A preliminary survey of plants used in traditional medicine in the Grahamstown area

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Received 1 November 1999, accepted in revised form 20 May 2000

On the basis of interviews with traditional healers, diviners and villagers in the Grahamstown area, twenty-four plants used in traditional medicine are reported. The preparation and utilisation of these plants is as varied as the plants themselves. Some of the plants were previously known to ethnobotanists but because of the diversity of tribal groups in South Africa, new preparations of these plants were discovered. This also suggests that there are gaps in recorded knowledge of medicinal plant usage, therefore more research on traditional practice still needs to be undertaken before the knowledge is lost. The curative properties of these plants appear to be well known to the healers who use them but many of them still have to be chemically tested.

Introduction

Most tribes in South Africa still use prescriptions from herbs and shrubs and other materials in their traditional medicine. The medicinal plants used in Grahamstown are no exception and are a constituent of traditional culture. Unfortunately much of the traditional culture and knowledge is in danger of being lost with the increasing modernisation of society, especially by the development of roads, communication, the migration of people from villages to cities and the influx of modern medicine. Furthermore, ethnobotanical information is not always passed down by word of mouth from one generation to the next, so the need to record and utilise the current wealth of ethnobotanical knowledge remains important for ethnopharmacological, cultural and historical purposes. Higher plants, some of which are threatened with extinction, are also used as sources of pharmaceuticals and as ingredients of traditional medicine. Furthermore, the compounds they contain may serve as templates for new synthetic drugs (Omulokoli et al. 1987).

Herbalism is not only practised as an alternate health option and source of employment but also to meet the growing urban demand for traditional medicine. However, the increase of human population, increase in the need for certain plants, the incorrect way of harvesting the plants and the competition with other forms of land use has led to a decrease in the availability of wild plant resources (Martin 1995). Due to urbanisation and the increased commercialisation of the herbal trade in South Africa, the activity of harvesting medicinal plants, formerly the specialist domain of traditional healers, has also become the domain of untrained commercial gatherers who supply the urban areas with plants (Williams 1997). An increase in the demand of traditional medicine has resulted in other plants being used to substitute indigenous plants that are becoming scarce (Williams 1996).

Ethnobotanical studies have been done in many areas in South Africa (Bhat and Jacobs 1995, Ellis 1986, Metelerkamp and Sealy 1983, and others). The information gathered from these studies can be used to identify the important medicinal plants, those in great demand as well as those threatened with over utilisation. A few studies have been done in the Eastern Cape (Bhat and Jacobs 1995, Dold and Cocks 1996, Hirst 1990, Broster 1982, Smith 1895), but until recently not much in smaller centres such as Grahamstown. Studies in neighbouring areas show that traditional medicine is still in great demand, especially in rural areas (Bhat and Jacobs 1995, Dold and Cocks 1996). The present study aims to rescue the disappearing knowledge of medicinal plants by combining the collection of voucher specimens with information gathered from interviews with traditional healers, diviners, herbalists and other people who know and use the plants for medicinal purposes. The information gathered will be documented and stored in the Selmar Schonland Herbarium (GRA) and will probably be used in the proposed construction of a nursery and garden dedicated to ethnobotanical species in the National Arboretum for Peace and Reconciliation. It is hoped that by making people aware of the importance of these plants and many others, they will learn to appreciate indigenous plants. Also by making them aware of the problems some other parts of South Africa already have in terms of scarcity of some of the important plants, they will see the need to conserve them. It is hoped that all this will help to reinforce links between the community and the environment, which is essential if sustainable utilisation is to be realised.
Study Area

Grahamstown is situated approximately 50 kilometres inland from the Indian ocean and lies on the arterial axis of the old national road between the larger coastal cities of Port Elizabeth and East London. It is situated in a transitional zone between the summer rainfall region to the east and the all year rainfall area of the South Coast. Various vegetation types ranging from karroid vegetation to evergreen woodland, acacia grassland and heathland (Daniel et al. 1985) surround the town. The area consists of the commercial centre (the town) with a large residential area almost surrounding the central business district, the townships (mostly Xhosa speaking people) and the farms in Albany and Bathurst districts. The population of the area has increased substantially, from approximately 45 530 in 1980 to 110 000 in 1996 (Grahamstown Health Department). This increase is due to both a high rate of natural increase and an influx from surrounding areas like King William’s Town and the former Ciskei.

Methods

Information on the utilisation of plants in the Grahamstown area was collected through direct contact and interviews with herbalists, diviners, traditional healers and other people who know and use the plants for medicinal purposes. This was done over a period of six months, between March and August 1997. Interviews were conducted in the informants’ houses, where they do most of their work, and in the field. These interviews were conducted in Xhosa. Informants were asked for the source of their knowledge to eliminate information of secondary nature. Efforts were made to double-check any information provided by asking the opinion of older people or other herbalists.

Three approaches to information gathering were used: Information was gathered by 1) asking what plants in the locality were used in traditional medicine; 2) asking what a particular plant was used for; or 3) on observing an activity (such as preparing medicine for a patient) and enquiring as to the plants used. The first of the three approaches was used as an icebreaker in most cases. The second approach was used in order to cross check the information received. The most rewarding approach was the third one, since the informant was thoroughly familiar with the plants’ use.

For collection of plant materials, informants were asked to guide us to the places where the plants grow. An attempt was made to cover as much of the study area as possible. The fresh or dried medicinal plant material was collected and kept for botanical identification. Information on what plants they use, what plant parts they use, what they use for and how they use the plants was recorded. Informants also provided us with vernacular (Xhosa) names that they use for these plants. All the informants used the same vernacular names. Plants collected as vouchers were identified with the help of the Selmar Schonland Herbarium (GRA) curator, Mr AP Dold. All vouchers were deposited in the Selmar Schonland Herbarium (GRA).

Informants Background and Practice

The informants described below were all interviewed on more than one occasion and provided much of the information on plant usage. All the informants consented to having their information made public. It is difficult to assess how representative this small group is of the ancient traditional practice. However, some of the plants they use and customs they referred to have been previously recorded (Hirst 1990, Lamia 1981, Bhath and Jacobs 1995, Droste 1982) and can thus be considered reliable.

1. Mrs Lindani is a 62-year-old housewife, whose grandfather and aunt had both been diviners. She acquired her expertise from them and she has practised since she was 14 years old. She also trained as a Prophet in the Zion church. As a diviner, she keeps contact with the ancestors, divines the causes of misfortune and illness and sometimes treats the patients.

2. Mr Bonisile Dipi is an 87-year-old traditional healer. His father was a traditional healer. He started practising at the age of 37, after training for three years. He diagnoses, prescribes and sells the medicines for various ailments. He has a certificate from the African Herbalist Dingaka Association (in Zwelitsha, Eastern Cape), giving him the right to work as a traditional doctor anywhere in South Africa. He does most of his work at home and sometimes visits patients in their homes.

3. Miss Fihlani is a middle-aged woman and is the daughter of Mr Dipi (above). She trained as a diviner for three years and has started working, although she is still under her father’s supervision.

4. Adolphus is a 40-year-old herbalist who was trained by his father. He considers the use of remedies to be a family secret handed down from one generation to the other. He works in the only herbal shop in Grahamstown. He prescribes and sells medicine to patients and customers. He also works with another man, who is Indian, who uses his traditional (Indian) methods in healing. Sometimes the patients were treated by both (e.g. the Indian man would use his methods in trying to find the cause of the illness and then refer the patient to Adolphus who would give the patient the prescription he/she needs).

5. Zizi (not his real name) is 50 years old. He did not receive any formal training about medicine, but acquired his knowledge by helping the herbalists.

Other people interviewed were the customers (people who went to the shop to buy medicine for themselves or for someone else) and patients who went to see Mr Fihlani. The interviews with the customers were made as informal as possible, e.g. no name taken and no pen and paper. This was done to avoid making customers uncomfortable as most of those we talked to were not happy to talk about why they were there or what they had bought, and wanted their visit to the shop to be kept secret. The interviews with the patients were formal (e.g. what she/he was suffering from and then observed what the informant was preparing for the patient) and notes were taken in some cases with the patients permission. Seven customers and four patients were interviewed. The information gathered from patients and customers was used to double check information that was pre-
viously obtained from the informants and to ascertain that 
these plants were actually used by other people. The infor-
mation obtained from these interviews is acknowledged in 
Table 1.

Results

Medicinal Plant Usage

Twenty-four medicinal plants were identified during the 
investigation. These plants are listed in alphabetical order 
according to family and then according to genus and species 
within the family. This data is presented in Table 1.

The informants claim that all the information they know 
and that they have provided was obtained through proper 
training by their counterparts or by consulting their ances-
tors, in the case of diviners and traditional healers.

Discussion

Some difficulty was experienced during the study in extract-
ing information about the plants from these people. Studies 
done by Hirst (1990) have shown that appealing the ance-
stral spirits is an integral part of the Xhosa medicine. 
The knowledge of herbal medicines for complex diseases is still 
confined to mainly practising herbalists or to certain family 
members of the traditional healers who inherit the knowl-
edge from their forefathers. The knowledge and use of trad-
tional plants is also associated with the supernatural pow-
ers, hence rituals follow some of the preparations.

Six of the 24 herbal remedies recorded here are used for 
pain relief, two for treatment of stomach complaints, five for 
skin diseases, three to treat infertility, three to treat ear in-
fec tion, one for heart problems, one for diabetes, one for nose 
blockage and two to treat respiratory problems. The most 
commonly used remedies are those used for pain relief and 
skin diseases. These plants also have various other func-
tions as indicated in the previously recorded uses of these 
plants, but not by our informants. The diseases that are 
mostly treated through external applications are infec-
tions, skin diseases and wounds. Most of the surveyed 
medicinal plant uses involved using only one plant species.

Except for Herminia althaeoides and Senecio camanus, 
twenty-two of the plants documented here have been previ-
ously recorded in ethnobotanical publications (Hutchings 
1996, Watt and Breyer-Brandwijk 1982, Smith 1895, Broster 
1982). However, it is important to note that many of the uses 
recorded here were new except for that of Sanseveria 
hyacinthoides (L.) Druce. This is in part because of the 
diversity of the tribal groups in South Africa. Eight uses 
recorded during the study are related to those previously 
recorded. However, this does not necessarily mean that they 
are used for the same ailment described by the informants 
in this study. Thirteen of the plants recorded have previously 
been chemically screened and some found to have antibiot-
ic, anti-inflammatory and other types of effects (Hutchings 
1996, Watt and Breyer-Brandwijk 1982).

Certain plants are used for treating men only, (e.g. 
Herminia althaeoides Link, used for treating impotence) 
while others are used exclusively for women (e.g. Kniphofia 
uvária (L.) Oken, used to treat infertility), revealing the speci-
ficity with which medicinal plants are prescribed. Further 
analysis of such gender specific plants could enhance our 
understanding of the possible different effects of various 
compounds on the male and female systems.

Three of the species, namely Haemanthus albillos, 
Bulbin a aloides and Hypoxis hemerocallidea are known to 
at least four of the five informants while some of them are 
known to Mr Dipi and his daughter (who work together) 
and others are known only to one informant, Mrs Lindani. Six 
of the plants recorded in this study were also known to cus-
tomers and patients, who had used them before or bought 
them for someone else. The customers and patients had no 
difficulty in identifying these plants but they knew the uses of 
a few other plants only when they were told their names. It 
is interesting to note that the species known by Mrs Lindani 
are mainly used to treat women and for minor ailments in 
babies and sometimes adults.

Conservation

The conservation status of the plants recorded was investi-
gated and it was found that none of the plants are included 
in the list of threatened plants of the Eastern Cape (Everard 
1988) or in the Red Data book (Hilton-Taylor 1996). This 
gives the impression that these plants are not threatened. 
Traditional healers use certain methods to sustain the use of 
their flora. Adolphus, who works in the herbal shop, some-
times collects the plants and other times buys the plants 
from people coming from other parts of the country, such as 
KwaZulu-Natal. The informants interviewed (except Zizi and 
Adolphus) in Grahamstown still prefer to collect plants them-
selves and they follow certain rituals when collecting. This is 
done in a way to protect the plants. For example, they do not 
collect from a plant where one of the traditional doctors has 
just collected. When collecting bark, they do not ring bark 
the trees, but only take bark from one side of the tree. When 
collecting roots, not all roots are removed from a tree, but a 
few are left so that the tree can continue to grow. After col-
llecting at each point, beads are thrown at the plant to thank 
the ancestors and so that they can find other cures. Failure 
to follow these rituals is believed to anger the ancestors and 
make the medicine ineffective.

Although the traditional healers stress that they follow 
these rituals, there is increasing evidence of ring barking in 
some trees (e.g. Araucaria heterophylla) around 
Grahamstown. The healers claim that this ring barking is 
done by people coming from nearby areas like King Williams 
Town (who often come to collect plants from the 
Grahamstown area) and other people who are not tradition-
al healers but simply gatherers who did not go through a for-
mal training. Insufficient information on the local conserva-
ion status of these plants is available so it is difficult to 
assess which plants are in danger of becoming locally rare 
or extinct. The destructive harvesting of underground parts 
(18 instances in this study) and stems (two instances in this 
study) may be detrimental to local populations of these 
species, especially if demand increases. These resources 
may thus become scarce and some plants might go locally 
extinct, although at the time of this survey, the informants did 
not mention or complain about the scarcity of plant material.
Conclusion

There seems to be a comprehensive knowledge about the curative properties of many plants among the Grahamstown population and healers, and the list of taxa presented here is by no means exhaustive. During the course of the study, 24 plants were found to be used by both healers and customers or patients of the healers. In spite of the development and spread of modern medicine in Grahamstown, traditional medicine is a popular alternative to address health problems in the area. Although the current importance and potential importance of medicinal plants has been locally and internationally recognised, there is still a need for further scientific and experimental studies to evaluate these crude extracts for their medicinal and pharmacodynamic properties, clinical usefulness and toxicological potential. These studies may result in the utilisation of these plants as crude drugs or as raw material in the manufacture of pharmaceutical products required in the promotion of primary health care. This could contribute towards increasing the availability of essential drugs at a much-reduced cost. In addition, populations of medicinal plants must be monitored in order to conserve them and aid in planning sustainable utilisation.

Acknowledgements — The authors wish to extend their sincere thanks to the following people: Mr Dipi, Miss Fihlani, Mrs Lindani, Adolphus, Zizi, Diamini and all the participants for providing the information that was needed and for their patience throughout the meetings. Tony Dold, for his advice and assistance in data collection and plant identification. The staff of the Selmar Schonland Herbarium for their assistance in plant identification. The reviewers are sincerely thanked for providing additional information.

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Table 1: Some traditional medicinal plants used by the Xhosa in the Grahamstown area. Unless otherwise stated, information on previously recorded uses is taken from Hutchings (1996). Key to informants: 1 = Mrs Lindani, 2 = Mr Dipi, 3 = Miss Fihlani, 4 = Adolphus, 5 = Zizi
6 = villagers and 7 = patients

| Botanical Name | Xhosa Name | Usage, plant part and preparation | Informant/s | Previously recorded medicinal uses, chemistry and biological properties |
|----------------|------------|-----------------------------------|-------------|-------------------------------------------------------------------------|
| AMARYLLIDACEAE |            |                                   |             |                                                                           |
| Ammocharis coronis Ker-Gawl | sauhlulhlobo | Used for bathing to heal body aches. 2 & 3 | 1          | Bulbs are used for serious affliction thought to be caused by witchcraft. Bulbs reported to have alkaloids. |
| (BM 1)         |            | The root is crushed and soaked in water. The infusion is added to bath. |            |                                                                           |
| Haemanthus albiflos Jacq. | umathunga | To heal broken bones and body aches. 1, 2, 3, 4, 5, 6 & 7 | 2, 3, 4       | Bulbs are used as emetics and for chronic coughs. Alkaloids have been reported from bulbs. Antiviral action has been reported from leaves and bulbs. |
| (BM 2)         |            | The roots are crushed and mixed with water. The infusion is taken orally. |            |                                                                           |
| ARALIACEAE     |            |                                   |             |                                                                           |
| Cussonia spicata Thunb. | umsenge | To treat abdominal pains in women. 1 | 4          | Root infusions are taken as emetics for fever. Emetics from the fruit, stem, root are taken for nausea. Root infusions used for uterine pain and venereal disease. Alkaloids were detected from root-bark. |
| (BM 3)         |            | The tap root is crushed and boiled in water. A tablespoon of the decoction is taken. |            |                                                                           |
| ASPARAGACEAE   |            |                                   |             |                                                                           |
| Protasparagus africana (Lam.) | mvanse | The root is used to treat chest problems. 2 & 3 | 2, 3          | Shoot infusions are taken as emetics for nausea and colic. Teas from shoots are taken for pulmonary tuberculosis. Water extracts from the roots showed antimicrobial activity. |
| Oberm.        |            | A small quantity of the cold decoction is taken orally. |            |                                                                           |
| (BM 4)         |            |                                   |             |                                                                           |
| ASPHODELACEAE  |            |                                   |             |                                                                           |
| Bulbine alodice (L.) Wild | umanzaborumvu | Used to treat pimples. The root is crushed and paste is applied to the face at night. | 1, 2, 3, 4, 5, 6 & 7 | Used as an antisyphilitic. Tubers are used for rheumatism. Tubers are reported to have 'blood purifying' properties and produce depression, acidity and flatulence. |
| (BM 5)         |            |                                   |             |                                                                           |
| Botanical Name                          | Xhosa Name       | Usage, plant part and preparation                                                                 | Informant/s | Previously recorded medicinal uses, chemistry and biological properties |
|----------------------------------------|------------------|---------------------------------------------------------------------------------------------------|-------------|-------------------------------------------------------------------------|
| Bubnre asphodeloides (L.) Wild         | yakayakana       | Used to expel worms in children. The root is crushed and boiled in water. A small amount of the decoction is taken orally. | 2 & 3       | Leaves are used for rash and sores. Tuber decoctions are used as an antispasmodic to quell vomiting and diarrhoea. |
| ASPHODELACEAE                          |                  |                                                                                                    |             |                                                                            |
| Krophora uvaria (L.) Oken              | ixonya           | An infusion of the roots is taken orally to treat infertility in women.                             | 1, 2 & 3    |                                                                            |
| ASTERACEAE                             |                  |                                                                                                    |             |                                                                            |
| Aster bakeranus Burtt Davy ex C.A. Sm. | ikhanka          | To relieve piles. Roots are crushed and boiled in water. A small amount of the decoction is taken orally. | 2 & 3       |                                                                            |
| BIDENS pilosa L. (BM 9)                | umhlabangubo     | To treat infertility in women. The leaves are crushed and boiled in water. A teaspoon of the decoction is taken orally. |              | Hot leaf and root infusions are taken for stomach complaints. Burnt seeds are rubbed into scratches on sides of the body to relieve pain. Polycyclotides isolated from leaves have reported to show antimicrobial activity and antifungal action on wounds and ulcers. Leaf infusions are used to promote conception by the Vhavenda. |
| Senecio carnecus Thurb. (BM 10)       | umfan’itheng     | Used to treat ear infection. Leaves are crushed and mixed with a drop of warm water. A drop of the infusion is put into the ear. |             |                                                                            |
| CAPPARACEAE                            |                  |                                                                                                    |             |                                                                            |
| Bosca oleoides (Burch. Ex D.C.) Toekken | uweisali         | Used externally for pain. A root is gnawed and tied over the painful area until the area feels warm (known to be dangerous if left for a long time). | 2 & 3       | Dried roots are reported to have been used effectively for bots in horses (Watt and Breyer-Brandwijk 1962). |
| COMBRETACEAE                           |                  |                                                                                                    |             |                                                                            |
| Combretum caffrum (Eckl. & Zeyh.) Kunze (BM 12) | umduzu          | Used to treat heart problems. The root is crushed and boiled in water. A teaspoon of the decoction is taken orally. | 2 & 3       | Root bark is used as a charm for harming an enemy. Combretastatin, an antineoplastic and antitoxic agent has been isolated. |
| CUCURBITACEAE                          |                  |                                                                                                    |             |                                                                            |
| Kedrostis nana (Lam.)                  | uthuvise         | Used to treat diabetes. The root is crushed and boiled in water. A small amount of the decoction is taken. | 2 & 3       | The runner and roots have been found to be poisonous to sheep and rabbits. Hydrocyanic acid has been found in the tuber (Watt and Breyer-Brandwijk 1962). |
| DRACAENACEAE                           |                  |                                                                                                    |             |                                                                            |
| Sansevela hyacinoides (L.) Druce       | uskholokolha     | To treat ear infection. The leaves are warmed in fire and crushed (whilst still warm). The warm (not hot) juice is put into the ear. | 2 & 3       | Warmed leaf sap is used for earache. |
| EUPHORBIACEAE                          |                  |                                                                                                    |             | Sap has been used for tuberculosis and other respiratory conditions, and also applied to ringworm (Watt and Breyer-Brandwijk 1962). |
| Jatropha capensis (Sond.) (BM 15)      | umsebe           | Used for bathing to heal body aches. The root is crushed and mixed with water. A cup of the mixture is added into bathing water. | 2 & 3       | Used for gonorrhoea, diarrhoea and dysentery. Used to treat prolapsed rectum. Root decoctions are taken for severe diarrhoea and for babies with stomach ailments known as ‘insil’i’. Courmarins have been found in roots. |
| GERANIACEAE                            |                  |                                                                                                    |             |                                                                            |
| Pelargonium sidoides DC. (BM 16)       | incwaya          | Used to treat upset stomach (air in the intestine) in babies (as Gripe water). The root is crushed and mixed with water. A teaspoon of the red infusion is taken. |             |                                                                            |
| HYPOXIDACEAE                           |                  |                                                                                                    |             |                                                                            |
| Hypoxis hemerocaliaidea Fisch. & C.A. Mey (BM 17) | ingwe           | Used to treat pimples (associated with bad luck) and internal wounds. For pimples, corms are crushed and paste applied to face at night. For internal wounds, the corm is boiled, and a small amount of the decoction is taken. | 1, 2, 3, 4 & 5 | Corn infusions are administered as emetics for dizziness and mental disorders. Juice from the root is applied to burns. |
| LAMIACEAE                              |                  |                                                                                                    |             |                                                                            |
| Leucas capensis (BM 18)                | unomfuyo         | Used to treat nose blockage. Fresh leaves are crushed and mixed with a drop of water. A drop is put into the nose. | 2 & 3       | Other Leucas species are used for febrile conditions in children. |
| Botanical Name               | Xhosa Name | Usage, plant part and preparation                                                                 | Informant/s | Previously recorded medicinal uses, chemistry and biological properties |
|-----------------------------|------------|-----------------------------------------------------------------------------------------------------|-------------|--------------------------------------------------------------------------------|
| **MESEMBRYANTHEMACEAE**     |            |                                                                                                     |             |                                                                                |
| Carpobrotus edulis (L.) N.E. Br. (BM 19) | igcukuma | Used to treat mouth ulcers. The leaves are crushed and the paste is applied on the wounds.          |             |                                                                                |
| PTAEROXYLACEAE              |            |                                                                                                     |             |                                                                                |
| Ptaeroxylon obliquum (Thunb.). Radlk. (BM 20) | umthathi | The stem (wood) is used to treat asthma. A spoon of the decoction is taken.                         | 2 & 3       | Bark is used for rheumatism and arthritis. Saponins, volatile oils, tannins, resin, fat, glycosides and an alkaloid with antidepressant properties have been isolated from bark. |
| RHAMMACEAE                  |            |                                                                                                     |             |                                                                                |
| Ziziphus mucronata Wild. (BM 21) | umthlankosi/umphata | The root is used to treat internal throat wounds and the stem (wood) to treat external wounds. The root is cooked in water. A spoon to half a cup of the decoction is taken. A dry stem is grated and the powder is applied to the wound. | 2 & 3       | Sap is used for toothaches (inserted into the wound after tooth removal), as a disinfectant and for snakebites. Four dimorphic piperidine alkaloids and various other compounds, including terpenoids, glutinol friedelin lupenol and beta-sitosterol have been isolated from bark. |
| SALVADORACEAE               |            |                                                                                                     |             |                                                                                |
| Azima tetracantha Lam. (BM 22) | igcegceya | Used for steaming and treatment of ear infection. For steaming, the leaves are boiled. For the ear, the leaves are crushed and mixed with a drop of warm water. A drop is put into the ear. | 2 & 3       |                                                                                |
| STERCULIACEAE               |            |                                                                                                     |             |                                                                                |
| Hermanina allthaeoides (BM 23) | bangalala | To treat impotence in men. The roots are crushed and boiled in water. An infusion is taken orally.   | 2 & 3       |                                                                                |
| Lichen (grows on rocks) (BM 24) | mithafatha | Used to treat gonorrhoea. The fresh plant is crushed and mixed with water. The infusion is taken orally. The plant is also dried over fire and crushed. The powder is applied to the wound’s infected area. |             | Usnic acid has been found in unspecified lichens, and has antibiotic activities (Watt and Breyer-Brandwijk 1962). |