

# A survey and analysis of traditional medicinal plants as used by the Zulu, Xhosa and Sotho

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## ABSTRACT

A coded list of 794 traditional Zulu medicinal plants is presented with a key to the ailments concerned. Xhosa and Sotho usage of these plants is incorporated. Medicinal usage in the pteridophytes, gymnosperms, monocotyledons and dicotyledons is tabulated. Ailments are categorized and discussed with an analysis of the plant families involved in their treatment. Patterns of usage between related plants are observed and some potentially effective or dangerous characteristic family constituents are briefly outlined.

## UITTREKSEL

'n Gekodeerde lys van 794 tradisionele medisinalle plante van die Zoeloes word aangebied met 'n sleutel tot die betrokke ongesteldhede. Die gebruik van hierdie plante deur Xhosas en Sotho's word ook vermeld. Benutting van die pteridofiete, gimnosperms, monokotiele en dikotiele is getabuleer. Ongesteldhede word gekategoriseer en bespreek met 'n ontleding van die plantfamilies wat by die behandeling betrokke is. Benuttingspatrone tussen verwante plante is waargeneem en sekere potensieel doeltreffende of gevaarlike stowwe wat kenmerkend in families voorkom, word kortliks aange-  
toon.

## INTRODUCTION

The data on which this paper is based come mainly from a literature survey conducted by the author towards the compilation of a Pharmacopoeia of Zulu Folk Medicine, which was initiated at the University of Zululand by Dr A. H. Scott in 1986. Xhosa and Sotho usage of the plants, which is closely allied, has been included. Data from the author's previous fieldwork in Transkei and limited personal interviews with Zulu and Xhosa traditional healers is included and further data have been abstracted from a list of the Botanical Research Institute's holdings of medicinal plants. The main sources of information on usage have been 1, A. T. Bryant, whose work on Zulu medicine was originally published in the *Annals of the Natal Museum* in 1909 but later destroyed by fire and republished in 1966 (Bryant 1966); 2, J. Gerstner, who published his work on Zulu plant names and usage between 1938 and 1941 (Gerstner 1938, 1939, 1941); and 3, Mairn Hulme, who included Zulu usage and also illustrated her book (Hulme 1954). Watt & Breyer-Brandwijk (1962) was also consulted and additional information on Sotho usage is from A. Jacot Guillarmod (Jacot Guillarmod 1971).

It would be of great interest to compare the number of plant species used with the number of plant species known to be available, but research in this field, embracing both ecological and trading aspects, is beyond the scope of this paper. Comprehensive research into the

toxicity and active chemical principles in the plants used is also beyond the scope of the paper.

## DISCUSSION OF LIST OF MEDICINAL PLANTS

A total number of 794 plant species with specific usage known has been recorded. These are grouped as pteridophytes, gymnosperms, monocotyledons and dicotyledons. They are arranged in alphabetic order according to family and within the family alphabetically according to genus and species. All plant names used in the literature surveyed have been recorded and the names listed have been updated according to Gibbs Russell *et al.* (1985, 1987). Authors' names have been omitted from the coded list to save space so that uses could be tabulated and similarities in the usage of related species could be easily seen.

Plants of the same genus which could not be identified to species level have been counted as one species unless, as in the case of the *Plectranthus* spp. illustrated by Hulme (1954), it is quite evident that different species are being referred to.

The species listed have been coded according to ailment. These ailments have been very broadly categorized and determined largely by symptom, as is traditional treatment. Overlaps occur, as in the case of bladder and urethral disorders, which have been classed by the author as a common renal ailment but could be caused or affected by procreation-related ailments such as sterility and venereal disease.

The presence of a known or suspected toxic element recorded in the literature surveyed is indicated by an asterisk in the coded list at the end of this article. The toxic element may not always be known in the part of the plant used.

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## Key to ailments:

A — Sexual	a — Includes use as anthelmintic
B — Sterility	
C — Venereal	c — Includes enema administration
D — Gynaecological	d — Includes use against diarrhoea
E — Newly born infants	e — Includes use as an emetic
F — Gastro-intestinal	i — Given to infants or children
G — Renal	p — Taken regularly during pregnancy
H — Tonic	r — Rubbed into scarifications
I — Growths	s — Snuffed or inhaled
J — Respiratory	* — Toxic
K — Febrile	
L — Headaches	
M — Heart	
N — Nervous	
O — Pain producing	
P — Leprosy	
Q — Dental	
R — Sorcery	
S — Snake-bite	
T — Skin	
U — Sprains, fractures	
V — Eyes, ears and nose	
W — Insecticidal	
X — Charm	
Y — Animal	

## ANALYSIS

In this analysis of ailments and methods of treatment, families, of which three or more species are used for the same ailment, are highlighted.

Families marked with an asterisk are those of which one or more species used for the specific ailment have been recorded as toxic.

**Procreation-related ailments** (A–E in key to ailments and coded list of plants)

A. *Sexual* remedies include aphrodisiacs and a large number of love charm emetics, which are normally taken by men. Some medicines are administered as charms to secure the fidelity of the beloved or to harm a rival in cases of suspected infidelity or to protect the user against the effects of such medicine.

Of the 109 species recorded as sexual remedies, three or more occur in the following 12 families, accounting for 79:

13 Orchidaceae	4 Gentianaceae
13 Fabaceae*	4 Scrophulariaceae
11 Liliaceae*	4 Acanthaceae
7 Rubiaceae	4 Asteraceae*
5 Euphorbiaceae*	3 Amaryllidaceae*
4 Apiaceae	3 Caryophyllaceae
4 Acanthaceae	

95 of the 109 species are used as love charm emetics.

B. *Sterility* remedies include cures for both women and men. Barrenness in women is usually treated with a purgative or an enema or medicine may be directly introduced into the womb. Sterility and impotence in men is treated with orally taken infusions, or powdered medicines may be blown through the urethra (Bryant 1966). Also included are medicines taken, usually orally, by a couple desiring a particular gender in a child, or medicines taken by both parents after a miscarriage.

Of the 45 species recorded as sterility remedies, three or more occur in the following six families, accounting for 25:

7 Orchidaceae	3 Liliaceae*
4 Iridaceae*	3 Amaryllidaceae
5 Fabaceae	3 Rubiaceae

C. *Venereal diseases* (syphilis and gonorrhoea) may be treated with orally administered decoctions or, in cases of discharge, medicine may be inserted directly into the penis or vagina in liquid form or as a pill of pounded leaves, and charred powdered leaves or a poultice may be applied directly to venereal sores (Bryant 1966).

Of the 34 species recorded as venereal disease remedies, three or more occur in the following five families, accounting for 19:

6 Liliaceae*	3 Fabaceae*
4 Asteraceae	3 Solanaceae*
3 Ranunculaceae*	

D. *Gynaecological* remedies include medicines taken regularly during pregnancy to ensure a safe delivery and a healthy child. These may be mixtures of various ingredients, usually roots (Gerstner 1941) or may be made from the roots of a single plant, soaked in water, which is drunk daily by the expectant mother. Also included are medicines administered during childbirth, or for painful or delayed menstruation, to stimulate breast development or the flow of milk, or to procure abortions.

Of the 78 species recorded, three or more occur in the following six families, accounting for 37:

12 Liliaceae*	4 Ebenaceae*
10 Asteraceae*	4 Scrophulariaceae
4 Amaryllidaceae*	3 Euphorbiaceae*

Of the 78 species used for gynaecological purposes, 38 are recorded as taken regularly during pregnancy, three or more of which occur in the following three families, accounting for 16:

8 Liliaceae*	3 Amaryllidaceae*
5 Asteraceae*	

E. *Newly-born infants* are sometimes given purification purges at birth and later at weaning; these may be administered orally or as an enema. Medicines may be applied to the navel or fontanel at birth and others may be applied to the mother's breast at weaning. Sometimes newly born infants are held in the smoke of a burning plant in a protective or purification ritual.

Of the 18 species recorded, seven occur in Liliaceae.

**Stress-related ailments** (L–O in key and coded list of plants)

(Note—the term stress-related is used here to refer to ailments that are caused by psychological stress, although there may be other causes.)

L. *Headaches* are considered by traditional healers to be caused by emotional or mental disturbance. They are often treated by snuffed or inhaled medicines and occasionally leaves are wrapped around the head.

Of the 44 species recorded, three or more come from the following five families, accounting for 22:

6 Euphorbiaceae*	3 Fabaceae*
6 Asteraceae*	3 Asclepiadaceae*
4 Ranunculaceae*	

M. *Cardiac* ailments include high blood pressure, chest pain not associated with respiratory complaints and bad dreams believed to be caused by heart problems (Bryant

1966). Treatment may be administered in the form of an emetic or enema.

Of the 21 species recorded, three occur in the following two families, accounting for six:

- |              |             |
|--------------|-------------|
| 3 Liliaceae* | 3 Fabaceae* |
|--------------|-------------|

N. *Nervous* or psychological ailments include hysteria, mental disturbance, nightmares, states of believed bewitchment, states of impurification after the death of a kraal member and states of trance which need to be induced in the diviner to enable her to fulfil her function. Emetics and snuffed or inhaled medicines are frequently used for these purposes.

Of the 133 species recorded for nervous ailments, three or more come from the following 12 families, accounting for 81:

- |                   |                  |
|-------------------|------------------|
| 16 Fabaceae*      | 5 Iridaceae*     |
| 12 Asteraceae*    | 4 Euphorbiaceae* |
| 8 Liliaceae*      | 4 Apiaceae       |
| 8 Rubiaceae       | 3 Hypoxidaceae*  |
| 7 Orchidaceae     | 3 Sapindaceae    |
| 8 Asclepiadaceae* | 3 Solanaceae*    |

O. *Pain producing* ailments include pain in the joints or back, rheumatism and also paralysis. Although these may obviously not always have a psychological cause, there is a traditional belief that the joints are the most vulnerable area to the entrance of evil spirits (Ngubane 1977) and conversion disorders often do take the form of pain in the joints and sometimes paralysis. Dried powdered medicine is frequently rubbed into freshly cut scarifications to treat these conditions and other forms of administration such as enemas and emetics are also used.

Of the 46 species recorded, three or more come from the following families, accounting for 13:

- |              |              |
|--------------|--------------|
| 7 Liliaceae* | 3 Meliaceae* |
| 3 Fabaceae*  |              |

**Miscellaneous ailments** (F-K and Q-Y in key and coded list of plants)

F. *Gastro-intestinal* ailments include:

1. stomach ache and constipation, which are treated with enemas or orally administered purges;
2. intestinal worms which are treated with orally administered anthelmintics or enemas;
3. diarrhoea and dysentery which are treated with an orally administered medicine, frequently followed by an enema of the same medicine;
4. nausea or the accumulation of bile is treated with an emetic;
5. indigestion, for which small pieces of root, bark or leaves may be chewed;
6. haemorrhoids and a condition which Bryant (1966) and Ngubane (1977) refer to as gangrenous rectitis, which is frequently treated with an enema, or a locally applied lotion or powder and may also be treated with an orally taken decoction.

Of the 318 species recorded for gastro-intestinal complaints, three or more occur in the following 35 families, accounting for 252:

- |                   |                       |
|-------------------|-----------------------|
| 40 Asteraceae*    | 4 Poaceae             |
| 27 Liliaceae*     | 4 Cyperaceae          |
| 19 Fabaceae*      | 4 Amaryllidaceae*     |
| 12 Rubiaceae      | 4 Polygonaceae        |
| 13 Euphorbiaceae* | 4 Amaranthaceae       |
| 11 Iridaceae*     | 4 Mesembryanthemaceae |
| 8 Lamiaceae       | 4 Rosaceae            |
| 7 Crassulaceae*   | 4 Geraniaceae         |
| 7 Asclepiadaceae* | 4 Meliaceae*          |
| 7 Convolvulaceae  | 4 Anacardiaceae*      |
| 7 Cucurbitaceae*  | 4 Scrophulariaceae    |
| 6 Ebenaceae*      | 3 Aspidaceae*         |
| 6 Celastraceae*   | 3 Ranunculaceae       |
| 5 Apiaceae        | 3 Rutaceae            |
| 5 Myrsinaceae*    | 3 Sapindaceae*        |
| 5 Verbenaceae     | 3 Gentianaceae        |
| 5 Solanaceae*     | 3 Apocynaceae*        |

Of the 318 species recorded as gastro-intestinal remedies 46 are recorded as anthelmintics and 54 as diarrhoea and dysentery remedies. These species may also be used for other gastro-intestinal purposes.

Of the 46 recorded anthelmintics, three or more occur in the following four families, accounting for 22:

- |               |                |
|---------------|----------------|
| 8 Asteraceae* | 4 Myrsinaceae* |
| 7 Liliaceae*  | 3 Aspidaceae*  |

Of the 54 recorded diarrhoea and dysentery remedies, three or more occur in the following six families, accounting for 30:

- |               |                |
|---------------|----------------|
| 10 Fabaceae*  | 3 Sapindaceae* |
| 7 Iridaceae*  | 3 Rubiaceae    |
| 4 Geraniaceae | 3 Asteraceae   |

G. *Renal* ailments include kidney and urinary tract complaints. Medicines may be orally administered, sometimes followed by an enema of the same medicine after three days of treatment, or medicines may be rubbed into incisions cut in the loins or inserted directly into the urethra or a poultice may be applied externally.

Of the 44 species recorded for renal ailments, three or more are found in the following five families, accounting for 19:

- |                   |                  |
|-------------------|------------------|
| 5 Amaryllidaceae* | 3 Apocynaceae*   |
| 5 Asteraceae*     | 3 Euphorbiaceae* |
| 3 Liliaceae*      |                  |

H. *Debility* ailments include general weakness, a low resistance to infections, blood impurities and a lack of appetite. They are treated with orally taken tonics, emetics or enemas.

Of the 58 species recorded for debility, three or more come from the following six families, accounting for 24:

- |                  |                 |
|------------------|-----------------|
| 8 Asteraceae     | 3 Apocynaceae*  |
| 4 Euphorbiaceae* | 3 Periplocaceae |
| 3 Fabaceae       | 3 Rubiaceae     |

I. *Swellings or growths* include swollen glands, scrofulous and dropsical swellings and external or internal swellings or lumps which may or may not be cancerous. Medicines may be administered orally, sometimes followed by a poultice made from the same ingredients, or powdered medicines may be rubbed into incisions cut around the swelling.

Of the 31 species used to treat swellings, three or more come from the following two families, accounting for eight:

- |                  |               |
|------------------|---------------|
| 5 Euphorbiaceae* | 3 Asteraceae* |
|------------------|---------------|

J. *Respiratory* ailments include chest pain from pleurisy or bronchitis, coughs, sore throats and asthma or catarrh. They are frequently treated with emetics, which perform an expectorant function, or medicines may be chewed, drunk, snuffed, inhaled or rubbed into incisions on the chest.

Of the 144 species recorded for respiratory ailments, three or more come from the following 14 families, accounting for 92:

27 Asteraceae*	5 Verbenaceae
12 Fabaceae*	4 Rubiaceae
8 Euphorbiaceae*	3 Phytolaccaceae*
6 Liliaceae*	3 Brassicaceae
5 Amaryllidaceae*	3 Capparaceae*
5 Apiaceae*	3 Ebenaceae*
5 Lamiaceae	3 Celastraceae*

K. *Febrile* complaints include influenza, colds and fevers, including malaria and rheumatic fever. They are frequently treated with emetics. Snuffed or inhaled medicines may also be administered and the patient may be steamed or bathed to reduce the fever.

Of the 123 species involved, three or more come from the following 13 families, accounting for 82:

21 Asteraceae*	3 Iridaceae*
12 Fabaceae	3 Rutaceae
10 Lamiaceae	3 Amaranthaceae
6 Liliaceae*	3 Apiaceae
6 Euphorbiaceae*	3 Scrophulariaceae
5 Rubiaceae	3 Lobeliaceae
4 Amaryllidaceae*	

P. *Leprosy* is usually now referred by traditional healers to the hospitals. Only two remedies have been recorded and they are from Melianthaceae and Passifloraceae.

Q. *Toothache* and sore gums are treated with lotions or powders rubbed on to the painful area.

Of the 30 species recorded for toothache, three or more are from the following three families, accounting for 12:

5 Solanaceae*	3 Euphorbiaceae*
4 Asteraceae*	

R. *Sorcery* is believed to be the cause of many illnesses and certain plants are believed to be used by sorcerers to bring about evil. The same plants may be taken as an antidote to the disease thus brought about, usually in the form of an emetic.

Of the 16 species recorded as sorcerer's medicines, three each are from the following two families, accounting for six:

3 Euphorbiaceae*	3 Apiaceae*
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S. *Snake bite* remedies may be taken or locally applied, the same medicine often being administered at the same time in both forms. Dried ground snakes' heads are sometimes an ingredient in the medicine.

Of the 43 species recorded, three or more come from the following six families, accounting for 20:

4 Thymelaeaceae*	3 Fabaceae*
4 Asteraceae*	3 Euphorbiaceae*
3 Phytolaccaceae*	3 Apocynaceae*

T. *Skin* complaints include sores, wounds, burns and rashes. These complaints may be treated by applied lotions, poultices or washes. Washes may also be given

to reduce the temperature in fevers. Also included are hair restorers.

Of the 100 species recorded, three or more come from the following 10 families, accounting for 64:

15 Asteraceae*	4 Amaryllidaceae*
11 Fabaceae*	4 Thymelaeaceae
9 Solanaceae*	4 Acanthaceae
7 Euphorbiaceae*	3 Verbenaceae
4 Liliaceae*	3 Lamiaceae

U. *Fractures, sprains and bruises* may be treated with lotions, or powder may be rubbed into scarifications as an anti-inflamant around the site of the damage.

Of the 40 species recorded, three or more come from the following three families, accounting for 12:

6 Asteraceae*	3 Crassulaceae*
3 Euphorbiaceae*	

V. *Ear, eye and nose* complaints are treated with lotions or sap directly squeezed from the plants.

Of the 39 species recorded, three or more come from the following four families, accounting for 19:

7 Liliaceae*	3 Crassulaceae*
6 Asteraceae	3 Rosaceae

W. *Insecticides and piscicides* include medicines applied to rid the body of lice and fleas and those used to repel or kill flies and those used to stun fish so that they may be caught.

Of the 21 species recorded, three or more come from the following two families, accounting for 12:

9 Fabaceae*	3 Asteraceae
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X. *Charms* may be applied to placate evil spirits, for protection against enemies and storms, for good luck or to make the user liked. They may be bathed with, worn, sprinkled or burnt in the home or fields or cultivated as protective plants.

Of the 182 species recorded, three or more come from the following 14 families, accounting for 126:

27 Liliaceae*	7 Fabaceae*
18 Orchidaceae	7 Euphorbiaceae*
15 Asclepiadaceae*	6 Apiaceae
11 Asteraceae*	3 Rhamnaceae
9 Amaryllidaceae*	3 Scrophulariaceae
9 Crassulaceae*	3 Rubiaceae
8 Iridaceae*	

Y. *Animals* may be given medicines to prevent or cure disease. Also included are medicines applied as theft deterrents, either in the field or on eggs or drying animal skins.

Of the 102 species used to treat or deter animals, three or more come from the following 11 families, accounting for 53:

11 Asteraceae*	3 Amaryllidaceae*
9 Fabaceae*	3 Dioscoreaceae*
7 Liliaceae*	3 Urticaceae
6 Asclepiadaceae*	3 Geraniaceae
5 Lamiaceae	3 Vitaceae*

It may be observed (Table 1) that among the medicinally used plants recorded, a higher proportion of monocotyledons are used as externally applied charms and for procreation-related purposes and that there is a slightly wider range of medicinal usage among the dicotyledons. Further analysis reveals that among the mono-

cotyledons 43 % of the species are used for procreation-related ailments, 37 % as externally applied charms and 26 % for possibly stress-related ailments whereas among the dicotyledons 27 % are used for procreation-related ailments, 26 % for possibly stress-related ailments and 19 % as externally applied charms. In both groups the greatest proportion of plants used for other ailments are used for gastro-intestinal purposes (32 % of monocotyledons and 42 % of dicotyledons) and respiratory ailments (11 % of monocotyledons and 20 % of dicotyledons). This is reflected in Tables 2 & 3.

#### DISCUSSION

Perception of aetiology also determines treatment. According to Bryant (1966) and Ngubane (1977), most common ailments are believed to be caused by an excess of bile or gall, which needs to be removed. Diseases believed to be caused by evil spirits or pollution also require catharsis. This explains the wide use of emetics, enemas and purgatives. A total of 238 of the plants recorded for this study, i.e. 30 %, are used as emetics—where use as an emetic has been recorded with no specific ailment, the plant has been considered to be used for gastro-intestinal purposes. Emetics are not normally given to young children but enemas are and are considered by medical staff to be the cause of some of the poisoning cases and liver damage seen in hospitals (Savage & Hutchings 1987). Forms of administration are not always recorded in the sources consulted and more plants are probably used for enemas than appear on the list. Species indicated as being used for children are frequently administered in this way. Patterns of usage between closely related species, such as the use of pteridophytes as anthelmintics, Orchidaceae as love charm emetics, Ranunculaceae species for headaches, Thymelaeaceae species for skin complaints and snake bite or Lamiaceae for febrile conditions and various Asclepiadaceae for nervous complaints, are discernible in the list.

Such patterns of usage could obviously indicate that related plants share chemical constituents, which would in turn account for their possible effectiveness and/or toxicity. Some characteristic family constituents with some of their likely effects and potential dangers are given below.

Widespread steroidal saponins, cardiac glycosides in some of the Liliaceae and toxic alkaloids in the Amaryllidaceae are among the potentially dangerous constituents found in monocotyledonous plants, of which so many are used in the procreation-related ailments. Steroidal saponins may affect the sex hormones and are relatively harmless when taken by mouth but found highly toxic if they enter the blood stream (Trease & Evans 1983). This may happen if there is any damage to the mucous lining of the gastro-intestinal tract when enemas are administered as, according to Ngubane (1977), the dosage is controlled to enable the patient to retain the medicine for a time. This custom would also make enemas made with other toxic material more dangerous than emetics as absorption of material through the rectum is easier than through the small intestine. Steroid or triterpenoid saponins (which are common in the dicotyledons) are often

found in the plants used as emetics and have the property of foaming and also frequently irritate the mucosa. This may account for their expectorant and decongestive action when used for chest ailments. Anti-microbial, cytostatic and anti-inflammatory activity have been demonstrated in saponins (Lower 1985).

Cardiotonics, which can have a diuretic action by increasing the renal bloodflow, may be found in members of various other families apart from Liliaceae and these include Apocynaceae and Asclepiadaceae, Rubiaceae and Solanaceae (see Oliver-Bever 1986). The diuretic action would be helpful in cases of gonorrhoea and also in various kidney or heart diseases which cause dropsical swellings. Various species of the above-mentioned families are used for venereal diseases, renal complaints, dropsical swellings or heart complaints and may be found effective.

The toxic Amaryllidaceae alkaloids produce gastro-intestinal upset (Jaspherson-Schib 1970). Highly toxic species are found in other alkaloid-containing families such as Apocynaceae, Solanaceae and Euphorbiaceae. These species also owe their effectiveness as purges and their potentially dangerous properties to extreme gastric irritation.

Antipyretic, protozoicidal and local anaesthetic properties are to be found in many of the West African species of the alkaloid-rich Rubiaceae family (Oliver-Bever 1986) and members of the family locally used for febrile ailments would probably merit further investigation. Alkaloids have a marked action on the central nervous system and can act as depressants (e.g. the sedative reserpine from *Rauvolfia vomitoria* Afzel.) or stimulants (e.g. the *Strychnos* alkaloids) which may account for the use of various species from families such as Euphorbiaceae and Solanaceae for nervous complaints.

Tannin has frequently been observed in the parts of the plant used in the treatment of dysentery and diarrhoea or for respiratory ailments and is a characteristic constituent of many of the families thus used (e.g. Rosaceae, Fabaceae, Geraniaceae). It is likely to be effective on account of its protein-precipitating properties which, in small doses, would form a protective, impermeable layer and also tend to prevent the development of bacteria—large doses would irritate the mucosa (Flück 1976).

The presence of volatile oils with possible carminative or antispasmodic activity is likely to account for the use of the closely related Lamiaceae and Verbenaceae and other aromatic families for coughs, colds, influenza and digestive disorders.

The snake bite cures are interesting. Many are known to be either toxic or else closely related to known toxic species, notably from families where cardioactive toxins (Melianthaceae, Loganiaceae, Apocynaceae and Asclepiadaceae) or alkaloids (Phytolaccaceae, Solanaceae and Asteraceae) are known or else from families where cytotoxic activity has been observed (Euphorbiaceae and Thymelaeaceae).

More fieldwork will undoubtedly reveal new usage of plants as the practice of herbal medicine is still very much alive. Patterns obviously exist in the usage of plants, but the perception thereof is influenced by the way in which the data are analysed and on the cultural

TABLE 1.—Medicinal usage in pteridophytes, gymnosperms, monocotyledons and dicotyledons

Group	Gen.	Spp.	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y
Pterid.	7	9	1		3		6				2	3	1		1			1									2
Gymnosp.	2	3	1				1						1													2	
Monocot.	79	173	30	21	7	25	10	56	9	2	3	19	17	5	5	30	9			1	12	6	8	1	65	17	
Dicot.	345	609	78	23	28	50	12	255	35	56	28	123	103	37	16	102	37	2	31	16	43	87	34	30	20	115	83
Total	433	794	109	45	35	78	22	318	44	58	31	144	123	44	21	133	46	2	32	16	44	100	40	38	21	182	102

A—Y: see key to list of medicinal plants.

TABLE 2.—Monocotyledons: families with more than 10 medicinally used species

No. spp.	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y
Liliaceae	60	11	3	7	12	7	27	3	1	6	6	2	3	9	7			1		4	1	7	1	27	7
Amaryllidaceae	22	3	3	4	4	5	4	2	5	4	2			2	1				1	4	1			9	3
Iridaceae	25	1	4	2	3	11	2	2	3					5						2	2			8	2
Orchidaceae	34	13	7	2	2	2								7	1									18	
Total	141	28	17	7	20	10	44	8	3	13	13	4	3	23	9			1	1	8	4	7	1	62	12

A—Y: see key to list of medicinal plants.

TABLE 3.—Dicotyledons: families with more than 10 medicinally used species

No. spp.	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	
Crassulaceae	14	1		1	1	7					1			1						1	3	3			9	
Fabaceae	74	13	5	3		19	2	3		12	12	3	3	16	3			1	3	11	1	2	10	7	9	
Euphorbiaceae	31	5		3	1	13	3	4	5	8	6	6		4	2			3	3	7	3	2	1	7	5	
Apiaceae	11	4				5			1	5	3	1		4				3						6	1	
Asclepiadaceae	28	1	1	2	2	7	1	1	2	5	2	3	1	8	2				1	2	2	1	1	15	6	
Verbenaceae	10			1		5	2		2	5	2			2	1				2	3		2			1	
Lamiaceae	21	2			1	8	1	2	2	5	10	2		3	2				2	3	2	1	1	1	5	
Solanaceae	15		1	3		5	1		2	2	1	2		2	1				2	9	2	1	1	4	2	
Scrophulariaceae	12	4	1	4		4			1	1	3			2	1				2	4	2	1	1	4	2	
Acanthaceae	12	4			1	1			1	1				2	1				2	4	1	2	2	2	1	
Rubiaceae	23	7	3	1	2	12		3	1	4	5		2	8	1				1	2	1	2	1	3	1	
Asteraceae	80	4	2	3	10	40	4	8	3	27	21	6	2	12	2			4	2	4	15	6	7	3	10	11
Total	331	45	12	12	23	6	126	13	22	14	71	64	23	8	62	14	19	9	20	57	19	21	14	64	41	

A—Y: see key to list of medicinal plants.















Pentstemon prunelloides	C Dp	Fc	H I J K	M O	S T U		Withania somnifera*	C	Fi	I J Kl	Nc	T	Y
Pentodon pentandrus		Fe											
Psychotria capensis		F					STERCULIACEAE						
Rubia cordifolia	AeB	D	F	J	N	Q	Dombeva rotundifolia		Fc		M		
Spermacoce natalensis			Fd	J	M N	T	Hermannia depressa	Ae	Fd	J	M		X
							Hermannia grandistipula						Y
RUTACEAE													
Calodendrum capense							THYMELAEACEAE						
Clausena anisata		EsFac		Ki	MsNeO		Gnidia anthylloides*			J Ks	Ns	S	
Vepris undulata		F		Ke			Gnidia calocephala					T	
Zanthoxylum capense	B	Fac	H IsJe		Or	Q	Gnidia cuneata			M	Kc	Q	S T
Zanthoxylum davyi			H J K			Ser	Gnidia kraussiana*		Dp	Fc	J	O	S
							Gnidia polyantha	Ae					T
							Gnidia spp.			H			S T V
SALVADORACEAE													
Azima tetraacantha					Q								
SANTALACEAE													
Osyridicarpus schimperianus							Corchorus asplenifolius	A					
							Grewia caffra			Gc			
							Grewia occidentalis	D		Gc			T X
							Triumfetta pilosa						T
							Triumfetta rhomboidea	Dp					
SAPINDACEAE													
Cardiospermum halicacabum*	C	Fdc	H Js			T							
Deinbollia oblongifolia		Fd		N									
Hippobromus pauciflorus*	Ae	Fd		Ls	Ne	V	TRIMENIACEAE						
							Xylocarpus monospora		F				
SAPOTACEAE													
Sideroxylon inerme				Kc	Ne	Ur	ULMACEAE						
							Chaetacme aristata*		F			Q	
							Trema orientalis		Fe				
SCROPHULARIACEAE													
Buchnera dura	Ae						URTICACEAE						
Cynium racemosum		D			Oe		Laportea grossa						Y
Cynium tubulosum	Ae						Laportea peduncularis						Y
Graderia scabra	Aes	D	Fc	K		T	Pouzolzia mixta				Kc		X
Halleria lucida						V	Urtica urens	B					Y
Harveya speciosa		F		N		U							
Manulea parviflora		Fi											
Peliostomum calycinum		Fi		K		T	VERBENACEAE						
Sutera floribunda		D		J			Clerodendrum glabrum		FaGe	J K			Y
Sutera kraussiana		D					Clerodendrum hirsutum		Fa	J			
Sutera sp.				Ke	Ns		Clerodendrum myricoides						S
Zaluzianskya maritima	Ae						Clerodendrum suffruticosum						S
							Clerodendrum triphyllum	Dp	Gc	J			
SELAGINACEAE													
Hebenstretia sp.							Lantana rugosa		Fi	J			T V
Selago sp.						Sr	Lippia javanica		F	J K			T
Tetraselago natalensis	C						Frixa cordifolia						T V
							Vitex rehmannii		Fc	J	N		
							Vitex villosa			J	MeGc		
SOLANACEAE													
Datura metel*				Ls	N	T	VIOLACEAE						
Datura stramonium*			I	Ls	N	T U	Hybanthus enneaspermus			H			
Physalis peruviana*		Fi					Hybanthus sp.	Ae					
Solanum sp.*	B	F											
Solanum acanthoideum						T	VISCACEAE						
Solanum aculeastrum*					Or	Q	Viscum sp.		Fi	J	N G	T	
Solanum aculeatissimum*						S							
Solanum capense	C	G			Q	S T	Vr	VITACEAE					
Solanum giganteum			J					Cissus quadrangularis					Y
Solanum incanum*					Q	T		Cyphostemma hypoleucum			Kc		
Solanum mauritanium*		Fe						Cyphostemma lanigerum				Q	
Solanum nigrum*		Fi			Or	T		Cyphostemma natalitium		Dp			Y
Solanum panduriformae					Q	T		Rhoicissus tomentosa*					Y
Solanum tomentosum	C				Q	T		Rhoicissus tridentata*	B	Dp	K		X