

A survey of ethnobotanical research in southern Africa

C. A. LIENGME*

ABSTRACT

Existing ethnobotanical information for southern Africa is scattered through anthropological, medical, botanical and other books and journals, making the task of getting at the information fairly difficult. The object of this paper is to provide a unified bibliography on the subject and to review the state of knowledge of ethnobotany in southern Africa as reflected in publications, unpublished manuscripts and museum and herbarium holdings. Those aspects of ethnobotany most needing attention are identified. The information is reviewed on a subject basis.

RÉSUMÉ

UN RELEVÉ DE LA RECHERCHE ETHNOBOTANIQUE EN AFRIQUE AUSTRALE

L'information ethnobotanique existant pour l'Afrique australe est dispersée parmi des livres et journaux anthropologiques, médicaux, botaniques et autres, ce qui rend la tâche d'obtenir cette information, assez difficile. L'objet de ce document est de fournir une bibliographie unifiée sur le sujet et de faire un relevé de la connaissance de l'ethnobotanique de l'Afrique australe telle qu'elle est réfléchié dans les publications, les manuscrits non publiés et les collections de musées et d'herbarium. Les aspects de l'ethnobotanique nécessitant le plus d'attention sont identifiés. L'information est revue par matières.

INTRODUCTION

Ethnobotany was defined as early as 1895 as the study of 'plants used by primitive and aboriginal peoples' (Ford, 1978, p. 33). This encompasses an enormous field of research. Ford has defined the limits of this field on the basis of three objectives.

1. to identify plants that have uses
2. to discover how people classify, identify and relate to these plants
3. to examine the reciprocal interactions of plants and people.

Most of the ethnobotanical work done in southern Africa satisfies only the first of Ford's objectives, although there is some that satisfies the second and even the third.

The purpose of this paper is to review the state of knowledge of ethnobotany in southern Africa as reflected in publications, unpublished manuscripts, museum and herbarium holdings. Ethnobotanical research has been carried out by missionaries and explorers, botanists, medical people and anthropologists, hence the published information is found in a variety of books and journals. The peoples covered by this review are the indigenous peoples of southern Africa: the San (Bushmen), the Khoi (Hottentots) and the Bantu — the latter comprising the South Sotho, North Sotho, Tswana, Zulu, Cape Nguni, Swazi, Transvaal Ndebele, Tsonga/Tonga, Venda, Ambo, Herero and Mpukushu.

The uses of plants will be reviewed under the following headings: food; medicine; magic, ritual and customs; building; household utensils and implements; musical instruments; and firewood and firesticks.

FOOD

Early records of plants used for food and drink by the Khoi and Bantu of the Cape occur occasionally in the journals of travellers such as Burchell (1822), Campbell (1822) and Chapman (1971). For Kaffria (Eastern Cape) Kay (1833) and Ayliff (1858) noted commonly used plant foods. Mayr (1906) describes some of the food plants of the Zulu. Subsequently, up to the middle 1950's, accounts of both cultivated and wild foods appeared. Beer- and wine-making are described by Fox (1938) and Turner (1909). The food uses of particular species are discussed by MacCrone (1937), Van der Bijl (1921) and Watt (1926). Anthropological monographs also include some information; Junod (1962) mentions some Tsonga food plants and Stayt (1968) some Venda food plants.

The general diet of various peoples was also studied; of note is the work on the South Sotho (Ashton, 1939), the Swazi (Beemer, 1939) and the Zulu (Bryant, 1939).

1957 seems to mark the beginning of a new phase of research on food plants and plant-based subsistence, particularly of the hunter-gatherer San of the Kalahari. No less than 25 books, articles and manuscripts have appeared since then, dealing, wholly or in part, with San subsistence, particularly gathering of wild plant foods. Important contributions are those of Lee (1965, 1958, 1969, 1972, 1973), Maguire (1978), Marshall (1965, 1976), Silberbauer (1965, 1972), Steyn (1971, 1981), Story (1958) and Tanaka (1969, 1972, 1976). Dentlinger (1977) studied the role of the plant *Acanthosicyos horrida* in Topnaar Khoi life.

There has also been considerable interest in and research on Bantu foods, including traditional crops. There are accounts of the traditional diets of the North Sotho (Franz, 1971; Quin, 1959), the Tembe-Tonga (Lubbe, 1971) and the Cape Nguni (Rose, 1972a). Wild plants collected as food are

*Botanical Research Institute, Department of Agriculture, Private Bag X101, Pretoria 0001, South Africa.

recorded by Jacot Guillarmod (1966) (South Sotho), Rose (1972(b)) and Rose & Jacot Guillarmod (1974) (Cape Nguni) and Van der Merwe *et al.* (1967) (Tonga of north-eastern Natal).

Food plants are also mentioned in the anthropological works of Hammond-Tooke (1974) and Mönning (1967); in botanical works such as Jacot Guillarmod (1971) and Palmer & Pitman (1972); and in Malan & Owen-Smith's (1974) ethnobotanical study of the Herero. Besides the published works there are numerous reports and unpublished manuscripts listing edible plants, some of which are; Bridges (1977), Grivetti (1975) and Hitchcock (1977a; 1977b; 1978) for the Tswana; Garland (1971) and Waugh (1970) for the Zulu.

The nutritional value of some of these edible wild plants has been investigated; fruits by Engelter & Wehmeyer (1970), Wehmeyer (1966, 1976) and Wehmeyer, Lee & Whiting (1969); leaves by Fox (1966), Hennessey & Lewis (1971), Levy, Weintraub & Fox (1936), Lewis, Shanley & Hennessey (1971) and Shanley & Lewis (1969). In press at present is a book by F. W. Fox on veld foods. A. S. Wehmeyer of the CSIR has analysed many wild food plants, but only some of the data have been published.

The National Herbarium, Pretoria, includes many collections of edible plants with notes on their use. This information has recently become available as a result of the computerization of the Herbarium. Some of this information has not yet been published, such as that collected by Rodin (Ambo), Hemm (Venda), Barnard and Mogg (North Sotho). Other information, like that collected by Gerstner (Zulu), Miller (Tswana), Story and Maguire (San), has been at least partially used in reports and publications.

In summary — the gathering of wild food plants by the hunter-gatherer San has been well studied. The traditionally cultivated crops and wild plants collected as supplementary foods of the Zulu, Cape Nguni, South Sotho and North Sotho are also relatively well recorded. For the Swazi, Tsonga, Tswana, Venda, Herero and Owambo less is known. Except for the records of early travellers and one recent piece of work, little is known of Khoi food plants. Nothing has been recorded for the Transvaal Ndebele.

MEDICINE

The recording of the medicinal uses of plants began early at the Cape. Thunberg (no date) and Lichtenstein (1928), while on their travels, noted uses of medicinal plants. In 1795 Berg, a student of Thunberg, defended a dissertation on African medicinal plants (Berg, 1799). Pappé's 'Florae Capensis Medicae Prodromus', first published in 1850 collates all the scattered notes of Lichtenstein and Thunberg, adding also later information, derived mostly from the manuscript notes of a Dr MacKrill who collected information on medicinal plants during the period 1814–1816 (MacOwan, 1897).

Burchell (1822), Kay (1833) and other travellers and explorers also recorded Khoi, Cape Nguni and Tswana medicinal uses of plants. A major nineteenth century contribution is that of Smith (1888) on the medicinal plants of the eastern Cape.

Twentieth century research can be divided into two phases, with the appearance of the second edition of Watt & Breyer Brandwijk (1962) as the watershed. During the first period many articles were published, mostly in scientific and medical journals, dealing with various aspects of medicinal plants, including: analyses of chemical composition and pharmacological action (Brandwijk & Watt, 1925; Frost, 1941; Jamieson, 1917; Lewis & Gibbs, 1921; Stephen-Lewis, 1936; 1938); poisonings due to the administration of medicines (Gordon, 1947; Juritz, 1915; Sapeika, 1944); and many general notes on plant-derived medicines. The latter include accounts of Tsonga medicinal plants (De Almeida, 1930), Zulu (Bryant, 1966; Mayr, 1906), Khoi (Dornan, 1924; Laidler, 1928), Ambo (Loeb, 1956), Tswana (Lebzelter, 1933), Ndebele (Watt & Van Warmelo, 1930) and South Sotho medicinal plants (Laydevant, 1933, 1939, 1943; Watt & Breyer Brandwijk, 1927a; 1927b; 1928).

Schapera (1930) recorded the use of 10 plants for protecting and healing cattle. Several anthropological works published in that period contain fairly good records of medicinal plant uses, for example, Ashton's (1952) work on the South Sotho, Junod's (1962) on the Tsonga, Mayr's (1906) on the Zulu and Stayt's (1968) on the Venda. Some botanical works also contain useful information (Miller, 1948; Phillips, 1917). Annotated checklists of plant names in the various languages also have notes on medicinal uses of plants. An example is Gerstner's (1938) checklist of Zulu names, based on an extensive collection of plants housed in the National Herbarium.

Other collections of medicinal plants in the herbarium are those of Alice Pegler, O. B. Miller, H. H. Curson, W. G. Barnard, W. J. Hanekom and, of course, J. M. Watt and M. G. Breyer Brandwijk.

The latter two people made the most important contribution to the study of medicinal plants in southern Africa. Besides producing several articles and making an extensive collection of medicinal plants, they collated all that was known on the subject up to 1932 in the 'Medicinal and Poisonous plants of Southern Africa'. In 1962 this was succeeded by the monumental revised and expanded second edition (Watt & Breyer Brandwijk, 1962).

Since then, there has been continued interest in medicinal plants. Tswana medicinal plants have been studied by Teichler (1971a, 1971b) and Reynecke (1971). This latter piece of work is a detailed account of medicine and magic, including much information on medicinal plants, their uses and preparation. A large collection of medicinal plants was made by Reynecke. This collection is housed in the National Herbarium.

Jacot Guillarmod (1971) includes in the list of plant uses in 'Flora of Lesotho' a large number of plants used for medicinal purposes by the South

Sotho. North Sotho medicinal plants have been recorded by Mönning (1967) and Hanekom (1967). Rose (1972(a)) has recorded the use of some *Senecio* species as medicines and Ngubane (1977) gives a few examples of medicinal plants and their preparation. Liengme (1981) includes a number of plants used medicinally by the Tsonga. Some Herero medicinal plants are discussed in Malan & Owen-Smith (1974).

Two recent collections of medicinal plants in the National Herbarium are those of R. J. Rodin (Ambo) and J. W. Snyman (Tswana).

In general, the medicinal use of plants of most of the cultural groups has been reasonably well studied, particularly that of the Zulu and South Sotho. The Venda, Tsonga and North Sotho of the Transvaal and the Swazi warrant some research. Two groups for whom very little is known regarding medicinal plants are the Khoi and San.

Other aspects of plant utilization have received far less attention than these first two.

MAGIC, RITUAL AND CUSTOMS

Although not always clearly separated from medicinal uses, magical uses are here dealt with as a different aspect of plant use. Magic trees of the Bantu are dealt with by Friede (1956) and Watt (1956), and plants used in Cape Nguni magical charms are touched on briefly by de Jager (1963) and de Lange (1961). Rituals often involve the administration of magic medicines and some of these are recorded for the Tsonga (Johnston, 1972), the South Sotho (Laydevant 1932; 1939), the Ambo (Loeb, 1955) and the Tswana (Schapera 1932). Other ritual uses of plants are mentioned very briefly in Kuper (1944) and Schoeman (1937) (Swazi) and Willoughby (1905) (Tswana). Rainmaking ceremonies involve plants, too (Dornan, 1929; Schapera, 1971). Specific plants are customarily associated with twins, as recorded by Cook (1927) for the Cape Nguni and Dornan (1932). There are also a few records of sacred plants in the literature. Dicke (1926) discusses a Venda sacred plant; Laydevant (1946) Sotho sacred plants. Customs protecting trees are discussed by Ferreira (1948).

Some of the sources referred to under medicinal uses also include information on magical uses of plants, e.g. Jacot Guillarmod (1971), Gerstner (1938), Miller (1952), Reynecke (1971) and Stayt (1968).

BUILDING

In a compilation of records on Cape Nguni (Xhosa) settlement, Shaw & Van Warmelo (1972) include a few references to plant materials used in building huts, fences and stockades. Many of the early accounts included in the compilation only describe these structures and sometimes give the building materials as 'wood' or 'grass'.

The few other records that exist include a detailed account of the materials used to build a dome-shaped grass hut in Natal (Knuffel, 1973), a discussion of Tswana thatching grasses (Van

Voorthuizen & Odell, 1976), accounts of Tswana building (Van Voorthuizen, 1976; Snyman, 1977) and Malan & Owen-Smith's (1974) notes on Herero building. Some botanical sources contain relevant information, e.g. Palmer & Pitman (1972).

R. J. Rodin's Owamboland collection, housed in the National Herbarium, includes plants used in building.

HOUSEHOLD UTENSILS AND IMPLEMENTS

Hunting and fishing equipment

The hunting equipment of the San is to a large degree made from plant materials and some of these are discussed in a number of publications on San subsistence ecology (Lee, 1965; 1972; Silberbauer, 1965, 1972; Steyn, 1971; Story, 1964; Tanaka, 1976) and also briefly in Dornan (1975). Plants providing arrow poisons have long attracted the attention of researchers and records of these are well documented in Shaw, Wooley & Rae's (1963) review of San arrow poisons.

For the Bantu, there are a few references to the use of plants for spears and knob-kieries in the standard anthropological works (e.g. Junod, 1962; Mönning, 1967; Stayt, 1968). Herero weapons are included in Malan & Owen-Smith (1974). Fishing equipment of southern African people in general is discussed by McLaren (1958). Tinley (1964) gives a detailed account of plants used to manufacture Tonga fishing equipment. Trees used for making canoes in the Okavango Delta are listed by Larson (1975).

Baskets and mats

Some plants used for mats and basketry are mentioned in anthropological works, but more often than not the materials are only identified as 'grasses', 'lianas' and 'reeds'.

Gerstner (1938) lists some plants used by Zulu, as do McLaren (no date), Steer (1980) and Grossert (1968), who also discusses some taboos regarding these plants. Shaw & Van Warmelo in their review of Cape Nguni crafts list some of the plants used in basketry. A few basketry-plants used by the Tswana are mentioned by Lamprecht (1976); some used by the Tsonga are given in Liengme (1981); whilst Malan & Owen-Smith (1974) includes some Herero basket-plants. Jacot-Guillarmod's (1971) 'Flora of Lesotho' contains considerable information on this aspect of plant use.

There are a few collections in the National Herbarium; two important ones being those of W. G. Barnard (North Sotho) and R. J. Rodin (Ambo). Miss E. M. Shaw of the South African Museum has been studying basketry for many years and has collected a lot of information on plant materials used.

Wooden utensils and implements

Malan & Owen-Smith (1974) give a good deal of information on the various woods used for household purposes by the Herero. Ferreira (1928) and Van Voorthuizen (1976) mention a few woods

used by the Tswana; Gerstner (1938) includes woods used by the Zulu and Shaw & Van Warmelo (1974) contains a list of some woods used by the Cape Nguni. Swazi and Tsonga use of woods are mentioned in Codd's (1951) book on Kruger National Park Trees, and more information on Tsonga wood use for household purposes is given in Junod (1962) and Liengme (1981). Palmer & Pitman (1972) has a lot of general information on the subject.

Unpublished information has been gathered by Snyman, and in the National Herbarium are collections by R. J. Rodin and E. M. Loeb. Lindsay Hooper of the South African Museum has recently completed a review of wood-working amongst the Nguni groups.

Miscellaneous other household uses

Plant-derived dyes used by the Zulu are listed in Mtshali (1927), Nixon (1942) and Xaba (1923).

Cosmetic uses of plants are briefly mentioned by De Lange (1963), Jacot Guillarmod (1971) and Gerstner (1938). The cosmetic plants of the Ambo and Herero are dealt with in some detail in Loeb, Koch and Loeb (1956) and Malan & Owen-Smith (1974) respectively.

Beads, oil, soap, toys, clothing and ornaments are other uses of plants which are occasionally recorded, e.g. in Malan & Owen-Smith (1974), Snyman (no date), Jacot Guillarmod (1971) and Gerstner (1938).

The cultivation and use of calabashes (*Lagenaria siceraria*) by the Nguni groups is well documented by Böhme (1976), and a few of the plants used in skin-working by the Zulu and North Sotho are recorded by Vaughan-Kirby (1918) and Shaw & Böhme (1974).

MUSICAL INSTRUMENTS

R. P. Kirby, in his many years of work on African music, noted several of the plant materials used in making musical instruments (Kirby, 1932, 1934, 1943). In a paper on reed flute ensembles (Kirby, 1933) he discusses the taboos and rites involved in the cutting and making of Venda bamboo flutes. Van Warmelo (1932) also has some notes regarding this. San musical instruments are discussed by Nurse (1972) and Tswana instruments by Wood (1976). A few plants used in Tsonga musical instruments are recorded by Junod (1962) and Liengme (1981). Jacot Guillarmod (1971) includes a few plants used by the South Sotho.

FIREWOOD AND FIRESTICKS

This aspect of plant utilization is often overlooked. There are some references to woods avoided as firewood for various reasons (Ferreira, 1949; Friede, 1953) and a few to woods used, and even preferred, as fuel (Snyman, no date; Malan & Owen-Smith, 1974; Jacot Guillarmod, 1971; Best, 1979; Liengme, 1981). De Vaal (1942) mentions a few woods used by the Venda for iron-smelting. Woods used to start fires (fire-sticks) by the Herero are given in Malan &

Owen-Smith (1974). Friede (1979) has gathered together numerous scattered records of fire-sticks.

SUMMARY OF USES

Medicinal and food plant uses of most of the indigenous peoples have been, on the whole, well documented. An exception are the Khoi, for whom little has been recorded since the early travellers in the Cape like Campbell and Burchell.

Some magic, ritual and customary uses of plants of a number of the cultural groups have been recorded, but no one group has been well researched, except perhaps, the Tswana.

Plants used in all the various aspects of the material culture of the different peoples are, in general, poorly researched. Some plants used in building, basketry, wooden utensils and household implements, musical instruments and various other uses like dyes and cosmetics are recorded for most of the cultural groups; but there are few substantial accounts of these.

FOLK TAXONOMY AND PLANT LORE

Many plant names in the various languages have been collected. These are generally incorporated in the various dictionaries (e.g. Cuenod, 1976; Doke & Vilakazi, 1964; Van Warmelo, 1937) or are published in botanical works (e.g. Compton, 1966; Jacot Guillarmod, 1971). Several lists of vernacular plant names have also been published on their own (e.g. Beyer, 1920; Gerstner, 1938; Paroz, 1962). There are also unpublished lists of names (Henkel, Tait & Edwards, no date; Baumbach, 1966; Snyman, no date). A computer search of the National Herbarium data bank has produced a large pile of print-out that still has to be looked through.

There have been few studies of the principles of plant classification and naming. Junod (1962) has a short discussion of Tsonga classification and Malan & Owen-Smith (1974) touch on Herero folk taxonomy.

A detailed account of folk botany and plant lore of the !Ko San is given in Heinz & Maguire's (no date) paper on !Ko ethnobiology. They discuss not only nomenclature and taxonomy but also recognition of plants and conceptualization of botanical phenomena.

MAN-PLANT INTERACTIONS

In their account of Herero ethnobotany, Malan & Owen-Smith (1974) discuss some of the effects of plant utilization by man on the environment. This is the only account of this aspect of ethnobotany. There are at present two projects being undertaken on wood utilization and its effects — one amongst the Tsonga of north-eastern Transvaal and the other amongst the Zulu of northern Natal.

DISCUSSION AND CONCLUSIONS

The primary focus of ethnobotanical research in southern Africa has been on identifying plants that

have uses, with the concomitant recording of the vernacular names of these plants. This review has shown that it is only medicinal and food uses of plants that have been well-studied, and that all other aspects of plant use require additional research. This is not to say that there is nothing new to learn regarding medicinal and food plants — the diversity of both vegetation and peoples in southern Africa implies a potentially vast amount of information to be recorded.

Of the aspects of plant use requiring research, it is the many and diverse uses of wood that most need investigation; for example woods used in traditional musical instruments need to be recorded, since these are rapidly being replaced by instruments made of materials other than wood, or by modern instruments.

Those peoples for whom little is known regarding plant use are the Swazi, Transvaal Ndebele, Mpukushu (of the Okavango Delta) and the Khoi. The latter are, fortunately, now the subject of a research project by anthropologists at Stellenbosch University. The other three abovementioned cultural groups need considerable research. Continued recording of plant uses is, of course, also desirable for the other, better-studied, cultural groups. Projects at present being undertaken in Botswana and the northern coastal plain of Natal will greatly augment our knowledge of Tswana and Tonga plant utilization respectively.

Since research on folk taxonomy and plant-man interactions is precluded by the need to identify those plants that have uses, it is not surprising that so little work has been done on these two aspects thus far. The field is wide open and there is a lot of potential for research.

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