# CONSERVATION OF MEDICINAL PLANTS THROUGH COMMUNITY PARTICIPATION; A CASE STUDY IN KUMBIYANGODA IN MATALE DISTRICT

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## INTRODUCTION

Sri Lanka has been identified as one of the 25 global biodiversity hot spots of international importance (Myers, 2000). It contains high biodiversity of medicinal plants. Out of 4,143 flowering plants more than 1,400 species are medicinal. Out of them 200 species of medicinal plants are in common uses, while 50 are heavily used in Ayurvedic and traditional health care systems. Sri Lankans use medicinal plants in rituals, cultural activities and in religious functions. From 1998 to 2003 Sri Lanka made an appreciable effort to conserve its medicinal plant resources and the related indigenous knowledge through practicing both in-situ and ex-situ conservation methods (IUCN 2004). It also supported for providing avenues for income generation. But due to bad land use practices and over utilization, medicinal species are becoming increasingly rare and under threat of extinction. Currently large numbers of rural women are engaging in the cultivation and production of medicinal and herbal plants as an income-generating activity at household level due to the high demand of herbal treatments in the country. But in some places where high percentages of medicinal plants exist, lack information on community participation programs. Hence, the present study mainly focused to find out whether the communities are engaged in cultivation and conservation of medicinal plants at household levels or not. The study also intended to plants identify the most useful medicinal plants for the community of Kumbiyangoda in Matale district and the threats created by the community on these plants.

## MATERIALS AND METHODS

Kumbiyangoda in Matale district which is in the Central province was selected as the study site. This research project was carried out from mid October 2010 to January 2011. The ethnobotanical survey was designed to salvage, as much as possible, the traditional knowledge on the use of plant species in healthcare and medication. Data were collected from 3 Ayurvadic medical centers, Ayurvadic practitioners and 100 households. A structured questionnaire was given to randomly selected 100 individuals to find out the utilization pattern and potential of cultivation of medicinal plants by the people. The information of indigenous knowledge was gathered by interviewing the Ayurvedic practitioners and elderly people in the village. Most useful medicinal plants, the threats created by the community and the present conservation practices were identified from the questionnaire. An ethnobotanical survey was conducted to find out the diversity of medicinal plants in the study area. Identification of medicinal plants was done by the preparation of herbarium and with the help of Ayurvedic practitioners. Data were analyzed using SPECDIV version 1.3 and comparison was made using Minitab version 14.

## RESULTS AND DISCUSSION

### Species composition

A total of 89 medicinal plants (belong to 42 families) were identified. Out of them 34 were trees, 08 were shrubs, 15 were vines and 32 were herbs. Fifteen were common species to home gardens and medical centers (Figure 1). Out of these 15 species, *Curcuma longa* (13%) had the highest abundance while *Punica granatum* (2%) showed the lowest abundance among medicinal plants.

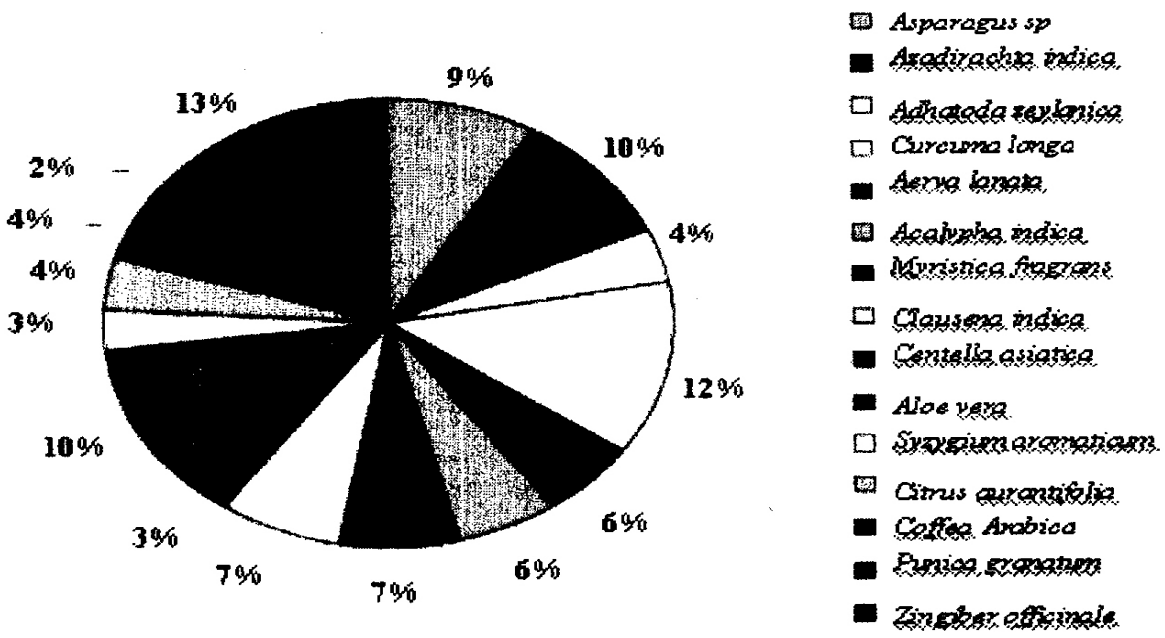


**Figure 1 - Abundance of most common medicinal plants**

Four species namely *Zingiber officinale, Curcuma longa, Aloe vera* and *Asparagus* sp. are the most abundant medicinal herbs in home gardens because they are easy to grow. Forty two plant species are less abundant and found in few home gardens. Uncommon and rare plants are *Jatropha podagrica*, *Datura metel* (Attana), *Pterocarpus marsupium* (Gammalu) and *Premna obtusifolia* (Heen-midi).

There were 6 species identified as threatened. Out of six *Vetiveria zizanioides* has the lowest abundance while *Cyperus rotundus* is highly abundant. Other rare species such as *Desmodium gangeticum, Plectranthus amboinicus, Plectanthus zatarhendi* and *Vernonia cinerea* are present in average.

*Adenanthera pavonina, Allophylus cobbe, Alocasia macrorrhiza, Artocarpus heterophyllus, Coffea arabica, Elaeocarpus serratus, Macaranga peltata, Myristica fragrans, Piper nigrum, Sysygium aromaticum* are common to the both disturbed and undisturbed area. According to the Shannon Diversity index both undisturbed area (H'-2.89) and disturbed area (H'-2.71) did not show much difference. However, the species richness in undisturbed area was higher than that of disturbed area.

**Community participation in medicinal plant cultivation**

The willingness to cultivate medicinal plants varied with the age of the individuals. The highest willingness was shown by the 16-30 age category while the lowest was shown by the >50 age category. The reason for the unwillingness to grow medicinal plant was unawareness of the importance of

these species and lack of resource materials. There are only 3 ayurvedic practitioners in the area collecting medicinal plants from home garden for treatments.

**Threats and conservation**

Soil erosion, cutting trees, cattle ranching, agricultural practices, fire, and poor caring are the main threats. Existing conservation practices in home gardens are, using pots to plant *Curcuma longa, Zingiber officinale* and *Aloe vera*. In some houses disposable materials such as tires, cups are use to plant medicinal plants. Conservation practices were done only for common plant species like *Curcuma longa*, *Zingiber officinale* and *Aloe vera*. Seedlings and seeds were obtained taken from Department of Agrarian Services by some people. Medical officers in Thenna Ayurvedic medical center extended support for home garden cultivation of medicinal plants, by providing knowledge and guidance.

## CONCLUSION

The knowledge on medicinal plants is very poor in the study area. Six species were identified as threatened and *Vetiveria zizanioides* is the lowest abundant species in the study area. Women are willing to cultivate medicinal plants than males. Individuals in 16-30 age category are highly interested in the cultivation of medicinal plants in this area. No measures have been taken for the to conservation of rare medicinal plant species. Most threats are being creating by the people. Eighteen percent of the villagers are currently engaged in cultivating medicinal plants in their home gardens. It is recommended that integration of medicinal plants into their farming systems seems possible to derive economic benefits to the local community while conserving them. Conservation practices include conducting awareness programs, ex-situ conservation; create awareness of the need and the role of men and women in medicinal plant cultivation and highlighting benefits to the entire community.

## REFERENCES

IUCN 2004, *Medicinal plants*, Conservation and sustainable use in Sri Lanka. Key notes, No 6.

Myers, N 2000, Biodiversity hotspots for conservation priorities, pp. 853-858.