

# The medicinal use of some weeds, problem and alien plants in the Grahamstown and Peddie districts of the Eastern Cape, South Africa

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**A** LIST OF 33 MEDICINAL PLANTS OF EXOTIC or indigenous origin, listed as problem plants or declared weeds, is presented. The cultural uses of these plants should be taken into account when weed legislation in South Africa is considered. Of these species, six have no previous medicinal uses recorded in the literature surveyed and 21 species have additional, previously unrecorded uses. Nine previously unrecorded Xhosa names for plants are documented. Plant use categories and indigenous knowledge is discussed regarding the recorded species. The use of alien plants shows that African traditional healing is not static, but dynamic and adaptive.

## Background

Documentation of indigenous, exotic and naturalized medicinal plant use in the Grahamstown and Peddie districts over a four-year period<sup>1-6</sup> has revealed that 25% (33) of the total number (133) of medicinal plant species recorded by the authors are included in the Catalogue of Problem Plants in Southern Africa.<sup>7</sup> Of these, 15% are Declared Weeds under the Conservation of Agricultural Resources Act of 1984<sup>8</sup> and 27% are Plant Invaders.<sup>9</sup> A quarter of these plant species are exotic to South Africa. This may result in a conflict of interest regarding plant species that have a value to some communities but are regarded as undesirable by others.

Medicinal plant species included as Problem Plants<sup>7</sup> were recorded in South Africa as early as 1868 by Pappe,<sup>10</sup> representing 6% of his total of 115 plant remedies. Twenty years later, Smith<sup>11</sup> recorded 136 medicinal plants, of which 12.5% are listed as Problem Plants. Bryant's<sup>12</sup> total of 168 medicinal plants includes 6.5% of Problem Plants. These statistics show that the incorporation of weeds, problem plants and exotic plants into medicinal use categories in South Africa is not a recent phenomenon. According to L. Henderson (pers. comm.),

the importance of medicinal plant use will be taken into account when a plant is considered for listing as a declared weed or declared invader under the Conservation of Agricultural Resources Act of 1984.<sup>8</sup> For example, *Hypericum perforatum* L., listed as a declared weed, has recently been re-assessed and may now be cultivated under controlled conditions (revised legislation in preparation, pers. comm. L. Henderson). It is therefore necessary for useful plants to be brought to the attention of researchers and policy makers in the weed research field.

Seventy per cent of the plant species documented here were recorded from the urban environment of Grahamstown and its surrounding informal settlements (Fig. 1) and include exotic horticultural subjects. Grahamstown has a population of 125 000, of which an estimated 77% is unemployed (Grahamstown Municipality, pers. comm.), with limited access to biomedical drugs and medicines. The remaining 30% of the plant species was recorded from communal land in the mid Fish River Valley in the Peddie district (Fig. 1), where little control exists over grazing and other forms of resource use.<sup>13</sup> The human population density is approximately 70 people per square kilometre with an unemployment rate of more than 70%, resulting in a local economy based on state pensions and subsistence farming. Stocking rates are estimated to be three to five times the recommended stocking rate,<sup>14</sup> while cultivation is limited to small garden plots. A large percentage of inhabitants rely on natural resources for fuel, building material, medicines and to a lesser extent food and income through resale of resources harvested from the wild.

The predominant vegetation type in the study site is the Fish River Scrub category of Acocks'<sup>15</sup> Valley Bushveld. In its undamaged state it is an extremely dense, semi-succulent thorny scrub, about 2 m high. As a result of overgrazing, it has been opened up and invaded by *Opuntia ficus-indica* (L.) Mill. and colonized by

*Pteronia incana* (Burm.) DC. The introduction of large numbers of goats and cattle has resulted in overgrazing and degradation of the vegetation. This is characterized by a reduction in total plant cover and a loss of endemic species, particularly succulents and bulbous plants.<sup>16</sup> At least 31% of plants used for medicinal purposes in the study area fall into these life form categories.<sup>2</sup> As a possible consequence, exotic and weed plants have been incorporated into the pharmacopoeia of traditional healers and self-medication of rural and urban families living in the area.

## Methods

The initial data for this study, comprising 10 species, were recorded by the authors in 1997<sup>2,3</sup> and a further 23 species were recorded in 1999<sup>4</sup> and 2000.<sup>5,6</sup> All species were collected in the field by means of the Field Interview<sup>17</sup> (also known as a Bagging Interview<sup>18</sup> or Walk-in-the-woods Interview<sup>19</sup>). Informants accompanied the authors and identified plants in the field. Six field interviews were undertaken in the villages of Nomtayi, Ripplemead, Tweni, Ndwayana, Glenmore and Gwabeni in the Peddie district and one in Rini in Grahamstown. Numbers\* 5, 9, 13, 16, 18, 20, 24, 25, 27 and 33 were collected in the Peddie district and the remainder from Grahamstown. Voucher specimens are housed in the Selmar Schonland herbarium (GRA) in the Albany Museum. Five group interviews<sup>17</sup> were undertaken in the Peddie district with groups of approximately eight people, including men, women and youths, to confirm and add to data collected in the field interviews. Four key informant interviews with two herbalists and two diviners were undertaken in Gwabeni, Tweni and Nomtayi and two key informant interviews with two diviners and two herbalists were conducted in Rini. Key informant interviews are based on Alexiades'<sup>17</sup> plant interviews. In this study, specific participants were chosen for their knowledge of medicinal plants. Fresh plant material was used for reference with interviewees. One group interview with six game rangers in the Double Drift Reserve was undertaken. Two key informant interviews with a qualified nurse at the Grahamstown municipal clinic were undertaken. All informants were told that the data would be published, and they were compensated for their contribution.

Three categories of healers are referred to in this article, diviners, herbalists and folk healers. Diviners, *amagqirha*, are usually

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\*Species are identified under Results on next page.

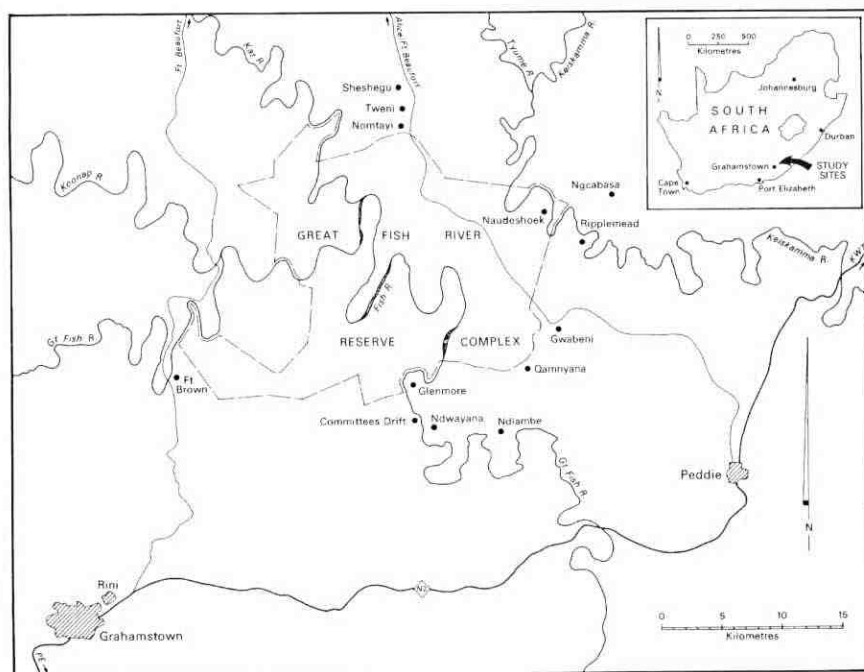


Fig. 1. Study sites: Grahamstown and Peddie Districts of the Eastern Cape.

women and experience a vocational call to an office that emanates from the ancestors, *iminyana*. They are simultaneously afflicted with a condition called *intwaso* that involves various symptoms, which are only successfully treated by an *igqirha*.<sup>20</sup> Once the conditions are recognized, the candidate undergoes a period of apprenticeship to become a fully initiated *igqirha*. During this period they withdraw from society and undergo a strict discipline that includes abstentions, taboos, rigid observations and rituals. Initiates are also trained in the art of divination and are instructed in the knowledge of herbal treatments. Only once all these requirements are met can the candidate finally be initiated as an *igqirha*.<sup>21,22</sup> Within their communities *amagqirha* serve a threefold function of practising religion, cultural rituals and medicine. They do so by keeping in contact with the spirits of the ancestors, detecting the cause of misfortune and preparing the required materials needed for propitiation rites or rituals. *Amagqirha* also assist in warding off evil by providing charms, medicines and, in cases of illness and disease, they administer herbal extracts.<sup>22</sup>

Herbalists, *amaxwele*, on the other hand are generally not mystically recruited but rely on some form of training, such as an apprenticeship, to become an established herbalist. During that time they develop an extensive knowledge of plant and animal-based medicines.<sup>23</sup> These categories are not neatly definable. Overlapping occurs as herbalists are known to use dreams and visions to assist and guide them, thus relating closely to

the role of diviners.<sup>24</sup> Far from being casualties of modernization, diviners and herbalists are found in every rural village and urban township in the Eastern Cape. Most practising healers' activities are used to supplement other forms of income derived from sources such as formal employment, subletting backyard shacks, or running shebeens. Most of them simply live from hand to mouth, as the cash that they earn from divination and treatment is quickly swallowed up by domestic requirements.<sup>20</sup>

A third category of informant in this study is broadly defined as the folk healer. All studies referred to here focus on traditional healers including herbalists and diviners. Almost no recognition has been given to the non-specialist healer.<sup>25</sup> Villagers growing up in rural communities learn to recognize and use medicinal plants out of necessity. This knowledge is passed from one generation to another verbally and through experience. All group interviews were undertaken with non-specialists, called folk healers in this paper. Participants in group interviews included men, women and youths. A general observation is that women, particularly elderly women, had the greatest knowledge of medicinal plants. The majority of women learnt about medicinal plants from elders in the family. Mothers and grandmothers take responsibility for the health of their families and rely heavily on herbal medicines for both physical ailments and culturally related symptoms.<sup>6</sup> Group interviews with school children in Glenmore and Ndwa-

yana (Fig. 1.), however, showed that children and teenagers recognized 42% of medicinal plant specimens shown to them without adults being present.<sup>2</sup>

## Results

The 33 medicinal plant species recorded in this study are listed alphabetically below together with recorded uses. The botanical name is followed by family name, voucher specimen number, locality, Xhosa name, recorded use (plant part, preparation, ailment treated), informant category, previously recorded usage, locality and reference. Xhosa names derived from English or Afrikaans are indicated by means of an asterisk (\*). Xhosa names derived from descriptive terms indicating plant use, growth form or habitat are indicated by means of a dagger (†).

1. *Anredera cordifolia* (Tenore) Steenis (*A. baselloides* (H.B.K.) Baill. misapplied), Basellaceae; Dold 3940, Grahamstown; *iDlula*.

Crushed fresh leaves are applied to septic wounds and to swollen ankles and feet caused by poor blood circulation or kidney/liver problems (herbalist). Leaf sap is applied to an itchy rash known as *izigxala* (allergy) caused by contact with dirty water (diviner). Recorded as an anti-inflammatory, haemostat, treatment for cardiac palpitation and treatment for asthma and bronchitis in southern Mexico and Cuba.<sup>26,27</sup>

2. *Araucaria bidwillii* Hook., Araucariaceae; Dold 3935, Grahamstown; *uMavulakuvalewe*, *abaNqonqozi*, *iNdi-yandyiya*.

A treatment for amenorrhoea (due to congenital problems, tuberculosis or malnutrition). The bark is grated and one tablespoonful is poured into approximately 750 ml of cold water and left to draw for a day. This is taken orally once a day, four tablespoonfuls at a time (herbalist). A decoction from the bark is used as a body wash and a facial steam to ensure good fortune (municipal worker, folk healer, herbalist). No previously recorded use.

3. *Araujia sericifera* Brot., Asclepiadaceae; Dold 3950, Grahamstown; *iQuwa*.

The roots are used together with other medicines to treat mental illness (*umfufunyana*) by diviners only (herbalist, diviner). Recorded as an emetic in Peru and Indonesia.<sup>28</sup>

4. *Argemone mexicana* L., Papaveraceae; Dold 3946, Grahamstown; *iKhakha-khakha*.

A root decoction, mixed with *iQunube* (*Rubus pinnatus*) root, is administered

by means of an enema to cure kidney pain (*isinga*), one cupful twice a day. This medicine must be used immediately and not left to stand, as it becomes dangerous. Only known and prescribed by diviners (diviner). Recorded as a narcotic, for wound dressing, application for warts and a treatment for eczema in southern Africa.<sup>28</sup> The seeds are used as a narcotic in Tanzania,<sup>28</sup> the roots for stomachache in Malawi<sup>29</sup> and unspecified parts as a laxative, narcotic and emetic in India.<sup>28</sup>

5. *Asclepias fruticosa* L., Asclepiadaceae; Dold 1835, Gwabeni; *iGwada*.

The leaves are dried and powdered and used as a snuff to relieve headaches (herbalist).<sup>2,3</sup> Recorded as an emetic, a sternutatory, and a treatment for intestinal troubles and pulmonary tuberculosis in southern Africa.<sup>28</sup> The leaf is used to treat diarrhoea and stomach pain<sup>30</sup> and a snuff is used as a sedative and to treat headache in South Africa.<sup>31</sup> A snuff and a tincture from the leaf is used for strength, to facilitate childbirth and to treat diabetes and hepatitis in southern Africa.<sup>32</sup> Unspecified parts are used to treat stomach ailments, infertility<sup>33</sup> and diabetes in southern Africa.<sup>34</sup> Asthma is treated in Lesotho using the leaves,<sup>35</sup> and in Botswana the leaves are used to induce vomiting in cases of hepatitis.<sup>30</sup>

6. *Bidens pilosa* L., Asteraceae; Dold 3941, Grahamstown; *iSanama*, *uMhlaban-gubo*.

The roots are cleaned, boiled in water and taken orally, half a cup twice a day (morning and evening), to treat infertility and barrenness in woman (folk healer). Leaves are soaked in a bath overnight in which the body is washed to treat/overcome other people's ill feeling, jealousy or animosity for whatever reason (herbalist, diviner). Recorded uses in southern Africa include treatments using the root for rheumatism, the flower for diarrhoea, the leaf and root for colic, the leaf for inflammation,<sup>28</sup> stomach complaints, earache, syphilis,<sup>30</sup> excessive menstruation, to promote conception,<sup>33</sup> and to treat female infertility.<sup>36</sup> Unspecified parts are used to treat conjunctivitis, stomachache, constipation, intestinal worms and malaria in East Africa.<sup>37</sup> Ear and eye complaints, diarrhoea, colic, coughs and jaundice are treated using the leaves in West Africa.<sup>38</sup> The leaf is used to treat eye ailments and the root to counter ringworm in Malawi<sup>29</sup> and dysentery in Tanzania.<sup>28</sup> Leaves are

used in the treatment of sores in Madagascar<sup>30</sup> and snakebite in West Africa and South East Asia.<sup>30</sup> On Mauritius the leaves are used to treat colic, gastro-intestinal discomforts and diarrhoea.<sup>30</sup> The plant is used as a tonic and stimulant in Mexico.<sup>30</sup>

7. *Cannabis sativa* L., Cannabaceae; Dold 3958, Grahamstown; *iNtsangu*.

A fresh leaf decoction is taken as one teaspoonful three times per day, and also boiled and administered as a steam to treat asthma. People who suffer from frequent stroke attacks use the same preparation as a preventative (herbalist, diviner). Unspecified parts are recorded as a narcotic, to treat snake bite and against bots in horses in southern Africa.<sup>28</sup> A leaf infusion is used to treat asthma, bronchitis, headache, epilepsy, pain, colds and influenza, insomnia, labour pains, hypertension and diabetes in South Africa.<sup>31</sup> Malaria, blackwater fever, blood-poisoning, anthrax and dysentery treatments are recorded in Zimbabwe.<sup>28</sup> Remedies for tetanus, rabies, epilepsy, rheumatism, menstrual cramps and migraine headaches are recorded in Europe and America.<sup>30</sup>

8. *Carduus tenuiflorus* Curtis, Asteraceae; Dold 3951, Grahamstown; *uMhlak-wavuthwa*.

Used under the direction of a diviner to extricate poison or disease from a sick person. An emetic is prescribed and the patient instructed to vomit on the plant *in situ*. The plant is never removed. The 'power of the plant' will suck out the cause of illness into itself (herbalist, diviner). No previously recorded use.

9. *Catharanthus roseus* (L.) G. Don, Apocynaceae; Dold 1511, Gwabeni; *iFlawa*\*.

One tablespoon of fresh bark is soaked in a cup of cold water and sipped to treat diabetes (*iswekile*) (herbalist).<sup>2,3</sup> Unspecified parts are recorded in treatments for diabetes and gonorrhoea in southern Africa.<sup>28</sup> The leaf is used in a treatment for menorrhagia and rheumatism<sup>30</sup> and the sap is applied to soothe insect bites and treat warts in South Africa.<sup>34</sup> The root is used to treat venereal disease in South Africa.<sup>33,39</sup> In Madagascar the leaf is used as a galactagogue and the root to treat toothache, liver congestion, and scurvy.<sup>30</sup>

10. *Datura stramonium* L., Solanaceae; Dold 3936, Grahamstown; *uQhwan-gu-qhwan-gu*.

Fresh leaves are used as a bandage to

soothe the pain and swelling and as an antiseptic immediately after a circumcision operation. The preparation is used only once, as it is potent and accelerates healing; repeated use is dangerous. Fresh green leaves are applied twice a day to boils and abscesses on the skin (herbalist). The leaf is recorded as a tonic and a treatment for measles,<sup>40</sup> asthma and headaches<sup>41</sup> in South Africa. A leaf infusion is used as a sedative and to treat insomnia, the dried leaf is smoked as a remedy for headache and asthma; an ointment from the leaf is applied to relieve pain, inflammation, rheumatism and to draw abscesses in South Africa.<sup>31</sup> In Malawi the fruit is used to treat asthma and skin disease.<sup>29</sup> The leaves are smoked for asthma and coughs in Zimbabwe<sup>30</sup> and for asthma and respiratory congestion in Israel.<sup>30</sup> The leaves are also used to treat typhus and asthma in Nigeria and foot ailments in Madagascar.<sup>30</sup> Seeds are used for otitis and unspecified parts for sedatives and antispasmodics in Madagascar.<sup>30</sup> Warmed leaves are applied to the breast to reduce lactation and crushed leaves are kept in beds to kill bedbugs in India.<sup>30</sup>

11. *Emex australis* Steinh., Polygonaceae; Dold 3954, Grahamstown; *iNkunzane*.

A root decoction is given to infants suffering from restlessness and constipation (*onomoya*), one teaspoonful twice a day (herbalist, diviner). This is also used by adults to relieve constipation (herbalist, diviner). The leaf is recorded as a treatment to relieve biliousness and to stimulate the appetite in southern Africa.<sup>28</sup> Unspecified parts are used to treat stomach and intestinal complaints<sup>13</sup> and the roots are used for stomach cramps in South Africa.<sup>40</sup>

12. *Eucalyptus ficifolia* A. Muell., Myrtaceae; Dold 3947, Grahamstown; *iGumtriya*\*.

A decoction of the fresh leaves is administered as a steam to relieve influenza (herbalist). Records of the use of the genus *Eucalyptus* include a mosquito repellent using fresh leaves in southern Africa,<sup>28</sup> a treatment for dysentery and pimples using fresh leaves<sup>30</sup> and a leaf decoction for a tonic in South Africa.<sup>40</sup> Leaves of various species are used as a treatment for coughs and colds in Lesotho and East Africa,<sup>30</sup> and to treat pulmonary diseases in Morocco.<sup>30</sup>

13. *Exomis microphylla* (Thunb.) Aellen var. *axyrioides* (Fenzl) Aellen, Chenopodiaceae; Cocks 7, Dold 1515, Gwa-



beni; *uMvenyathi*.

A root decoction is given to infants to clear phlegm and an infusion in cold water is taken orally to treat rash/pimples (*irawuzela*) caused by eating unhygienic meat (allergic reaction). A root decoction is used to treat a rash (*irat-shalala*) on children who swim in dams that pigs wallow in (allergy or schistosoma) (herbalist, diviner). A leaf decoction is given orally to children as a remedy for constipation and nausea (women's group).<sup>2,3</sup> The leaf is recorded as a treatment for epilepsy in southern Africa<sup>28</sup> and mixed with goat's milk for the same in South Africa.<sup>42</sup> A leaf decoction is used to treat wind, cramp and convulsions in infants in South Africa.<sup>31</sup>

14. *Galenia secunda* (L.f.) Sond., Aizoaceae; Dold 3949, Grahamstown; *uMvenyathi*, *iSidikili*.

The roots are mixed and boiled with *iNkunzane* (*Emex australis*) roots and two spoonfuls of the decoction are taken twice a day for kidney pains (*isinga*) in adults. This decoction is also given to infants with colic (*onomoya*), two drops once a day (herbalist, diviner). No previously recorded use.

15. *Lantana camara* L., Verbenaceae; Dold 3938, Grahamstown; *iQunube*, *uTywala bentakati*.

The clean roots are boiled in water and taken as a tea, half a cup twice a day to treat lower back/abdomen pain called *isinga* (rheumatic). The same decoction is also used as an enema twice a day to treat *idrops* (gonococcal infection) and urinary problems as a result of intercourse (herbalist, diviner). The leaf is recorded as a treatment for coughs, colds, jaundice and rheumatism in West Africa<sup>28</sup> and eye injuries in South Africa.<sup>39</sup> In Malawi the leaves are used to treat headache, epilepsy and madness and the roots are used as a contraceptive.<sup>29</sup>

16. *Malva parviflora* L., Malvaceae; Dold 1514, Gwaben; Dold 1682, Peddie; *iLongilanga*.

The pulped leaf is used as a bandage to heal cuts and wounds and boils (herbalist) and a leaf decoction is used as a gargle for toothache (folk healer).<sup>2,3</sup> Unspecified parts are recorded as a treatment for uterine problems, as a poultice for wounds and swellings and to treat tapeworm in southern Africa.<sup>28</sup> A leaf poultice for sores is used in South Africa.<sup>40</sup>

17. *Mesembryanthemum aitonis* Jacq., Mesembryanthemaceae; Dold 3956, Grahamstown; *iQina*.

Fresh leaves are crushed and enough juice squeezed into a cup of cold water to make the colour green. This is taken to treat stomach pains (ulcers) caused by alcohol abuse and characterized by vomiting when drinking milk or hot, spicy foods and irregular appetite. No food should be taken for a few hours after administration (one cup per day) (herbalist, diviner). No previously recorded use.

18. *Nicotiana glauca* Graham, Solanaceae; Dold 1501, Gwaben; *iCubamfenet*.

The leaf is warmed on a fire and strapped over a boil/abscess as a poultice to draw out the infection. It is replaced as soon as the leaf dries and becomes brittle (herbalist).<sup>2,3</sup> A leaf poultice is recorded to relieve headache, sore throat and painful, tired feet in South Africa.<sup>31</sup> The plant is used medicinally in Uruguay<sup>28</sup> but no details are given.

19. *Opuntia ficus-indica* (L.) Mill., Cactaceae; Dold 3959, Grahamstown; *iTolofiya*.

The fresh leaf is baked on an open fire and the inner jelly applied to sores between toes and occasionally fingers caused by dirty blood (*igaza emdaka*). The toes become swollen and ooze pus (fungal infection) (herbalist, diviner, game guard group). A leaf poultice for ulcers, sores and boils is recorded in southern Africa<sup>28</sup> and South Africa.<sup>40</sup>

20. *Pteronia incana* (Burm.) DC., Asteraceae; Dold 1500, Gwaben; *iBossies*, *uBhubhusi*.

Leaves are boiled in water and drunk as a tea 2–3 times a day to soothe coughing. Not used for small children as it has a bitter taste (folk healer, herbalist, women's group). No previously recorded use.

21. *Punica granatum* L., Punicaceae; Dold 3957, Grahamstown; *iRharnathi*.

The dried root is grated and boiled as a tea and taken as a preventative for epilepsy (*isifo sokuwa*), one tablespoon three times a day (herbalist, diviner). Unspecified parts are recorded as a treatment for stomachache, dysentery and colitis in southern Africa<sup>28</sup> and diarrhoea<sup>25</sup> and leucorrhoea in South Africa.<sup>11</sup> The dried fruit rind is used to treat diarrhoea and stomachache and the root bark is used against tapeworm in South Africa.<sup>31</sup> Unspecified parts are used to treat dysentery in Mauritius.<sup>28</sup>

22. *Ricinus communis* L., Euphorbiaceae; Dold 3939, Grahamstown; *uMhlavutha*.

Fresh leaves are used as a bandage to soothe pain and swelling and as an anti-

septic immediately after a circumcision operation. Boils and abscesses on the skin are treated by applying fresh green leaves twice a day (herbalist, diviner). Unspecified parts are recorded in treatments for stomachache, toothache, sores and boils in southern Africa.<sup>28</sup> The seeds are used as a purgative, the leaf as a poultice for boils and stomachache and the root for toothache,<sup>13,30</sup> and headache<sup>42</sup> in South Africa. The fruit is used to treat coughs, tape worm and as a laxative; oil from the seeds is used as a tonic and to treat earache<sup>30</sup> and mumps<sup>31</sup> in South Africa. In East Africa the roots are used to treat venereal disease and as an appetite stimulant.<sup>37</sup> In Malawi the leaf is used to treat fever, stomach ailments and as a tonic.<sup>29</sup> In Namibia the root and seed are used as a styptic.<sup>43</sup> Leaves are used for skin diseases and the roots are used to treat fevers, jaundice and nervous disorders in India.<sup>30</sup> Unspecified parts are used as diaphoretics and diuretics in Vietnam and the sap of the flowers is applied to wounds in Nepal.<sup>30</sup>

23. *Rubus pinnatus* Willd., Rosaceae; Dold 3952, Grahamstown; *iQunube*.

A root decoction is taken, one teacup twice a day, to cure kidney pain (*isinga*). In some cases this is mixed with *iKhakhakha* (*Argemone mexicana* L.) for the same ailment but is administered by means of an enema. This medicine must be used immediately and not left to stand, as it becomes dangerous. This treatment is known and prescribed only by diviners (diviner). The root is recorded in a treatment for chest conditions, diarrhoea, stomach cramps and acidity in southern Africa<sup>28</sup> as well as toothache, epilepsy and snakebite in South Africa.<sup>30</sup>

24. *Rumex crispus* L., Polygonaceae; Cocks 10, Gwaben; *uMhlonyana*.

A leaf decoction is taken, one teaspoonful three times a day, to alleviate chronic coughing. This is only used for adults as it is very potent (herbalist).<sup>2,3</sup> The root is recorded as a purgative and a treatment for skin diseases, eczema, ringworm and leprosy in southern Africa.<sup>28</sup> The root and leaf are used to treat swelling and pain in the legs in South Africa.<sup>40</sup>

25. *Rumex lanceolatus* Thunb., Polygonaceae; Dold 1519, Gwaben; Dold 3955, Grahamstown; *iDololenkonyane*.

A root infusion in cold water is sipped occasionally to relieve lower back/abdomen pain called *isinga* (rheumatic/poor posture/arthritis) (herbalist, folk healer). A root infusion in cold

water is taken orally, one cup a day, to overcome infertility and barrenness in women. When the patient urinates frequently this is an indication that the medicine is taking action (herbalist, diviner).<sup>23</sup> The root is recorded as a treatment for sterility, wounds, bruises and tapeworm<sup>29</sup> in southern Africa and infantile diarrhoea, tapeworm, wounds and sores in South Africa.<sup>30</sup>

26. *Rumex sagittatus* Thunb., Polygonaceae; Dold 3948, Grahamstown; iBhathatha\*.

A root infusion in cold water is used as a body wash (iYeza lokuhlamba) to cleanse the body of misfortune and evil (herbalist, diviner). The roots are recorded as a treatment for toothache in South Africa,<sup>41,44</sup> and headaches, constipation, febrile conditions and tuberculosis in Lesotho.<sup>35</sup> Roots are used for abdominal pains in infants and for swellings of the body in Zimbabwe.<sup>30</sup>

27. *Ruta graveolens* L., Rutaceae; Dold 1513, Gwaben; iVendrit\*.

Two or three drops of a leaf infusion mixed with brandy in a teaspoon of a mother's milk is given to a baby with an infliction known as *onomoya* (colic) caused by evil spirits (herbalist, folk healer).<sup>2,3</sup> The leaf is recorded as a treatment for fevers, convulsions, epilepsy, toothache, earache, respiratory and heart disease, cardiac asthma, jaundice, infantile diarrhoea, and as an abortifacient in southern Africa.<sup>28</sup> The leaf is used to treat infant colic in South Africa.<sup>40</sup> In Algeria and India the plant is used as an emmenagogue and ecobolic.<sup>26</sup> The sap is used as a coryllium in Algeria.<sup>28</sup>

28. *Schinus molle* L., Anacardiaceae; Dold 3942, Grahamstown; iPeperboom\*, iPepele\*.

A leaf decoction is taken orally to treat influenza and fever. Leaves are added to boiling water and commonly used as a steam (*ukufutha*) to treat fever (folk healer, diviner, herbalist, game guard group). The leaf is recorded as a treatment for high temperature,<sup>40</sup> mouth ulcers,<sup>25</sup> and colds and influenza<sup>41,44</sup> in South Africa. The leaf and bark are used to treat wounds and sores in Uruguay.<sup>28</sup>

29. *Solanum incanum* L., Solanaceae; no specimen collected, Grahamstown; uMthuma.

The roots are boiled and bottled, then drunk or used as an enema, to treat an infliction called *drops* in male patients (gonococcal infection). The fruits are

crushed and applied to ringworm (herbalist). A root decoction is administered as an enema for kidney problems (women's group). The whole plant is recorded as a treatment for coughs, colic, sore throat, gonorrhoea, syphilis, ringworm, and pneumonia in southern Africa.<sup>28</sup> In East Africa the roots and leaves are used to treat pleurisy, coughs, fever, indigestion and venereal disease.<sup>37</sup> In Malawi the root and fruit are used to treat snake bite, venereal disease, toothache, pleurisy and ophthalmia.<sup>29</sup> In Botswana root powder is applied to sores,<sup>30</sup> and roots are used for pneumonia, ringworm, gonorrhoea, syphilis and earache in Tanzania.<sup>30</sup> In Zimbabwe roots are also used for venereal diseases, dysmenorrhoea and toothache.<sup>30</sup> Roots are used to treat hepatitis in Taiwan.<sup>30</sup>

30. *Solanum linnaeanum* Hepper & Jaeger, Solanaceae; Dold 3937, Grahamstown; uMthuma omkhulu.

The crushed and finely strained fruit is added to cold water and administered as an enema (not more than once a week) to treat a sprained back (muscular pain) (herbalist, diviner). In southern Africa the fruit is recorded as a treatment for harness sores on horses and skin disease and the root is used to treat colic, impotency and toothache.<sup>28</sup> In South Africa the root is used to treat backache, impotence, abdominal pain and flatulence and the leaf as a remedy for boils and toothache.<sup>30</sup>

31. *Solanum mauritianum* Scop., Solanaceae; Dold 3953, Grahamstown; uMbangabanga.

Two spoonfuls of grated dried root are boiled for 10 minutes and a 750 ml bottle of the medicine given to a cow after a miscarriage or problematic birth to bring it back to health. This medicine is administered once every second day and only under the direction of a diviner (diviner). The roots are recorded as a treatment for excessive menstrual bleeding,<sup>30</sup> and the leaf as a treatment for headaches<sup>41</sup> in South Africa. In Mauritius the leaf is used to treat manioc poisoning.<sup>28</sup> The fruit is used to treat syphilis and unspecified parts to treat scabies in Madagascar.<sup>30</sup>

32. *Tillandsia fasciculata* Schwartz, Bromeliaceae; Dold 3943, Grahamstown; iNtelezit.

The entire plant is crushed and soaked in cold water and used as a body wash (*iyezalokuhlamba*) for protection from evil spirits. The plant is grown as a protective charm around the home (municipal worker, herbal-

ist). No previously recorded use.

33. *Withania somnifera* (L.) Dun., Solanaceae; Dold 1516, Gwaben; uBuvimba.

The large woody rootstock is peeled and pieces of the raw soft wood are chewed, but not swallowed, to relieve coughing (herbalist).<sup>2,3</sup> The bark is recorded as a treatment for asthma and bed-sores and the whole plant is used to treat boils, parasites, syphilis, ringworm, intestinal parasites, anthrax and haemorrhoids in southern Africa.<sup>28</sup> The root is used to treat fever, syphilis, asthma, ringworm and rashes, and the leaf used on wounds and sores,<sup>45</sup> chest complaints,<sup>40</sup> typhoid fever, anthrax, syphilis, gangrene, bronchitis and ringworm in South Africa.<sup>26</sup> Unspecified parts are used to treat wounds, sores, ringworm, black gall sickness, gangrenous rectitis and venereal disease in South Africa.<sup>46</sup> In India unspecified parts are used to treat fatigue, fever, asthma and learning disorders and memory retention.<sup>31</sup> In Israel leaves and fruits are applied to sores, and leaves are used to treat rheumatism, pain and swellings.<sup>30</sup>

We undertook a literature survey of previously recorded uses of the plants identified in this study<sup>11,13,25-48</sup> (Table 1). Eight of the 33 species listed (*Anredera cordifolia*, *Araucaria bidwillii*, *Araujia sericifera*, *Carduus tenuiflorus*, *Galenia secunda*, *Mesembryanthemum aitonis*, *Pteronia incana*, *Tillandsia fascicularis*) have no previous medicinal uses recorded in South Africa. Two of these (*Anredera cordifolia*, *Araujia sericifera*) have medicinal uses recorded in South America, Europe and Indonesia, while the remaining six are new records of medicinal plants. Of the 27 species with known uses, 21 have additional, previously unrecorded medicinal uses. These are *Anredera cordifolia*, *Araujia sericifera*, *Argemone mexicana*, *Asclepias fruticosa*, *Bidens pilosa*, *Cannabis sativa*, *Datura stramonium*, *Emex australis*, *Eucalyptus ficifolia*, *Exomis microphylla* var. *axyrioides*, *Lantana camara*, *Malva parviflora*, *Punica granatum*, *Ricinus communis*, *Rubus pinnatus*, *Rumex crispis*, *Rumex lanceolatus*, *Rumex sagittatus*, *Ruta graveolens*, *Solanum mauritianum* and *Withania somnifera*.

Of the 33 plants listed, 28 (84%) are recorded as problem plants,<sup>7</sup> nine (3%) are plant invaders,<sup>9</sup> five (15%) are declared weeds<sup>8</sup> and one (3%) is a proposed declared weed<sup>9</sup> (Table 1). According to L. Henderson (pers. comm.) the revised legislation in preparation will include a further four declared weeds (*Anredera cordifolia*, *Araujia sericifera*, *Argemone*

**Table 1.** Status of medicinal plant species. A, problem plant;<sup>7</sup> B, plant invader;<sup>9</sup> C, declared weed;<sup>8</sup> D, proposed declared weed.<sup>9</sup> Revised legislation in preparation (L. Henderson, pers. comm.).

Plant name	Origin	Status	Revised legislation	Plant used in other countries/continents
<i>Anredera cordifolia</i>	South America	A; B	Declared weed	Cuba, Mexico <sup>27</sup>
<i>Araucaria bidwillii</i>	Australia			
<i>Araujia sericifera</i>	South America	A; B	Declared weed	Indonesia, Peru <sup>28</sup>
<i>Argemone mexicana</i>	South America	A	Declared weed	India, <sup>28</sup> Malawi, <sup>29</sup> Tanzania <sup>28</sup>
<i>Asclepias fruticosa</i>	South Africa	A		Botswana, <sup>30</sup> Lesotho <sup>35</sup>
<i>Bidens pilosa</i>	South America	A		East Africa, <sup>37</sup> Madagascar, <sup>30</sup> Malawi, <sup>29</sup> Mauritius, <sup>50</sup> Mexico, <sup>30</sup> South East Asia, <sup>30</sup>
				Tanzania, <sup>28</sup> West Africa <sup>38</sup>
<i>Cannabis sativa</i>	Europe and Asia	A; C	Delisted	America, <sup>30</sup> Europe, <sup>30</sup> Zimbabwe <sup>28</sup>
<i>Carduus tenuiflorus</i>	Europe and Asia	A		
<i>Catharanthus roseus</i>	Madagascar	A		Madagascar <sup>30</sup>
<i>Datura stramonium</i>	North America	A; B; C		India, <sup>30</sup> Israel, <sup>30</sup> Madagascar, <sup>30</sup> Malawi, <sup>29</sup> Nigeria, <sup>30</sup> Zimbabwe <sup>30</sup>
<i>Emex australis</i>	South Africa	A		
<i>Eucalyptus ficifolia</i>	Australia			East Africa, Lesotho, Morocco <sup>30</sup> (genus only)
<i>Exomis microphylla</i> var. <i>axyrioides</i>	South Africa	A		
<i>Galenia secunda</i>	South Africa	A		
<i>Lantana camara</i>	South America	A; B; C		Malawi, <sup>29</sup> West Africa <sup>28</sup>
<i>Malva parviflora</i>	Europe and Asia	A		
<i>Mesembryanthemum aitonis</i>	South Africa	A		
<i>Nicotiana glauca</i>	South America	A; B; D	Declared weed	Uruguay <sup>28</sup>
<i>Opuntia ficus-indica</i>	South America	A; B; C		
<i>Pteronia incana</i>	South Africa	A		
<i>Punica granatum</i>	Southeastern Europe			Mauritius <sup>28</sup>
<i>Ricinus communis</i>	Africa?	A; B	Declared invader	East Africa, <sup>37</sup> India, <sup>30</sup> Malawi, <sup>29</sup> Namibia, <sup>43</sup> Nepal, <sup>30</sup> Vietnam <sup>30</sup>
<i>Rubus pinnatus</i>	South Africa	A		
<i>Rumex crispus</i>	Europe and Asia	A		
<i>Rumex lanceolatus</i>	South Africa	A		
<i>Rumex sagittatus</i>	South Africa	A		Lesotho, <sup>35</sup> Zimbabwe <sup>30</sup>
<i>Ruta graveolens</i>	Europe and Asia	A		Algeria, <sup>28</sup> India <sup>28</sup>
<i>Schinus molle</i>	South America	A; B	Declared invader	Uruguay <sup>28</sup>
<i>Solanum incanum</i>	South Africa	A		Botswana, <sup>30</sup> East Africa, <sup>37</sup> India, <sup>30</sup> Malawi, <sup>29</sup> Taiwan, <sup>30</sup> Tanzania, <sup>30</sup> Zimbabwe <sup>30</sup>
<i>Solanum linneanum</i>	Uncertain			
<i>Solanum mauritianum</i>	South America	A; B; C		Madagascar, <sup>30</sup> Mauritius <sup>28</sup>
<i>Tillandsia fascicularis</i>	Tropical America			
<i>Withania somnifera</i>	South Africa	A		India, <sup>31</sup> Israel <sup>30</sup>

*mexicana*, *Nicotiana glauca*) and two declared invaders (*Ricinus communis*, *Schinus molle*). One declared weed (*Cannabis sativa*) will be delisted. Three species, *Araucaria bidwillii*, *Schinus molle* and *Tillandsia fasciculata*, are exotic horticultural subjects.

Nine Xhosa names for plants, previously uncited by Dold & Cocks,<sup>49</sup> were recorded phonetically by the authors (*Anredera cordifolia*, iDlula; *Araucaria bidwillii*, uMavulakuvaliwe, abaNqonqozi, iNdiyandiyi; *Araujia sericifera*, iQuwa; *Bidens pilosa*, iSinama; *Carduus tenuiflorus*, uMhlakuvavuthwa; *Galenia secunda*, iSidikili; *Tillandsia fasciculata*, iNtelezi).

Two plant use categories can be extrapolated from the data. Twenty-nine (83%) species are used for physical ailments including allergic reactions, amenorrhoea, boils and septic sores, circumcision

wounds, constipation, coughs and chest complaints, cuts and wounds, diabetes, epilepsy, fungal infections, gonococcal infections, headaches, infertility, influenza, kidney pain, nausea, rashes and skin afflictions, rheumatism and arthritis, stomach ulcers, swollen limbs and toothache. Six (17%) species are used for the treatment of culturally bound syndromes such as hysteria, the violation of cultural taboos, protection from evil spirits and sorcery. Pujol<sup>12</sup> describes these as medicines used for their psychoactive virtues, in some cases curative but mostly preventative and counteractive. However, Cunningham<sup>50</sup> states that species that have a purely symbolic value are nevertheless important ingredients of traditional medicine for their psychosomatic value. Cocks<sup>1</sup> found that 30% of the medicines prescribed by diviners and herbal-

ists in amaYeza stores (African chemists) in the King William's Town district belong in this category. A broad Xhosa term for this type of medicine is iYeza lokuhlamba and can be translated as medicine for washing, referring to the use of a number of plant species to cleanse and protect the body from evil spirits manifested by illness, recurring dreams or misfortune. Of the useful plants documented in the study, 17% are recorded as iYeza lokuhlamba plants. A related category of medicines are the iNtelezi plants, sometimes also occasionally used as a body wash but most often as a protective charm against evil or misfortune.<sup>7</sup> In this study only a single iNtelezi plant was recorded (*Tillandsia fasciculata* Schwartz).

Hutchings<sup>25</sup> posed the question: 'How do people know which plants to use?' It is well documented that many healers and



users learn to recognize plants and learn of their uses by word of mouth and through experience from one generation to the next or by means of lengthy training by specialist healers.<sup>22,25,51</sup> When plant species are relatively new to the area, such as exotic plants, however, this may not necessarily be true. In this study four plant species were identified by at least one specialist informant by means of dreams (*Araucaria bidwillii*, *Araujia sericifolia*, *Carduus tenuiflorus*, *Galenia secunda*). This phenomenon is not restricted to specialist healers and is documented by De Villiers<sup>40</sup> and Lamla.<sup>51</sup> The remaining 29 taxa and their uses were learnt by the various informants from family members.

## Conclusion

Weeds and exotic plants are used as medicines by specialist and non-specialist healers and this is not a new practice, having been recorded as early as 1868. This information is taken into account when weed legislation is being considered. The fact that new medicinal plants are only recently being recognized indicates that traditional herbal medicinal practices are dynamic and adaptive. Herbal medicines are not known and used only by specialist healers but also by non-specialist people. Plant species that are officially designated problem plants may be of considerable value to some communities and should be re-assessed. New biomedical products from problem plants and weeds are already being discovered thanks to indigenous knowledge of plant medicines. For example, 10 invader plants, including *Pteronia incana* recorded here, were documented by Webber *et al.*<sup>52</sup> as containing economically viable amounts of essential oils. Webber *et al.*<sup>52</sup> recommend that alternative use of these plants should be considered before expensive eradication is undertaken.

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