions, which may not always seem particularly

productive for “commercial value” or relevant in “the clamor of our own practical interests,” but which can ultimately lead to profound shifts in personal or collective consciousness.

I spent at least an hour each visit sitting quietly next to the *wilde als* bush to observe and listen. About five meters from the plant is a concrete trench which serves as a retaining wall for soil and water from the mountain, but it also channels water from the nearby river to the western part of Genadendal. In it, I saw rotting leaves, twigs and frogs floating by on the surface of the brown tannin infused water. I recalled from past conversations with SAHSMI scientists that tannins are water-soluble polyphenols which inhibit microorganisms such as fungi and bacteria. These in turn constrain larger organisms which feed on them such as fish. When I sat on the concrete trench wall watching, listening, and trying to move as little as is physically possible, I was able to observe birds come in closer to drink from the stream. I saw an African Wild cat (*Felis libyca*) emerge from the fynbos and quickly disappear again. I was also surprised to observe the surreptitiousness with which cows, donkeys and horses move through the area, for the most part, unaware of my presence. These seemingly uneventful activities again forced me to slow down, sit in quiet contemplation, and attune my senses to plants, animals, insects, wind, sun, and to the movement of non-humans in their bioecological assemblages (Pink, 2009; Pitt, 2014; 2017).

On another occasion, H sat with me for a while to observe and talk about the *wilde als* bush. I thought about the location of the bush and its history there. The bush was positioned in between the foot of a mountain slope and a grassy clearing partially shaded by dense tree canopies which resembled a forest. There were no other plants in close proximity apart from grass. H and I debated as to how it came to grow there. He suggested that like some of the historic plants left behind in the mission garden, it may have been planted there by earlier settlers or Khoi people. To me, the *wilde als* bush appeared to be young. It did not have many branches, was only sixty-five centimetres tall, and did not seem to be thriving. The plant had yellow and dried clusters of leaves and shared little resemblance with the intense green foliage I was accustomed to seeing in local gardens (**Fig. 24**). However, H pointed out the shrubs’ thick woody stem which indicated that it might be older. We considered the idea that the plant did not have much contact with humans. I knew from past experience and the literature (Van Wyk et al., 1997; Goldblatt and Manning, 2000) that *wilde als* requires extensive pruning in the winter months to encourage



its lush bush-like fast growth in spring and summer. If locals collected cuttings of this bush it should have by now, in early summer, been flourishing.

The *Als* had a pungent, sweet herbaceous aroma. The leaves were very bitter. H and I reminisced about past experiences of consuming *wilde als*. I recalled all the times I consumed the plant for fever, colds, flu, headaches, and my subsequent recovery from these symptoms. It thereby reminded me of the ‘co-species history’ (Tsing et al., 2017) I shared with this plant since childhood and what it means to me and many others who consume it as medicine.

## Conclusions

Although I was already familiar with *wilde als*, I was still able to learn a lot from this one plant and from my collective encounters with illness, *kruiekenners*, the *veld* and *kruie*. To do so, I had to pay close attention to the *wilde als* bush to see, feel and experience its textures, smell, colour, shape, and surroundings afresh to generate new knowledge about it (Whatmore, 2006). According to Tsing (2013: 22), paying attention to plant forms shows their biography; “a history of social relations through which they have been shaped.” Similarly, when I engaged with *wilde als* in a setting which did not involve dry pressed specimens or engaging them in local gardens as I had done before, I became acutely aware of the plant’s lively materiality, sociality, and history. The plant was surviving and thriving unobtrusively (to humans). As the botanist Anthony Trewavas (2014) would argue, the *wilde als* bush was using compounds such as proteins, peptides, ribonucleic acids (RNAs) and other molecules which act in synergy to make up plant communication and to chemically respond to environmental conditions.

Paying close attention to *wilde als* highlighted its material form but also alerted me to its interrelationality and lively capacities (Hitchings, 2003; Tsing, 2013). As more-than-human research expands, scholars are increasingly drawing attention to the complex lives and capacities of plants demonstrating how they perceive their surroundings (Ryan, 2015; Daly et al., 2016), communicate (Pollan, 2001; Hall, 2011), think (Kohn, 2013; Gagliano 2017; Gagliano et al. 2018), and respond to other plants, the environment and people (Myers, 2015; Tsing 2012, 2015).

*Kruiekenners* and other participants who work closely with plants showed me how they approach and engage with *kruie*. Discussions about what *kruie* do as *lewende wese* often transcended their healing capacities or ability to add colour and texture to a garden and bring joy to its keeper. It included, for example, relationships with the *veld*, *kruie krag*, ecological

knowledge, *die Here*, historical meanings of *kruie* and illness, and relationships with others. These discussions point towards the liveliness of *kruie* and our/human/*kruiekenners*' engagements with them as something more than purely emblematic, utilitarian or as the foundations of cultural meaning (Hitchings and Jones, 2004; Head et al., 2012; Myers, 2015; Tsing, 2015). However, for *kruiekenners* and *kruie* users, *kruie* do not accord with the kind of objective scientific model of flora (Pollan, 2001, Myers, 2015; Daly et al., 2016). Nevertheless, *kruie* and plants in general are central and pervasive figures in the lives of *kruiekenners*, consumers of *kruie*, gardeners, and in the performance of healing.

Given the vital role that *kruie*, and other vegetal life (Ryan, 2012; Marder, 2013) play in, for example, healing, aesthetics and for sustenance in Genadendal; it initially was still hard for me to overcome the objective human-centred view of plants as “docile” or “inanimate” things (Tsing, 2010; Hall, 2011; Ryan, 2012). Up till recently, multi-species literature focused mostly on animals with less attention paid to plants which often fell at the margins of more-than-human research (Haraway, 2016). This is partly because of the complexity of theorizing plants as autonomous agents or actants (Head and Atchison 2009; Kirksey and Helmreich, 2010). Although plant-centred methodologies are developing (cf. Plumwood, 2002; Ryan, 2012; Marder, 2013; Pitt, 2015; Gibson, 2018), many of these authors including myself have found it difficult to develop the necessary descriptive and conceptual tools needed to engage critically with plants as agents or actants (c.f. Whatmore, 2006; Ryan, 2012; Gibson and Killian, 2013; Pitt, 2015; Gibson, 2018).

During my time with *kruiekenners*, they had tried to give me a crash course on attentiveness which served to hone my own perceptual skills (Ingold, 2000; 2013). When I returned to Cape Town I noticed plants in my surroundings differently; was more attentive to their presence in quiet overlooked nooks and managed to see them encroaching on walking paths or growing in a way which almost completely covered the windows of office buildings at the university. I developed an ethics of care and concern for plants over time (Hitchings and Jones, 2004; Marder, 2012, Holdredge, 2013), especially when I saw them littered with plastic bags and dirt or trampled on. These observations (and affective experiences) made me think about the objective and insensitive ways in which I approached plants in my research in the past. Although I feel a concern for plants, I had to collect cuttings, uprooted them, and killed others by dry pressing them and subjecting them to preservatives at SAHSMI. However, to do this kind of research or to quote from Daly et al. (2016: 2), trying to make such “thought-leaps”



beyond the human is fraught with complexities, ecological dangers, and requires that researchers take seriously the vitality of vegetal life. According to Daly et al., (2016: 2), one of these complexities is that more-than-human discourse is still to some extent distracted from “the political nature of ecological relations, as in, for instance, conservation-based conflicts.” My own thinking, attentiveness, and appreciation for a plant which I know very well since childhood has grown because of this research. However, my attempts to have a more-than-human engagement with *wilde als* was still influenced by humans, my own perceptive skills, the limits thereof, and modes of thinking.



## Chapter 8: Conclusions

### Epilogue

I came to Cape Town hoping to further my studies and learn more about the *kruie* my grandmother had taught me about and treated me with as a child in Elim. Because of my personal interest in *kruie*, and subsequent research endeavours with traditional health practitioners and their plant and healing practices; science studies; and the pervasiveness of diseases such as HIV and TB in the Western Cape, I thought that this thesis may serve as the culmination of these past research interests and would follow a similar methodological and theoretical thread.

Inspired by the work of Latour (1987; 1993; 1999), I wanted to investigate the various transformations which plants undergo as material, relational and empirical “things” in a laboratory setting like the South African Herbal Science and Medicines Institute (SAHSMI). By doing so, I had hoped to further explore and add to anthropological discourses on the relationship between people and plants (Ellen, 2006; Hsu and Harris, 2010). At the time, my thoughts were also influenced by and largely grounded in the anthropology of material culture (Appadurai, 1986), thing theory (Brown, 2001) and in the sociality of medicines (Reynolds Whyte et al., 1996: 2002). However, I was prompted by Latour (1999: 81) to reconsider that adding to the already rich history of anthropology of science and ethnobotany is “a sure recipe for simply repeating the old settlement without any hope of illuminating the new one that is still cloaked in darkness.” As indicated in chapter 1 the research focus and questions subsequently shifted because of a novel experiential science project and in response to trends in the literature relating to research on plants.

When the opportunity arose to participate in the Retrospective Treatment Outcome (RTO) MUTHI project, I thought that this would be an opportune space and time to investigate the different perspectives and practices involved in producing and negotiating knowledge about medicinal plants in the Western Cape. The MUTHI-RTO project was led by scientists who were focused on a highly prevalent communicable disease (Tuberculosis) in the Western Cape (Fourie, 2011; Claassens et al., 2013) and on medicinal plants which could potentially provide new sources of safe, affordable, and sustainable medicine. The MUTHI-RTO project, for applied purposes, brought scientists and scientific methods of knowing and doing research on plants into dialogue with the practical plant knowledge of *kruiekenners* in Genadendal. Because

my research is situated in an intellectual context where the objectification of plants is a strong discourse in science (Green et al., 2015; Gibson, 2018; Cohen, 2018), participating in the MUTHI-RTO project, I hoped, would enable me to problematize and possibly destabilize some of the epistemological traditions, assumptions, tensions and dualisms, such as nature-culture and subject-object, which have historically defined scientific knowledge, “indigenous” knowledge and research in South Africa and the global south (Latour, 1993; Gibson, 2011; Green, 2012; 2013).

The theoretical assumption and framework underlying the MUTHI-RTO study was groundbreaking. The project sought to promote African traditional medicine (ATM) and knowledge for improved health security (Graz et al., 2009; Wilcox et al., 2011; Graz et al., 2014) in a country facing an historically frail public healthcare system and battling to cope with a plethora of menacing illness conditions. The projects’ mandate was also in line with calls at the time to provide African Solutions to African problems (Myburgh, 2009; Fourie and Meyer, 2010). While the study was contingent on, but also took seriously, the local knowledge of *kruiekeners* and medicinal plants, the extent to which *kruiekeners* and medicinal plant consumers’ knowledge feature in the latter stages and overall outcome of the project was ambiguous and at times reductionist (Latour, 1999). Ultimately, the project was aimed at capacity building, establishing partner networks, training, and a few further steps beyond the RTO study. These did not progress further than pharmacology; drug discovery and development. In other words, it did not seek to nor was it able to respond to the objectivist and dialectic South African situation around traditional medicine or offer tangible recommendations for research at the interface of science and traditional medicine. Nevertheless, the point of convergence was that the MUTHI-RTO study was relevant to scientists, *kruiekeners* and other local plant users because both were interested in medicinal plants which “work,” can be developed as a medicine faster than clinical trials and is possibly cheaper and more sustainable in a setting like Genadendal.

As the MUTHI-RTO project and my own ethnographic research developed, there were certain parallels and points of divergence to be drawn from the different ways in which the actors in my study produce knowledge about plants. This was especially evident in practice when I followed medicinal plants, and to a certain extent TB, through their various entanglements with humans, technology, experiential techniques, TB tests, etc., in the laboratory at SAHSMI, the Genadendal clinic, or in the *veld* with *kruiekeners*. Drawing on the seminal work of Latour

(1987; 1993; 1999), Mol (2002; 2007) and Law (2007), who argue that realities are done in practice; the questions I posed and sought to answer in this thesis is, what types of realities are being enacted in these research spaces and how do they converge, if at all; how is “traditional” knowledge translated when it enters the academic or scientific domain; how can medicinal plants be studied or knowledge about them be produced in ways that do not subject them to western/scientific frameworks of representation or in a reductionist way; what are the types of conversations and opportunities that emerge through interdisciplinary research?

The differences (or similarities) in realities and practices highlighted in chapters 4-7 were never meant to compare scientific knowledge or practices with those of *kruiekenners*, nurses, TB sufferers, or consumers of *kruie*. I also did not emphasize stale dualisms such as nature-culture or caste “traditional” knowledge in juxtaposition with scientific knowledge (Green, 2008: 2012; Gibson and Killian, 2013; Green et al., 2015). Rather, I wanted to foreground the complex relations that exist between people (scientists, *kruiekenners* and plant users) and plants by offering an account of the kinds of conversations and practices which eventually helped me answer the above questions. In this way, I argue for an alternative configuration of knowledge objects such as *kruie*, TB, and experiential techniques; one which is conscious of the authority of science and medical practice, but which is also inclusive of *kruiekenners* knowledge and sufferer’s figurations of illness, aetiologies, stigma, treatment and healing (Verran, 1998: 2001).

## 8.1. General overview

As can be seen from above, the chapters which make up this thesis can be read as a “patchwork image” (Mol, 2002: 151) of *kruie*, TB, practices, experiential science, primary healthcare, treatment, and so on. As I stated in chapter one, this thesis was initially meant to be an ethnography about *kruie* and TB. However, over time and because of several unexpected connections and unknowns, it focuses on a series of intersecting knowledges, entities, practices, processes, and translations in different spaces and during certain periods of time instead (Latour, 1999; Turnbull, 2007; Mol, 2008). In addition to the questions raised earlier, another came to the fore early on in my research namely, how to approach plants in my study? This question stems from the different conversations and perspectives offered by participants at SAHSMI and in Genadendal, but its complexity is also raised in the literature as is shown in chapter two.

In chapter two, I argue that there have been many approaches to study plants. I outline some of the key approaches and theoretical developments in relation to plants and plant studies. These range from Anthropology's historical interests in and engagements with plants as forms of subsistence, human meanings, symbols, materiality, and/or relationality; to the more contemporary trends in the literature on more-than-human or other-than-human studies (Kirksey and Helmreich, 2010; Ryan, 2012; Tsing, 2017; Myers, 2015; 2017). I also draw attention to South African debates and contestations around science, traditional medicine, and interdisciplinary approaches to the use and study of plants as traditional medicine. While I recognise the important contribution that these respective bodies of work have made to the discipline of anthropology, plant studies, and for rethinking the relationship between humans and plants; I drew on each of them to stitch together my own view and approaches to plants.

I chose to employ Actor-Network-Theory (ANT) and material semiotics in this thesis as an analytical and theoretical tool (Latour, 1987; 1993; 1999). ANT and/or material semiotics enabled me to consider the role or agency of non-humans such as plants and does not limit their involvement in networks only to human meanings, symbols, materiality, or relationality. This is because much of the literature, including studies in anthropology, science, and ethnobotany have in the past investigated plants as "objects" or singular entities which are abstracted from nature, knowledge, practice, skill, as well as the particular histories with which they are intertwined. Here, for example, Rival (2011: 1) argues that much of the separation which has occurred between humans and nature, including plants, is due to advances in science and technology. She states:

it really starts with the overspecialization of Western science which has obscured the co-evolutionary relationships that exist between humanity and ecosystems. So, there is much that we can learn from indigenous peoples, who do perceive the environment and the role of humanity as a unity. They know how to work with them as a whole, if you want.<sup>60</sup>

Although Rival (2011) was talking about the relationship between Amerindian people and non-humans such as plants and spirits, I wanted to, in an analogous way, look beyond the relationship between human groups. This is because for lay people such as *kruiekenners* and

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<sup>60</sup> Gavilán, M. (2011). eBulletin "Meet a Researcher" Interview: Laura Rival. Available from: [https://www.unrisd.org/unrisd/website/newsview.nsf/\(httpNews\)/A80C9597F17D9174C125790400588A48?OpenDocument](https://www.unrisd.org/unrisd/website/newsview.nsf/(httpNews)/A80C9597F17D9174C125790400588A48?OpenDocument). Accessed: 01 April 2014.



consumers of medicinal plants, the relations that they have with *kruie*, the *veld*, animals, and *die Here* (God) are social. These “actants” belong to their social world; they do not divide nature and society in the way that, for instance, SAHSMI scientists do when studying plants. Therefore, by drawing on various perspectives, such as ethnobotany, medical anthropology, science, ANT, and material semiotics, my aim was to bridge the nature-culture divide by reassembling bodies of knowledge that is abstracted through, for example, experiential science (Latour, 1993; 1999).

Doing multidisciplinary research which takes into consideration the experiences of scientists, medical professionals, patients and *kruiekenners* as subjects that work in different spaces and have different conceptualisations of the “natural world” (Ingold, 2000) is complex and fraught with analytical and epistemological challenges. In addition to navigating different research spaces, i.e. SAHMI, the Herbarium at UWC, the Genadendal clinic, patient homes, and the *veld*; I also had to continually negotiate my position in each space and build the necessary rapport there. The research was broken up into phases, each broadly corresponding to a period of time, and required their own specific methods and practices. In chapter three, the methodology, I show that this was not always easy and necessitated an analytical shift each time I moved from one space to another or when I took time out of research. In addition to the more orthodox ethnographic conventions detailed in a methodology chapter such as research instruments employed, data collection techniques and reflexivity, I also raise critical inquiry about the ethical implications of doing long-term fieldwork in a semi-rural setting like Genadendal. Reflecting on my own experiences in chapter three and seven, I argue that future research should look closely at the safety and ethical concerns of researchers and not only of their roles and responsibilities towards their participants.

Chapter four marks the first of four empirical “findings” chapters. These have been arranged in more-or-less chronological order, but they also represent the progression of the MUTHI project and my own long-term ethnographic research. In chapter four, I do a conventional ethnobotanical survey as part of the requirements for the MUTHI-RTO study that is, to document and collect locally used medicinal plants and knowledge for further scrutiny during the RTO study later. On the one hand, the ethnobotanical study had to be done in a processual manner to ensure that the plants and practices surrounding their collection and identification were replicable and could be repeated by another researcher should further data be needed in future. On the other, it was also about responding to critiques that anthropologists have not

fully engaged with the agency of plants in their research (Ellen, 2006). Although I was limited by time constraints and the conventions of what scientists needed me to collect as data, I also wanted to engage with other critiques and questions of ethnobotany such as, “Can the field of ethnobiology fruitfully engage with theoretical movements in the social sciences and humanities that advocate an ontological approach to human-nonhuman relations?” (Daly et al., 2016: 1).

In response to the above question and, taking my lead from Latour (1999), I critically describe doing an ethnobotanical survey as series of steps with ontological gaps which are often overlooked (or seem to momentarily disappear at certain times or during practices) in its final representation as tables in a report or publication, or as botanical reference collections stored in the herbarium. In these steps, plants are collected and transformed by botanical techniques, forms of measurement and description, and in the process, acquire new meaning and value. The final reference collection serves as a material representation of the *veld*, the plants surroundings e.g. soil type, other plants in the vicinity, the season etc., and local knowledge of the plants’ uses. I argue that ethnobotanical studies are not just about “list-making,” plant categorizations, identification, or preservation of plant specimens for future reference (See also Ellis, 2018; Gibson, 2018). It also addresses theoretical questions in applied research, such as the relationship between people and plants and how local plant users’ healing and plant practices are adapted to their local environment (Martin, 2007).

Advancing arguments made in Chapter one and two, in chapter 5, I seek to address an ontological question about the nature of scientific knowledge; the types of realities that are brought into existence in making scientific “facts,” and the relationship between scientists and plants. The greater part of the RTO study involved analysing plant data and patient health outcomes at SAHSMI. I followed plants through the laboratory and observed different forms of scientific assessment being applied to plant and health data, for example, through statistics, epidemiology, botany, medical bioscience and so on, by different actors. I describe these processes, technology, computer software and other implements, to theorize translation and the process of scientific knowledge production (Latour, 1987; 1999; 2004). The RTO study played out in a process which I liken to “abstractive” filtration (Latour, 1999). It started with key information provided in the ethnobotanical study, applies scientific techniques and knowledge to the data, and gradually, as each phase in the experiential study is carried out, filters or renders

assortments of data and knowledge less important to finally reveal an outcome which is deemed acceptable to science (Latour, 1999).

While engaging with scientists, medical knowledge, translations of plants, and health data, the old antagonistic reality of relativism surfaced once again. The questions which came to mind was, what type of results were presented in the RTO study, what happened to the *kruie* I collected when they were abstracted from their social and environmental context, and what type of knowledge was being tested and by which standards? Because of my participation in the MUTHI project and prior experience at SAHMI as a researcher, I could stand in defence of scientist' colleagues and what they were trying to achieve. Like all novices to science studies, I perceived science and scientists to be something which is exclusive and their techniques to be "hard" or so-called "objective," as it has been represented in the literature (Callon, 1986; Latour, 1987: 13). However, because of my close involvement in the project, I showed that scientists with whom I worked have their own relationships and vested interests in plants. Many of them, including Prof Johnson for example, told me about his experience and upbringing with *kruie*. Scientists were thus not trying to construe medicinal plants or *kruiekenners* knowledge in a relativist or dismissive way. Rather, I argue, it was the rigid and reductionist methods of public health, medical bioscience and statistics which extracted useful data and made others insignificant. Ultimately, and despite the mandate of the MUTHI-RTO project to produce scientific innovation, I observed that these scientists were genuinely interested in and concerned about medicinal plants and *kruiekenners* knowledge.

At the end of the MUTHI-RTO project, I had spent the best part of two years at SAHSMI, not including the two years prior doing research there for other divisions of the MUTHI project. Working alongside scientists served to heighten my personal interest in and affiliation with science and scientific ways of doing research. I had inadvertently become an apprentice of science (Latour, 1987) and therefore found it initially difficult to make the shift back to long-term ethnographic fieldwork in Genadendal. The difficulties I experienced was not the "culture shock" Oberg (1960) described when entering a new setting or the sense of estrangement one feels when trying to adapt to village life but was about making sense of a different reality and way of knowing the natural and social world I was confronted with (Strathern, 1991; Verran, 2001; Hsu, 2010: 2015; Latour, 2013). As shown in chapter 5 and 6, this liminal period in my fieldwork and thinking required that I once again make an analytical move from experiential

science, and the ethnographic study of this science, back to long term ethnographic fieldwork in Genadendal.

Back in Genadendal, I set about examining TB as one of the most widespread communicable conditions in South Africa and which is preeminent in relation to morbidity and mortality. To explore why this continues to be the case despite relative ease of access to diagnostics and treatment, I examined TB at diverse levels of scale (Mol, 2002). I first started in the Genadendal clinic to better understand how nurses and other primary healthcare institutions do diagnostics, categorise patient bodies according to biomedical referents and manage a disease like TB. This is done in a setting and against the background of a historically disadvantaged community and primary healthcare system which continues to grapple with limited resources, inequality, marginalization, and poverty. Secondly, I examine sufferer's figurations of TB which speak to the ways in which the disease is negotiated, spoken about, managed, influences social and physical bodies, and is enacted (Mol, 2002). Drawing on these perspectives, and as is evidenced in the clinic and sufferer's figurations, I argue that TB is not a single or autonomous entity. Rather, it represents an accumulation of facts that is defined and "done" in different ways in primary healthcare and by local sufferers. I show that TB is always in flux; it is conveyed, recounted, treated, and represented differently in the clinic, hospital, and patient homes (Mol, 2002; Law, 2007).

Farmer (2000: 185) described TB as the "forgotten plague" referring to the way in which structural violence continues to hinder effective (or early) diagnosis and treatment of the disease. He was also raising concerns about the limited scholarly attention to the disease, including from anthropologists. Several anthropologists have since written about the disease, most notably about the role of structural violence in TB understandings, diagnosis, control measures and about the polemics of new and existing forms of treatment (See also: Harper, 2005; Gibson, 2011; Abney, 2014; Dixon, 2018). Over the last decades in South Africa, there have also been increased efforts from government and non-government organizations (NGO's) to increase funding, infrastructure, and to build on existing treatment and control protocols (The South African national TB control programme, 2004; South African National Tuberculosis Management Guidelines, 2009; Abney, 2011: 2014; Dixon, 2012). TB is highly curable, and treatment is free. Yet, as I show in chapter six, there are still many barriers which hinder effective diagnosis, treatment, and add to negative cure rates.

In community feedback sessions (2019-2021) to staff at the Genadendal clinic and Home-Based Care Unit (HBC), I reported on the above findings as well as sufferer's perceptions of TB, treatment, and interactions with allopathic medicine. I also stressed to nurses that patients consume medicinal plants together with their prescribed TB medication and sometimes omit TB medication altogether. Though nurses are already aware of their patient's pluralistic treatment practices, a recommendation for future research is that medical pluralism be revisited to examine the potential for herb-drug interaction and how these influence physiological effects on the body, disease, treatment duration, as well as reinfection. When I revisited Genadendal in 2020 and 2021, I was happy to learn that all of the TB patients I interviewed were TB free. I also saw that the Genadendal clinic was under construction. The building was being expanded with more consultation rooms, a better patient waiting area, and nurses told me that they were expecting more modern equipment.

As is evidenced in the chapters outlined above, much of the descriptions of plants are written from a human-centred view. At times, plants feature prominently in the discourse as in for instance the ethnobotanical survey and at others when practices are foregrounded, such as the RTO study, they merge into the background. In chapter seven, I discuss why this is the case and made a hesitant step towards an encounter with *wilde als* which looks to study the pungent *kruie* as a *kruie* (Pitt, 2015: 11). In other words, I tried to engage with *wilde als* in a way which omitted humans articulating *kruie* life (Head and Atchison, 2009; Kirksey and Helmreich, 2010; Head et al., 2012) and in its own ecological setting. To do so, I nevertheless had to employ different human modes of intervention, description, and senses to perceive the distinctive characteristics and capacities of *kruie*. These were honed during three encounters I had with sickness, healing, *kruie*, the *veld* and *kruiekenners* during the final six months of my long-term fieldwork in Genadendal and ultimately brought me closer to spending time in the *veld* with *wilde als* on my own.

I got to know *wilde als* more intimately by interacting with and moving through the *veld* with *kruiekenners* as experts (Head et al., 2012; Pitt, 2015; Myers, 2017), learning by showing (Ingold, 2000: 2007), employing multiple visceral techniques such as photographs, videos, and sound recordings to become more attentive to plant forms (Holdredge, 2013; Hickman et al., 2017; Tsing, 2017), and sitting in quiet contemplation beside the plant to listen and observe (Delsesto, 2018). Because *kruiekenners* interacted with *kruie* as *lewende wese*, I was encouraged to think about and appreciate their agency as living things with distinctive



capacities to respond to their environment, including animals, insects, and humans (Jones and Cloke, 2002; Pitt, 2015). Through these engagements I could also begin to see and develop concern for vegetal life (Pitt, 2014).

In lieu of the above, I am hard-pressed to say that my attempt at a more-than-human encounter with *wilde als* was successful. Because of the significant, yet often overlooked role that plants play in human lives as food, medicine, memory, meaning, reciprocity, and sociality (Ryan, 2012; Pitt, 2015), for example, studying plants, particularly one with which I have shared such a long co-history (Tsing, 2015), is very emotive. Despite calls in the more-than-human and anthropology beyond the human literature to rethink the human-plant relationship and engage with the agency of plants on their own terms (See for examples: Jones and Cloke 2002; Hitchings and Jones, 2004; Head and Atchison, 2009; Kirksey and Helmreich, 2010; Hall, 2011; Ryan, 2012; Kohn, 2015; Tsing, 2015), it was vexing for me to look beyond my own human entanglement with *wilde als*. Each time I see or smell the *kruie*, I think about it affectionately as the strong aromatic bush my grandmother taught me about, then later asked me to collect in the *veld* and prepare as a tea for us in a farm house in Elim. To paraphrase from Pitt (2015: 11), my more-than-human encounter serves only as one partial representation of an interspecies engagement with *wilde als* and what it was trying to show me, but I hope it stimulates paths for further such engagements.

### **Concluding thoughts**

How, then, does *kruiekenners* plant knowledge and practices and my own encounter with *wilde als* relate back to the MUTHI-RTO project on *kruie* and TB? In this thesis, I set out to explore what such a relationship might look like through the prisms of multispecies ethnography, science studies, material-semiotics, anthropology, and human-plant engagements. The goal, as I have stressed throughout the thesis, was not to compare like-for-like but to rethink how collaborations between scientists, anthropologists, *kruiekenners*, and their respective knowledges can productively contribute to on-going conversations about epistemology and locally used medicinal plants. This is especially important in the epoch of the Anthropocene where humans are facing an ecological crisis and must find new ways to think about our interactions with the environment. Such working relationships will continue to grapple with many complexities, but they have the potential to highlight other modes of existences; of thinking about science, indigenous knowledge, and plants.

As I have shown in the thesis, there are indeed many different modes of existences and by extension, understandings of plants. These range from scientific facts, flora, referents, aesthetics, symbols of healing, memory, cultural meaning, to objectivized things. Latour (2013) posits that existences are hybridized, and when we think about them in this way, they serve to enhance and broaden our natural and social worlds. At the risk of producing infinite hybrids, it is still necessary as in the case of transdisciplinary research to allow for all kinds of hybrid realities, technologies, and transient states which constitute our collective world. I would like to extend Latour's (2013) line of thinking here to argue that for a joint and mutually-beneficial relationship between science and traditional knowledge to productively proceed in a setting like South Africa, it is necessary to consider the world as composed of many actors which co-exist and interact within the shared world we all occupy. Such thinking may be possible if we adopt a mindset which does not discriminate between the knowledge paradigms of, for example, science, botany, anthropology, and indigenous knowledge. It might also offer one way to conceive of how such heterogenous knowledge(s) and practices could possibly "go on together" or not (Verran, 2011: 21).

Plants have historically taken a backseat when discourses include humans, animals, and in western knowledge traditions. However, I aimed to show in this thesis that they are anything but objects of the natural world. Conceiving of research, methods and theoretical models which take seriously the ontological concerns of plants is still developing but offer stimulating food for thought. Pharmacologists and botanists have, for example, begun to think about how plants interact with one another and have also made strides towards understanding how plants act in symbiosis at a molecular level (Trewavas, 2014; Myers, 2015, Cohen, 2015). As more-than-human research expands, scholars are increasingly drawing attention to the complex lives and capacities of plants (See for examples: Pollan, 2011; Tsing 2012: 2015; Kohn, 2013; Ryan, 2015; Myers, 2015; Daly et al., 2016; Gagliano 2017; Gagliano et al. 2018). These trends suggest a growing desire from post-human anthropology to depart from conventional social and natural explanations in search of innovative ways to engage with plants and produce knowledge about them beyond the stricture of species boundaries (Daly et al., 2016). It is my hope that this fractional and imperfect offering makes a small contribution to this ever-increasing debate.

## Appendix 1

### Ethnobotanical survey

Research respondent's consent for the participation in the study:

I..... (name of informant) hereby give my full consent and conscious to participate in this study and declare that to the best of my knowledge the information that I have provided are true, accurate and complete.

Date..... (Signature).....

Respondent's details:

Name.....

Gender.....

Age.....

Occupation.....

Education.....

Location/Residence.....



### Data about medicinal plant and its use:

#### Plant 1

Plant (Local name).....

What illness(es) plant is used for.....

Habit (Tree/ Herb/ Shrub/Climber/.....)

Plant part(s) used.....

Cultivated/ Wild/ Purchased

If wild, availability in natural resources (easy/ difficulty/ very difficult)

If wild, when collected and why.....

If wild, where collected.....

If wild, how readily available.....

Method of collection and storage.....

If purchased, where.....

If cultivated, cultivated for.....

Method of collection and storage.....

Method of crude drug preparation.....

Mode of administration.....

Dosage .....

Other ingredients added.....

Other uses (if any).....

Plant knowledge

Where learned about plant use.....

How learned about plant use.....

To whom is this knowledge transmitted .....

How is this knowledge transmitted.....

Botanical name of plant (if known).....

**Remarks:**

Plant identified as ..... (Botanical name and family)



## Appendix 2

**UNIVERSITY OF THE WESTERN CAPE**  
**DEPARTMENT OF ANTHROPOLOGY AND SOCIOLOGY**

Private Bag X17, Bellville, 7535, Cape Town, South Africa

Tel: (XXX); Fax: (XXX)



UNIVERSITY of the  
WESTERN CAPE

October 2013

Title: A retrospective study of the management of chronic coughing in Genadendal Theewaterskloof municipal area, Western Cape.

Researcher: Denver Davids

### Information sheet (Chronic coughing):

This study outlines the causality, history and methods for management and treatment of chronic coughing with the utilisation of local medicinal plants. The study aims to compare the treatments used to manage chronic coughing with treatment outcomes i.e whether there has been an improvement or not. If you agree to participate in the study, you will be asked to complete a questionnaire which should not take longer than 15 minutes to complete.

### **What is the questionnaire about?**

This is a questionnaire for people who suffer with a persistent or chronic cough. It is designed to assess the symptoms, management and treatments of chronic cough. The questions are referring to how your cough affects you generally, ie on average how does your cough affect you, therefore not when you are at your best or worst. It is best to refer to your symptoms within the last six months.

### **Who should complete the questionnaire?**

The questions should be answered by anyone who has presented with chronic cough in the last six months and who wishes to participate.

The study is under the Department of Anthropology and Sociology and conducted by Denver Davids, Supervised by Prof. Diana Gibson at the University of the Western Cape. Participation in this study is voluntary. With your permission, our conversations will be recorded and data



will be used for publication. If you wish, pseudonyms will be used. If you would like to see the information about yourself and/or what you said at any time, you can do so. I will keep your identity strictly confidential. You may withdraw from this study whenever you wish, and if you do, all information you provided will be discarded. Your withdrawal from the study will in no way affect your access to or the use of traditional plant medicines or pharmaceuticals.

If you agree to participate in this study, you will be asked to sign a consent and access and benefit sharing agreement before completing the questionnaire which will protect and inform you of your rights as a participant.

Thank you for taking the time to read this leaflet. If you are unclear about anything or need further information, feel free to contact us at:

Researcher: Denver Davids

Supervisor: Prof Diana Gibson



## Appendix 3

**UNIVERSITY OF THE WESTERN CAPE**

**DEPARTMENT OF ANTHROPOLOGY AND SOCIOLOGY**

Private Bag X17, Bellville, 7535, Cape Town, South Africa

Tel: (XXX); Fax: (XXX)

**October 2013**

### **Informed consent**

**Title:** Knowledge Interfaces: Kruiekeners, plants and healing in Genadendal

You are invited to participate in a study about exploring tuberculosis (TB) pluralities and ways of knowing TB in relation to allopathic medicine conducted by Denver Davids under the supervision of Prof Diana Gibson at the University of the Western Cape, Anthropology/Sociology department. We will use this information to write a PhD dissertation and (with your permission) publish the results.

Participation in this study is voluntary. If you do volunteer, we would spend as much time with you as you would allow; talking to you, and asking you questions about your understandings of TB and further how you collect, prepare and use plants and other medicines for treatment. With your permission, our conversations will be recorded, and data will be used for publication. If you wish, pseudonyms will be used. If you would like to see the information about yourself and/or what you said at any time, you can do so. I will keep your identity strictly confidential. You may withdraw from this study whenever you wish.

### **For the participant:**

1. Have you been given information about the study? YES  NO
2. Have you been provided with an opportunity to ask questions about the study? YES  NO
3. Have you received satisfactory answers to all your questions? YES  NO
4. Do you understand that you are free to withdraw from this study at any time? YES  NO

5. Do you agree to take part in this study, the results of which may be published? YES  NO
6. Have you been informed that the researcher will keep a copy of this consent form? YES  NO
7. Are you satisfied that your identity will be kept secret if you wish? YES  NO
8. Will you allow this interview to be recorded? YES  NO

I \_\_\_\_\_ Name of participant (printed) herewith give my consent to participate in this research project .

Signature: \_\_\_\_\_

Date: \_\_\_\_\_

Place: \_\_\_\_\_

Facilitator: \_\_\_\_\_



If you are unclear about anything or need further information, feel free to contact us at:

Researcher: Denver Davids

Supervisor: Prof. Diana Gibson

***If during your participation in this study you feel the information and guidelines that you were given have been neglected or disregarded in any way, or if you are unhappy about the process please contact the secretary of the Department of Research Development at the University of the Western Cape at (XXX). Please be assured that your concerns will be dealt with in a confidential and sensitive manner.***

## Appendix 4

### UNIVERSITY OF THE WESTERN CAPE

#### DEPARTMENT OF ANTHROPOLOGY AND SOCIOLOGY

Private Bag X17, Bellville, 7535, Cape Town, South Africa

Tel: (XXX); Fax: (XXX)

October 2013

**Title:** Knowledge Interfaces: Kruiekenners, plants and healing in Genadendal

#### Access and benefit sharing agreement

##### Access:

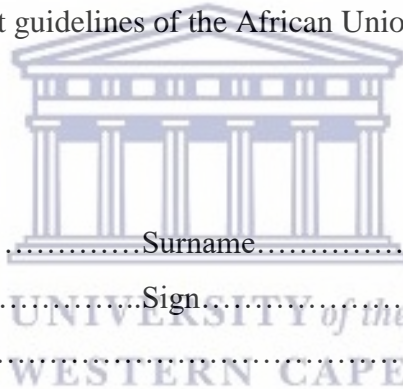
In response to the **recipient's** (researcher) request for the **material** (plants), the **provider** should understand and agree to:

1. The above material is the property of the provider and is made available as a service to the research community.
2. The material will be used for teaching or not-for – profit research purposes only.
3. The material will only be made available to other researchers with the approval of the provider.
4. Any material delivered pursuant to this agreement is understood to be experimental in nature and may have hazardous properties. The provider makes no representations and extends no warranties of any kind, either expressed or implied. There are no express or implied warranties of merchantability or fitness for a particular purpose, or that the use of the material will not infringe any patent, copyright, trademark, or other propriety rights.
5. Unless prohibited by law recipient assumes all liability for claims and for damages against it by third parties which may arise from the use, storage or disposal of the material except that, to the extent permitted by law, the provider shall be liable to the recipient when damage is caused by the gross negligence or wilful misconduct of the provider.
6. The recipient agrees to use the material in compliance with all applicable statutes and regulations.

7. The material is provided at no cost, or with an optional transmittal fee solely to reimburse the provider for its preparation and distribution costs.
8. Each party are to receive a signed copy of this agreement upon which the provider will transfer the material.

**Benefit sharing:**

1. The researchers endeavour not to give false hopes or make promises which cannot be fulfilled.
2. The researchers will share of results of this research, so that the whole community is informed regarding which treatment(s) seem to be the most effective.
3. In the event of commercial developments arising from this research, the researchers agree to a principle of benefit sharing according to the established principles of South African law and relevant guidelines of the African Union.



**Provider information:**

Name.....Surname.....  
 Id number.....Sign.....  
 Place of transfer.....

Recipient's details

Name.....Surname.....  
 Id number.....Sign.....  
 Place of transfer.....

Researcher: Denver Davids

Supervisor: Prof Diana Gibson



## Appendix 5

Date:

# RTO SURVEY ON TB AND CHRONIC COUGHING

- This is a questionnaire for people who suffer from TB and chronic coughing. Chronic coughing is defined as coughing which last for more than 3 weeks.
- The questionnaire should be answered by anyone who has suffered from chronic coughing in the last six months or more.
- The questionnaire should not take longer than 15 minutes to complete. Please tick inside the boxes unless you are instructed otherwise.
- If you have any queries about the questionnaire, please call Denver Davids between 09:00 and 16:30 and will be connected to a mailbox at other times.

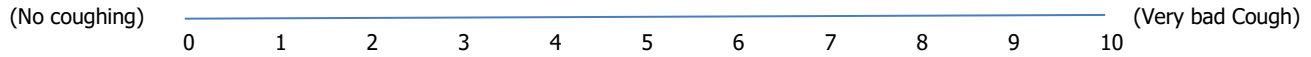
|   |   |                                  |
|---|---|----------------------------------|
| <b>Name</b> (do not answer if you wish to remain anonymous)   | <input type="checkbox"/> M <input type="checkbox"/> F                               | <b>Date of Birth:</b>            |
| <b>How many people live in the household?</b>   |  |                                  |
| <b>Do you have access to transport?</b>   | Yes      No <input type="checkbox"/>  |                                  |
| <b>Does anyone in the household have TB?</b>  | Yes <input type="checkbox"/> No <input type="checkbox"/>                            |                                  |
| <b>Have you visited the clinic, home based care unit or doctor regarding your chronic coughing?</b> | Yes <input type="checkbox"/> No <input type="checkbox"/>                            | If yes please specify diagnoses: |

### SECTION 1 please tick ×

|                         |   |  |
|-------------------------|---|--|
| <b>Smoking history:</b> | <input type="checkbox"/> Never smoked                         | (please continue to section 2)   |
|                         | <input type="checkbox"/> I do not smoke, but have in the past | How many cigarettes a day?.....<br><br>How long ago did you quit?..... |
|                         | <input type="checkbox"/> I smoke at the moment                | How many cigarettes a day?.....<br><br>For how many years?.....        |

### SECTION 2 please tick ×

**On a scale of 1 to 10 (0 is no coughing at all and 10 is a very bad cough), circle on the scale below how bad you feel your cough is:**



**Please tick the symptoms of your illness below:**

|   |  |
|---|--|
| <input type="checkbox"/> Night sweats     | <input type="checkbox"/> Wet Cough           |
| <input type="checkbox"/> Weight loss      | <input type="checkbox"/> Dry cough           |
| <input type="checkbox"/> Coughing blood   | <input type="checkbox"/> Mucous cough        |
| <input type="checkbox"/> Tiredness        | <input type="checkbox"/> Swelling            |
| <input type="checkbox"/> Loss of appetite | <input type="checkbox"/> Vomiting            |
| <input type="checkbox"/> Fever            | <input type="checkbox"/> Dizziness           |
| <input type="checkbox"/> Headaches        | <input type="checkbox"/> Stomach pain        |
| <input type="checkbox"/> Chest pains      | <input type="checkbox"/> Shortness of breath |
| <input type="checkbox"/> Runny stomach    | <input type="checkbox"/> Shivering           |

If other please specify:



**How long have you had these symptoms?**

.....  
 .....

**Have you experienced these symptoms or similar symptoms before?** (please describe them)

.....  
 .....

**SECTION 3** please tick ×

**Treatments:**


- |   |  |
|---|--|
| <input type="checkbox"/> Self-medication/family member/friend | <input type="checkbox"/> Bossiesdokter |
|---|--|

|   |   |                                      |
|---|---|--------------------------------------|
| <b>What was the first treatment for your illness?</b> | <input type="checkbox"/> Doctor               | <input type="checkbox"/> Rastafarian |
|   | <input type="checkbox"/> Home based care unit | <input type="checkbox"/> Pharmacy    |
|   | <input type="checkbox"/> Clinic               | <input type="checkbox"/> Herbalist   |

If other please specify:

- **If the first treatment was from a doctor, pharmacy, clinic or home based care unit continue to section 4**
- **If the first treatment was from a Bossiesdokter, Rastafarian, herbalist or if you used a herbal remedy to self-medicate continue to section 5**
- **If you used a combination of the above please complete section 4 and 5**

**SECTION 4** please tick ×

|   |   |                           |
|---|---|---------------------------|
| <b>Which medications did you use?</b>             | <input type="checkbox"/> Antibiotics<br><input type="checkbox"/> cough syrup<br><input type="checkbox"/> Other (Please specify).....<br>.....<br>.....  |                           |
| Several answers are possible                      | <br>UNIVERSITY of the WESTERN CAPE   |                           |
| <b>What happened after this treatment?</b>        | <input type="checkbox"/> Cured<br><input type="checkbox"/> Improvement, but still have symptoms (please describe them below)<br><input type="checkbox"/> No improvement<br><input type="checkbox"/> Worsened<br><input type="checkbox"/> Death<br><br>If other please specify.....<br>..... |                           |
| <b>Were you admitted to a health care center?</b> | <input type="checkbox"/> Yes <input type="checkbox"/> No  | If yes for how many days? |

**SECTION 5** please tick ×

|                                       |   |
|---------------------------------------|---|
| <b>Traditional medicine (Plants):</b> | If a plant remedy was used for your symptoms what was its name? (Local, Afrikaans, other names)<br>.....<br>..... |
|---------------------------------------|---|

|  |  |  |
|--|--|--|
| <b>List the plants used in the remedy.</b>   | More than one answer is possible:<br>1.<br>2.<br>3.<br>4.<br>5.<br>6.<br>7.<br>8.<br>9.<br>10.       |  |
| <b>How did you take the plant remedy?</b>  | <input type="checkbox"/> Tea   | <input type="checkbox"/> Bathing                 |
|  | <input type="checkbox"/> Oil   | <input type="checkbox"/> Rubbing out chest       |
|  | <input type="checkbox"/> Powder  | <input type="checkbox"/> Mouth                   |
|  | <input type="checkbox"/> Syrup   | <input type="checkbox"/> Ointment                |
|  | <input type="checkbox"/> Inhaling steam from remedy<br><br>If other please specify<br>.....<br>..... |  |
| <b>Are there any side effects of this remedy?</b>  | .....<br>.....   |  |
| <b>Can the remedy be used with small children?</b>   | <input type="checkbox"/> Yes <input type="checkbox"/> No   | (If yes are the dosages the same?).....<br>..... |
| <b>Is there anything that should not be eaten or done at the same time when taking the remedy?</b> |  |  |



**If you were not cured, did you try a second treatment?**

Yes    No

➤ **If yes please continue to section 6.**

➤ **If no please continue to section 7**

**SECTION 6** please tick ×

|  |   |  |
|--|---|--|
| <b>Who gave the second treatment?</b>  | <input type="checkbox"/> Self-medication/family member/friend                                       | <input type="checkbox"/> Bossiesdokter   |
|  | <input type="checkbox"/> Doctor   | <input type="checkbox"/> Rastafarian   |
|  | <input type="checkbox"/> Home based care unit   | <input type="checkbox"/> Pharmacy  |
|  | <input type="checkbox"/> Clinic   | <input type="checkbox"/> Herbalist   |
| <b>If the treatment was from a doctor, pharmacy, clinic or home based care unit:</b> | Which medication did you use? (Several answers are possible (E.g.: antibiotics, cough syrup, etc.)) | What happened after this treatment?  |
|  | 1.<br>2.<br>3.<br>4.<br>5.<br>6.<br>7.<br>8.<br>9.<br>10.   | <input type="checkbox"/> Cured<br><input type="checkbox"/> Improvement, but still have symptoms (please describe them below)<br><input type="checkbox"/> No improvement<br><input type="checkbox"/> Worsened<br><input type="checkbox"/> Death<br><br>If other please specify.....<br>.....<br>..... |
| <b>If the second treatment was a plant remedy:</b>                                   | List the plants in the remedy you used: (more than one answer can be written )                      | What happened after this treatment?  |
|  | 1.<br>2.<br>3.<br>4.<br>5.<br>6.<br>7.<br>8.<br>9.<br>10.   | <input type="checkbox"/> Cured<br><input type="checkbox"/> Improvement, but still have symptoms (please describe them below)<br><input type="checkbox"/> No improvement<br><input type="checkbox"/> Worsened<br><input type="checkbox"/> Death<br><br>If other please specify.....<br>.....<br>..... |

**SECTION 7** please tick ×

|   |   |
|---|---|
| <b>Do you use any other treatments for your symptoms?</b>   | <input type="checkbox"/> Dutch medicines<br><input type="checkbox"/> Vicks/salf<br><input type="checkbox"/> Prayers<br><input type="checkbox"/> If other please specify<br><br>.....<br>..... |
|   | <input type="checkbox"/> Yes <input type="checkbox"/> No  |
| <b>Do you sometimes use medicine from the clinic, doctor or pharmacy together with plant remedies or other kinds of treatments?</b> | If yes, which do you use together?<br>.....<br>.....<br>.....   |



|  |  |
|--|--|
| <p><b>Do you do anything to prevent your symptoms?</b></p> <p><b>(Several answers are possible e.g. healthy food, vitamins, prayers)</b></p> | <p>.....</p> <p>.....</p> <p>.....</p> |
|--|--|

**THANK YOU FOR YOUR TIME!**

**Please make sure that you have answered all of the questions.**

**If you have any queries about the questionnaire, please call Denver Davids (XXX) between 09:00 and 16:30 and will be connected to an answerphone at other times.**

**UNIVERSITY OF THE WESTERN CAPE**  
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**Private Bag X17, Bellville, 7535, Cape Town, South Africa**

**Tel: (XXX); Fax: (XXX)**



## Appendix 6

<sup>61</sup>“Genadendal was full in view before us. Their large church was very conspicuous at a distance. The settlement lies at the end of a valley, closely surrounded, except in one direction, with great mountains. At a distance it has more the appearance of a garden than a town...”

(Cambell, 1812)

“By the side of the church is the garden of the pastors, in the midst of which stands the large old pear-tree, planted by Schmidt himself, the original founder of the institution: benches are standing under its shade, and this is a favourite place of resort among the Brethren.”

(Lichtenstein, 1803)

“I was promptly installed in an airy whitewashed chamber, whose walls were somewhat darkened by the foliage of some fine shrubs planted before the windows.”

(Casalis, 1833)

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<sup>61</sup> Excerpts from the travel logs of missionary visits to Genadendal. Available from: <https://www.sahistory.org.za/franconfrescura/mission-stations-G-H%20.html>. Accessed: 11 November 2013.

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