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Use of medicinal plants: Kenya



BACKGROUND AND JUSTIFICATION

More than 80 per cent of the people living in Africa depend on plant- and animal-based medicines to satisfy their health-care requirements. In Kenya, 90 per cent of the population have used medicinal plants at least once. Among the main reasons for this dependence on medicinal plant resources are rural people's lack of access to modern medical services, the high costs of these services and medicines, and the holistic and cultural values that rural communities attach to traditional plant cures.

Many indigenous plants have been scientifically tested and found to have medicinal properties that can be used in Western-style medicine. Such cures are particularly suitable for use in rural communities as inexpensive, sustainable and culturally appropriate alternatives to more expensive conventional treatments. As a result, ethnomedicine is being promoted and supported as a way of providing efficacious medicines for people in less developed areas.

However, the systematic use of natural plant resources for rural communities faces several challenges. For a start, environmentally damaging practices such as forest clearance for agriculture, uncontrolled burning, timber logging and livestock grazing all destroy the habitats in which medicinal plants flourish. Local people's supplies of medicinal plants are also being reduced by

competition with large-scale commercial harvesters, who extract the plants for export to pharmaceutical companies in other countries. In addition, many of the most useful species are vulnerable because they reproduce slowly, are slow growing or have very limited distributions and require very specific habitats.

DESCRIPTION

Gastrointestinal diseases are among the most common health problems faced by people in Kenya and the tropics in general and account for a significant share of the region's deaths and morbidity. As with many other health issues, this problem is particularly acute in rural areas.

Makueni district covers about 7,440 square kilometres in the Eastern province of Kenya and has a population of 850,000. The provision of health facilities in this district is considered inadequate, with five hospitals, 30 dispensaries, 25 health centres and a doctor-to-patient ratio of 1:162,000. Rainfall in the district varies according to altitude but is generally low. However, a previous study of Makueni district has shown that the area is home to some 66 plant species of ethnomedical interest. These species come from 55 different genera and 30 families.

The first step in this University of Nairobi-funded project was to distribute a questionnaire survey to collect information about how local people use medici-

nal plants. Among other questions, respondents were asked to nominate the two most reliable herbalists in their administrative division. The most frequently mentioned herbalists were then interviewed and asked to act as field guides throughout the project's data collection activities. Specimens of the plant materials collected were identified and analysed at Nairobi University and East African herbaria, where voucher specimens were deposited. In addition, respondents provided information about which plants they used, which gastrointestinal illnesses they treated with these plants and how they used the plants as cures.

The results showed that diarrhoea was the most prevalent condition and 32 per cent of the remedies mentioned were used to treat it. Stomach ache and colic followed, with 29 per cent of the remedies; dyspepsia accounted for 17 per cent; amoebic dysentery for 16 per cent; constipation/flatulence for 5 per cent; typhoid fever for 2 per cent; and general stomach problems accounted for 2 per cent of the cures cited. (Note: these numbers add up to more than 100 per cent because some remedies are used to cure more than one type of ailment.)

Leaves, stem and bark were the most frequently used parts of the plant, accounting for 33 per cent of the plant remedies cited. Roots accounted for 30 per cent, while use of whole plants accounted for only 4 per cent of the cures. Most remedies were taken in the form of infusions (54 per cent) and

decoctions (33 per cent), while the rest were chewed so that the sap could be swallowed (13 per cent).

LESSONS LEARNED

The scientists working on the survey were surprised to find that traditional herbal practitioners tend not to cultivate some particularly valuable medicinal plants. When questioned about this, the practitioners replied that many important plants cannot be cultivated because they require very specific habitats, they are very slow growing or viable seeds for planting are not available. In some cases, the increasing scarcity of land has made it impossible to continue the cultivation of certain species.

On the other hand, herbal practitioners are able to grow some species in their home gardens. Most of these species are succulents or have seeds that are easy to propagate. Among the species that can be cultivated are:

- *Adenia gummifera*, a climbing shrub from the passion flower family (Passifloraceae). Stem cuttings are boiled or soaked in water and the infusion used to treat peptic ulcers and diarrhoea;
- *Aloe secundiflora*, a succulent plant and relative of the medicinal *Aloe vera* (Liliaceae). Root suckers are crushed and soaked in water to provide a treatment for diarrhoea;
- *Kleinia squarossa*, a shrub in the daisy (Compositae) family. Stem cut-

tings are boiled and the decoction drunk to treat peptic ulcers and other stomach problems; and

- *Plectranthus cylindraceus*, a herb or shrub in the mint family (Labiaceae). Stems, leaves and roots are boiled, crushed or soaked in water and used to treat peptic ulcers, constipation and flatulence.

Among the species used but not cultivated in gardens is another member of the genus *Plectranthus*, *P. barbatus*, the leaves, roots and stems of which are crushed and soaked in water or chewed. The resulting infusion or the juices released by chewing are said to cure stomach ache, peptic ulcers, diarrhoea and even amoebic dysentery. Other species were considered too difficult to cultivate because they either had specific habitat requirements (*Securidaca longipendunculata*, violet tree, Polygalaceae), grew too slowly (*Ximenia americana*, the monkey plum or tallow nut, Olacaceae) or viable seeds were unavailable (*Zanthoxylum chalybeum*, prickly ash, Rutaceae).

Another problem identified by the scientists was the long distances that herbalists, vendors and other plant users had to travel in search of plant materials. This is the result of over-exploitation of plant resources through poor harvesting methods, which causes species to become threatened or vulnerable. To help tackle this issue, the World Conservation Union (IUCN) population reduction criteria were applied to identify the threat categories of seven species: three were categorized as locally vulnera-

ble; one as widely vulnerable; and three, including *Z. chalybeum*, as widely threatened. Suitable practices for the conservation and sustainable use of these species can now be developed and introduced.

FUTURE PLANS

Most of the herbal preparations used for gastrointestinal and other conditions have no side effects, or far fewer side effects than conventional medicines. However, scientists working on the study noticed that local communities are progressively losing their traditional knowledge of indigenous plant medicines. In many cases, older generations are no longer transmitting their knowledge and experience to younger ones. The scientists also noticed that traditional herbal practitioners were reluctant to share their expertise. Much of this reticence stems from a fear of being exploited by outside interests—such as the international pharmaceutical companies that harvest local plants for use in expensive, commercially produced medicines without paying much heed to the communities whose resources those plants are. In fact, many of the plants that are either threatened or vulnerable are those that are most sought after for trade both within and outside the district. Among these are species of *Aloe* as well as *X. americana*, *Z. chalybeum*, and *Zanba africana* (Sapindaceae). Therefore, one of the most pressing needs is to develop appropriate ways of propagating these species so that they can be cultivated and

dwindling natural supplies can be conserved and maintained. In conjunction with field excursions and observations, a list of other priority species for conservation was also derived from a literature survey of the most-traded medicinal plants from the region.

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