

An ethnobotanical study of plants used for the treatment of wounds in the Eastern Cape, South Africa

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Abstract

The people of the Eastern Cape Province, South Africa, still depend, to a large extent, on traditional herbal medicine for the treatment of various diseases and ailments. This includes the use of plants for the treatment of wounds. Information collected from the traditional healers, the *Sangomas*, has revealed 38 plant species that are used for the treatment of wounds in the Province. The plants belong to 26 families of which Asteraceae, Asphodelaceae and Solanaceae are the most represented. The use of plant leaves as a poultice and infusions are the commonest categories of herbal preparations. In all cases, the treatment of wounds involved the external application of the herbal medicine. © 1999 Elsevier Science Ireland Ltd. All rights reserved.

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1. Introduction

Medicinal plants have always played an important role in therapy within the traditional health care system in South Africa. It is estimated that between 12 and 15 million South Africans still use traditional remedies from as many as 700 indigenous plant species (Meyer and Afolayan, 1995). The Eastern Cape province is particularly known for its richness in plant species (Phillipson, 1987). The indigenous people of this Province have a long history of traditional plant usage for the treatment of various diseases and ailments includ-

ing the uses of plants for the treatment of wounds (Van Wyk, et al., 1997; Grierson and Afolayan, 1998).

In the rural communities, wounds arising from bruises, cuts and scratches, amongst others, are sometimes untreated at the initial stages. This is common especially amongst children. In most cases such wounds become septic and inflamed before they are brought to the attention of the parents, who might then treat such wounds in a traditional way using plant materials or seek the advice of a herbalist. Even many adults who are remote from clinics and hospitals often treat wounds using plants or seek the help of herbalists.

Despite the undoubted success of herbal medicine in the Province, the knowledge and ex-

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Table 1
Medicinal plants used for the treatment of wounds in the Eastern Cape, South Africa

| Scientific name | Local name | Part used | Preparation |
|---|--------------------------|--------------------|--|
| 1. <i>Poultice made from fresh parts</i> | | | |
| Apiaceae | | | |
| <i>Centella asiatica</i> (L.) Urb. | Udingu | Leaves | Poultice or lotion used to treat wounds |
| Asphodelaceae | | | |
| <i>Aloe striatula</i> Haw. | Ingcelwane | Leaves | Poultice applied to wounds |
| <i>Bulbine latifolia</i> Mill. | Ibhucu | Leaves | Poultice applied to wounds, burns, rashes and itches |
| Asteraceae | | | |
| <i>Helichrysum foetidum</i> (L.) Moench | | Leaves | Warmed and applied as a poultice for infected sores |
| Cactaceae | | | |
| <i>Opuntia ficus-indica</i> Mill. | Itolofiya | Leaves | Heated with blue soap and Epsom salts and applied as a poultice |
| Crassulaceae | | | |
| <i>Cotyledon orbiculata</i> L. | Iphewula | Leaves and cuticle | Poultice applied to wounds, scratches, sores and ulcers |
| Euphorbiaceae | | | |
| <i>Ricinus communis</i> L. | Umhlakuva | Roots and leaves | Poultice applied to wounds and sores |
| Geraniaceae | | | |
| <i>Pelargonium peltatum</i> (L.) Ait. | | Leaves | Pounded, applied to wounds and sores |
| Lamiaceae | | | |
| <i>Mentha longifolia</i> (L.) Huds. | Inxina | Leaves | Applied as a poultice to wounds |
| Malvaceae | | | |
| <i>Malva parvifolia</i> L. | Ujongelana | Leaves and stems | Macerated with or without heated brown sugar and applied to boils |
| Meliaceae | | | |
| <i>Ekebergia capensis</i> Sparrm. | Umnyamathi | Bark | Powdered and infused, mixed with flour and applied as a poultice to abscesses and boils |
| Polygonaceae | | | |
| <i>Rumex lanceolatus</i> Thunb. | Idololenkonyane | Leaves and stems | Applied as a poultice to abscesses and boils |
| Rubiaceae | | | |
| <i>Pentanisia prunelloides</i> Walp. | Icimamlilo, Irubuxa | Root | Pounded in hot water and applied as a poultice to draw boils, abscesses and sores |
| Solanaceae | | | |
| <i>Withania somnifera</i> (L.) Dun. | Ubuvuma | Leaves | Poultice used on open cuts, abscesses and wounds |
| 2. <i>Applied directly and sometimes warmed as bandages</i> | | | |
| Amaryllidaceae | | | |
| <i>Boophane disticha</i> (L.f.) Herb. | Incwadi, Ishwadi | Outer bulb scales | Moistened and applied as a dressing to circumcision wounds, boils, sores and septic wounds |
| <i>Haemanthus coccineus</i> Jacq. | Umphompo | Leaves | Dressing for wounds, sores and ulcers |
| Apiaceae | | | |
| <i>Centella asiatica</i> (L.) Urb. | Udingu | Leaves | Softened warm leaf applied to sores |
| Araceae | | | |
| <i>Zantedeschia aethiopica</i> (Linn.) Spreng. | Inyiba, Inyibiba, Inyuba | Leaves | Washed and warmed, used for dressing sores, wounds and minor burns |
| Asphodelaceae | | | |
| <i>Aloe ciliaris</i> Harv. | Intelezi, Ikalene | Leaves | Chopped leaves placed on inflamed sore to reduce swelling |

Table 1 (continued)

| Scientific name | Local name | Part used | Preparation |
|---|-------------------------------|---------------------------|---|
| Asteraceae | | | |
| <i>Helichrysum appendiculatum</i> (L.f.) Less. | Indlebeyemvu | Leaves | Fresh leaves applied to circumcision wounds |
| <i>H. pedunculare</i> DC. | Isigqutsi, Isicwe | Leaves | Fresh leaves applied to circumcision wounds |
| Cactaceae | | | |
| <i>Opuntia ficus-indica</i> Mill. | Itolofiya | Leaves | Dressing for boils |
| Geraniaceae | | | |
| <i>Pelargonium peltatum</i> (L.) Ait. | | Leaves | Applied to wounds and sores |
| Haloragaceae | | | |
| <i>Gumera perpensa</i> L. | Ugobho | Leaves | Applied as a dressing for wounds |
| 3. Infusion made from fresh or dried parts | | | |
| Asteraceae | | | |
| <i>Artemisia afra</i> Jacq. ex Willd. | Umhloniyane | Leaves | Infusion used as a wash for wounds |
| <i>Helichrysum appendiculatum</i> (L.f.) Less. | Indlebeyemvu | Leaves | Tea from dried leaves applied to circumcision wounds |
| <i>H. aureonitens</i> Sch.Bip. | | Leaves | Infusion used as a wash and lotion for wounds |
| Cornaceae | | | |
| <i>Curtisia dentata</i> (Burm. f.) C.A. Sm. | Umlahleni | Bark | Infusion used for the treatment of pimples |
| Cucurbitaceae | | | |
| <i>Kedrostis africana</i> Medik. | Ilabatheki, Uthuvana | Bulbs | Boiled in water as a wash for skin rash |
| Lamiaceae | | | |
| <i>Leonotis leonuris</i> (L.) R.Br. | Umfincafincane | Twigs, leaves and flowers | Infusion applied to skin eruptions and sores |
| Loganiaceae | | | |
| <i>Buddleja salvifolia</i> (L.) Lam. | Ilotyane | Bark | Infusion used as a wash for sores |
| Solanaceae | | | |
| <i>Solanum nigrum</i> L. | Umsobo-Sobo | Leaves | Infusion used as a wash for wounds |
| Tiliaceae | | | |
| <i>Grewia occidentalis</i> L. | Umnqabaza, Unvileni, Umqaqoba | Small twigs and leaves | Infusion used as a lotion for wounds |
| Typhaceae | | | |
| <i>Typha capensis</i> Rohbr. | Ingcongolo, Umkhanzi | Root and lower stem | Infusion as an external wash for wounds |
| 4. Juice or sap applied to a dressing or directly as a wash | | | |
| Asphodelaceae | | | |
| <i>Aloe ciliaris</i> Harv. | Intelezi, Ikalene | Leaves | Fresh juice squeezed and applied to rashes and pimples |
| <i>A. ferox</i> Mill. | Ikhala, Umhlaba | Leaves | Juice applied as dressing for wounds |
| <i>Bulbine latifolia</i> Mill. | Ibhucu | Leaves | Sap warmed and applied to wounds, burns, rashes and itches |
| Asteraceae | | | |
| <i>Helichrysum pedunculare</i> DC. | Isigqutsi, Isicwe | Leaves | Sap applied to circumcision wounds |
| Hypoxidaceae | | | |
| <i>Hypoxis hemerocallidea</i> | Isidumo, Inongwe | Corms | Sliced, sap extracted and applied to sores |
| 5. Lotion made from fresh or dried parts soaked in warm or cold water | | | |
| Apiaceae | | | |
| <i>Centella asiatica</i> (L.) Urb. | Udingu | Leaves | Dried leaves soaked in warm water and used as a lotion for wounds |

Table 1 (continued)

| Scientific name | Local name | Part used | Preparation |
|--|------------------------|------------------|--|
| Asteraceae | | | |
| <i>Vernonia oligocephala</i> Sch.Bip. | Umhlungu-hlunga | Leaves and stems | Dried material soaked in warm water; lotion applied to wounds |
| Hypoxidaceae | | | |
| <i>Hypoxis hemerocallidea</i> | Isidumo, Inongwe | Leaves and corms | Fresh or dried material extracted and used as a wash for wounds |
| Lamiaceae | | | |
| <i>Mentha longifolia</i> (L.) Huds. | Inxina | Leaves | Fresh material extracted in hot water as a lotion for wounds |
| Rubiaceae | | | |
| <i>Pentanisia prunelloides</i> Walp. | Icimamililo, Irubuxa | Root | Dried and ground in warm water to make a lotion and applied to pimples |
| 6. Dried and ground to powder | | | |
| Adiantaceae | | | |
| <i>Cheilanthes viridis</i> (Forsk.) Swartz | | Fronds | Dried, powdered and sprinkled on wounds |
| Aspidiaceae | | | |
| <i>Polystichum pungens</i> (Kaulf.) Presl. | | Fronds | Dried and powdered, sprinkled on wounds |
| Fabaceae | | | |
| <i>Erythrina caffra</i> Thunb. | Umsintsisi, Umsintsane | Bark | Finely powdered, applied to sores, abscesses and wounds |
| Hypoxidaceae | | | |
| <i>Hypoxis hemerocallidea</i> | Isidumo, Inongwe | Leaves | Dry powder sprinkled on wounds |
| 7. Ointment made from juice or fresh parts, sometimes mixed with animal fat or oil | | | |
| Dipsacaceae | | | |
| <i>Scabiosa columbaria</i> L. | Makgha | Roots | Dried and roasted, made into a wound-healing ointment with animal fat |
| Solanaceae | | | |
| <i>Solanum sodomeum</i> Linn. | Umthuma | Fruit and leaves | Paste with oil or fat applied to skin rashes |

perience of the traditional healers have not been well documented. Information on herbal medicine, like any other cultural practices in Africa, has been dominated by oral tradition (Van Wyk et al., 1997). In industrialised cultures, there has been an important loss of traditional knowledge of plant uses transmitted from parents to children. According to Raja et al. (1997), there appears to be concern that one is now at a critical moment at which the transmission chain is at risk. It is necessary, therefore, to make an effort to avoid the erosion of this knowledge in South Africa, not only to preserve a part of the cultural heritage, but also to conserve the information on useful plants.

Considering the current rate of deforestation with the concurrent loss of biodiversity (Njuguna,

1994), there is a need for accurate documentation of the knowledge and experience of the traditional herbalists. In this paper we report on the information gathered from traditional healers, the *Sangomas*, herbalists and rural dwellers on the plants used for the treatment of wounds in the Eastern Cape province of South Africa.

2. Methodology

Information presented in this paper was collected from the *Sangomas*, herbalists and rural dwellers in the Province. The study area falls within the latitudes 30°00'–34°15'S and longitudes 22°45'–30°15'E. It is bounded by the sea in the East and

the drier Karroo (semi-desert vegetation) in the West. The elevation ranges from sea-level to approximately 2200 m in the north of the province.

Adopting the methods of Jovel et al. (1996), information was compiled through general conversations with the informants and questionnaires were used to obtain additional information about the methods of treatment. The information collected included local names, the parts of the plant used, methods of preparation, usage and personal experience of the users. Some plants were obtained directly from the healers, while others were collected during walks through the forest while accompanied by the *Sangoma*, herbalist or the rural dwellers. The plants were identified by their vernacular names through consultations with the local people. Voucher specimens were prepared and deposited in the herbarium of the University of Fort Hare Botany Department.

Additional information on the identification of the plants and their uses in other communities was collected and new findings established through consultation of Hedberg and Staugård (1989), Roberts (1990) and Van Wyk et al. (1997).

3. Results and discussion

The results of this study have revealed 38 plant species belonging to 26 families that are frequently used for the treatment of wounds by the people of the Eastern Cape (Table 1). Of these families, Asteraceae, Aspodelaceae and Solanaceae are the most commonly represented, comprising 23, 15 and 12%, respectively. It was observed that some plants have more than one vernacular name. The reason for this is because the same plant is prepared in different ways in different communities to treat different ailments.

The methods of preparation are in seven categories, viz.: plant parts which are applied as a poultice (14 species), those applied directly or warmed as bandages (ten species), infusions made from fresh or dried material (ten species), and those from which the juice is extracted and applied to dressings or used for washing the wounds (five species). Others are prepared as lotions (five species), ground into powders (four species) or

prepared as ointment (two species). It was also observed that some plants were used in more than one method of preparation.

Leaves were reported to be the most frequently used part of the plants for the treatment of wounds, constituting about 68% of the preparations. This is followed by stem bark that constituted 19%, while the roots, bulbs and corms made up 13% of the herbal preparations. In all cases, the treatment of wounds involved the external application of the medicine. No internal use was reported.

This study has, again, revealed that medicinal plants still play a very vital role in the primary health care of the people of this Province. During the survey, it was observed that more than 50% of the total number of people questioned, regularly used medicinal plants to treat many ailments, including wounds. Work is in progress on the ethnopharmacological, phytochemical and pharmacological aspects of some of these plants, especially *Polystichum pungens*, *Cheilanthes viridis*, *Malva parvifolia* and *Grewia occidentalis* (Grierson and Afolayan, 1998).

Similar ethnobotanical studies have been reported in another part of South Africa (Rabe and Van Staden, 1997) and some other parts of the world (Leporatti and Pavesi, 1990; Jovel et al., 1996; Taylor et al., 1996; Raja et al., 1997).

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References

- Grierson, D.S., Afolayan, A.J., 1998. Antibacterial activity of some indigenous plants used for the treatment of wounds in the Eastern Cape, South Africa. *Journal of Ethnopharmacology* 66, 103–106.

- Hedberg, I., Staugård, F., 1989. Traditional Medicinal Plants. Ipeleng, Botswana, p. 324.
- Jovel, E.M., Cabanillas, J., Towers, G.H.N., 1996. An ethnobotanical study of the traditional medicine of the Mestizo people of Suni Miraflores, Loreto, Peru. *Journal of Ethnopharmacology* 53, 149–156.
- Leporatti, M.L., Pavesi, A., 1990. New or uncommon uses of several medicinal plants in some areas of central Italy. *Journal of Ethnopharmacology* 29, 213–223.
- Meyer, J.J.M., Afolayan, A.J., 1995. Antibacterial activity of *Helichrysum aureonitens* (Asteraceae). *Journal of Ethnopharmacology* 47, 109–111.
- Njuguna, S.C., 1994. The convention on Biological Diversity: challenges and opportunities. In: Huntley, B.J., Gelderblom, C., du Plessis, E. (Eds.), *Botanical Diversity in Southern Africa*. *Sterlitzia* 1, Pretoria, pp. 311–317.
- Phillipson, P.B., 1987. A checklist of vascular plants of the Amatole Mountains, Eastern Cape Province/Ciskei. *Bothalia* 17 (2), 237–256.
- Rabe, T., Van Staden, J., 1997. Antibacterial activity of South African plants used for medicinal purposes. *Journal of Ethnopharmacology* 56, 81–87.
- Raja, D., Blanché, C., Xirau, J.V., 1997. Contributions to the knowledge of the pharmaceutical ethnobotany of La Segarra region (Catalonia, Iberian Peninsula). *Journal of Ethnopharmacology* 57, 149–160.
- Roberts, M., 1990. *Indigenous Healing Herbs*. Southern Book Publishers, South Africa, pp. 1–285.
- Taylor, R.S.L., Edel, F., Manandhar, N.P., Towers, G.H.N., 1996. Antimicrobial activities of southern Nepalese medicinal plants. *Journal of Ethnopharmacology* 50, 97–102.
- Van Wyk, B-E., Van Oudtshoorn, B., Gericke, N., 1997. *Medicinal plants of South Africa*. Briza, Pretoria, pp. 1–304.