Utilization and Commercialisation of Medicinal tree products in Tanzania.

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Abstract

Tanzania has a very rich flora of more than 10,000 species of which 1000 plant species are used in traditional medicine. About 80% of rural people depend on traditional herb for their primary health care needs. High rates of deforestation and over harvesting of barks and roots have diminished supply of medicinal tree products and some species are almost disappearing. Information on the tonnage of medicinal tree parts harvested, used and traded does not exist.

Ethnobotanical studies showed that there are 300 tree species in miombo woodlands treating 100 diseases, 405 species treating 120 diseases in the Eastern ARC Mountains. Some of the medical trees species have multipurpose uses. Domestication of traditional medicinal trees, processing, drug development, establishing, data bank and existence of effective policies and legislation, are some of the interventions for sustainable supply of medicinal products.

Introduction

Tanzania is endowed with a rich terrestrial flora of more than 10,000 species most of which are endemic species. This is due to the existence of a wide range of ecological conditions, which provides conducive environment for many species of plants and animals. Five phytogeographical regions exist in Tanzania (Mbuya et al. 1994; Ruffo. 2002). The Afro-montane region covers the high mountain areas including the eastern arc mountains, which are known to be rich in species diversity and endemism. The other regions include the lake basin, which covers areas around lake Victoria and Lake Tanganyika; the Somali – Masaa region covering the central and northern parts of Tanzania. The Zambezan region covers much of the Western and Southern parts of Tanzania predominantly covered by miombo woodlands. The Zanzibar – Inhambane region consists mostly of coastal forests, woodlands and thickets (Figure 1). According to Mahunnah (1990) these phytogeographical zones contain about 1000 plant species, which are used in traditional medicine. However this rich resource has been reported to diminish with time. According to MNRT (1998) report, the rate of deforestation in Tanzania is estimated at 130,000 – 150,000 hectares annually.

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Ethnobotanical Studies

In response to the reduced occurrence of medicinal trees species particularly in the miombo woodlands and the eastern mountains, ethnobotanical surveys were initiated to document the wealth of knowledge on medicinal trees and evaluate ways of integrating them into existing farming systems. In the miombo woodlands, Dry et al (1999) reported over 300 tree species in Shinyanga region used for treatment of more than 100 diseases. While in Tabora region, a total of 127 plant species were identified as medical plants used for treatment of 68 human diseases (Ruffo 1989). On the other hand, Mahunnah et al (2002) identified about 405 plant species in the Eastern Arc mountain region treating 120 diseases and conditions. Hamisy et al (2002) working in the Ulunguru mountains of the Eastern Arc mountain region reported about 144 plant species used for treatment of 68 human, animal and crop diseases. These studies revealed also that some of the medicinal plants have multipurpose uses including edible fruits, fuel wood, timber and fodder. This is in line with earlier studies on use of multipurpose trees (Karachi et al 1991, Mbuya et al. 1994, Ruffo et al 2002) and indigenous fruit trees (Swai et al 2000) as source of traditional medicine.

Use and Trade of Medicinal tree products.

Despite the fact that the Government of Tanzania has tried to bring modern health services close to people in the rural villages, it is estimated that over 80% of rural people still depend on traditional healers and traditional herbs for their primary health care needs (Ruffo, 1989; Marshall, 1989; Mahunnah, 1990; Mshiu et al. 1990).

Reliance on traditional medicine is partly due to the high costs and unavailability of conventional medicine. The presence of competent Traditional Health Practitioners in both urban and rural areas (Mahunnah et al 2002) and the cultural beliefs (Marshall 1998) have forced people to believe that the traditional medicine are more appropriate methods of treatment.

The main source of medicinal trees is the uncultivated land with the protected forest reserves. The high rates of deforestation in Tanzania coupled with booming trade in traditional herbs have diminished their supply in the natural forests. Some of these medicinal trees are so over harvested that they are almost extinct in some regions like Shinyanga. Dery et al (1999) identified Securidaca longipedunculata, Zanha africana, Cassia abbreviata, Entada absynctic, Turraea fischeri, Albizia anthelmintica, Entandrophragma bussei and Zanthoxylum chalybeum as most threatened medicinal trees in miombo woodlands. While Hamisy et al (2002) recorded Abrus precatorias, Octea usambareensis, Ocimun suave, Senna petersiana Dissotis rotundifolia, Vangueria infausta, Senna hirsuta and Landolphia buchananii as the most over harvested in the Eastern Arc of mountain area. According to Dery et al (1999) and Ruffo (2002), roots and barks are the most harvested parts of the medicinal trees and thus detrimental to the survival of plants. Harvesting barks and roots from forests is unregulated and indiscriminately and thus not sustainable. Harvesting is done by traditional healers themselves or by collectors who later sell them to traditional healers and vendors. Harvested barks and roots which are not for immediate usage, are cut into pieces and sun
dried. Later stored by tying them into bundles and hang them, or pounded into powder and stored in plastic or glass bottles, earth pots or gourds. Information on the tonnage of medicinal tree parts harvested, used and traded does not exist.

Although collection and trading in medicinal tree parts is supposed to be regulated through the Forest Ordinance Wildlife Conservation Act of 1974, the concerned government agencies have failed to enforce the control due to ineffective policies and legislation. Like wise, international trade in medicinal plants is regulated by the Tanzania Pharmacy Board. However, no information exists on trade level nor species traded, although it is known (not official) that barks of *Prunus africana*, extracts of Aloe, Osyris and many others are exported.

**Interventions and Opportunities**

1. Domestication of traditional medicinal trees.  
   Reliance on the natural forests as source of traditional medicine is not sustainable. Some work is in progress in Tanzania by SADC/ICRAF Agroforestry Programme to domesticate priority medicinal trees in order to increase their availability by growing them on farm and thus reducing pressure on wild tree population, raise income and contribute to better health care (Swai et al 2002). Achievement reached so far include, identification of priority traditional medicinal tree species for improvement and domestication in Shinyanga and Tabora (Dery et al 1999) collection and evaluation of germplasm of priority species on station and on farm with traditional healers (Swai et al 2002). Experimental farms have also been established by the National Traditional Medicinal Research Centre in four zones of the country (Mahunnah 1990).

2. Evaluation of Medicinal Properties  
   According to Mahunnal et al (2002), 217 medicinal tree species have been screened chemically for alkaloids, bacterial, antifungal, anticancer, antidiabetic, anthypertensive and antihelmintic properties. Similar work is on progress at the Department of Chemistry in the University of Dar es Salaam (Mayunga et al 1990; Khan and Nkunya 1990)

3. Processing and Drug Development  
   Processing of medicinal plants at village or community level will promote production and utilization of medicinal plants. In Tanzania products like ‘Ngoka 11’ and ‘Ngetwa’ have been produced by small scale processors and marketed throughout country unfortunately, most of the local pharmaceutical industry import all their requirement of raw materials (Mahunnal 1990).

4. Establishment data Bank  
   There is need to take inventory of research and development work in medicinal plants, existing facilities and expertise in Tanzania and elsewhere to facilitate coordination, sharing of information and germplasm and promoting joint venture in Africa.
Conclusion

The need to exploit fully the existing potential of medicinal plants in Tanzania need not be over emphasized. Presently not much is know of the distribution, quantity and ecology of the medicinal plant species. Further ethnobotanical studies and mapping of the medicinal plants is necessary for economical exploitation. On the other hand, to secure sustainable supply of medicinal products, there is need to consider, developing appropriate propagation and under structive harvesting techniques. Processing, drug development and establishment of markets will give value to the traditional medicinal products. Conservation of the rare medicinal plant species should also be considered plant species should also be considered in the process of exploitation.
Figure 1: The main phytogeographical regions of Tanzania

Source: Stuart et al. 1990
Reference


