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Ethnobotany and Socio economic status of Inhabitants in Siruvani Forests of Coimbatore, Tamil Nadu

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Abstract

This paper elucidates the empirical findings of an ethnobotanical survey and the socio economic status of forest dwellers in Siruvani Forests of Coimbatore District, Tamil Nadu, India. Data collection was carried out and about 40 respondents were interviewed using structured questionnaire composed of variety of questions regarding ethnomedicinal uses of plants of the study area. A total of 24 plant species were herbs followed by 16 trees. In total, 60 plant species were medicinally used to treat variety of diseases such as cuts and wounds, stomachache, headache and body pain. The study area is rural in nature and the inhabitants are highly dependent on the native plants for their health care needs and other requirements like fuel wood and fodder due to financial constraints and unavailability of resources. The local medicinal flora is facing over-exploitation, overgrazing and improper way of collection. Proper conservation strategies such as controlled grazing and reforestation among inhabitants may be adopted to promote the sustainable use of medicinal plants.

1. Introduction

Plants are a vital source of traditional medicines that are used for the treatment of various ailments (Bako et al., 2005). Approximately 4,22,000 flowering plants reported from the world, more than 50,000 have been used worldwide for medicinal purposes (Walter and Hamilton, 1993). Our country is the richest countries in the world in relation to genetic resources of medicinal and aromatic plants with 11% of the total known plants having medicinal properties (Vohora, 1992). These plants play a vital role in the development of healthcare products for the mankind as well as strengthening the economy of a nation.

In the field of medicine, abundance information on the popular use of plant is available and studies continue to appear showing the high number of wild plants with medicinal use in Indian Community (Carbono, 1995). The knowledge of medicinal plants has been accumulated in course of many centuries based on the different medicinal systems such as Ayurveda, Unani and Siddha in India. Today, there are about one and half million traditional healers of the Indian system of medicine used medicinal plants and their materials for various curative applications (Thurston, 1909).

An unambiguous and diversified floristic wealth in the Indian sub-continent sustains an amazing plant and ethnic diversity. There are about 400 different tribal communities and ethnic groups in India (Jain et al., 1991), majority of them rely on wild collected plants for food, fodder, medicine and many other purposes. Each and every tribe have their own prescriptions to cure various diseases and ailments. These tribes are generally familiar about plant species in the vicinity

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of the dwellings and possess ample knowledge about their availability and utility.

The indigenous knowledge of herbal plants of tribal communities where it has been transmitted orally for many years is fast disappearing due to the transformation of traditional culture. As the local healers did not document their knowledge and experience, and did not pass it on to others readily, there was danger of extinction of that knowledge (Mathias & Anjaria, 1998). There are many vanishing cultures that possess a wealth of knowledge on the utilization and conservation of plants. The present study was conducted in Siruvani Forests, Coimbatore District where agriculture is negligible and hence most people are dependent on the wild sources for different ethnobotanical purposes. Many studies have been conducted on the indigenous uses of medicinal plants in Coimbatore (Ramachandran & Manian, 1991; Rajendran & Henry, 1994; Balasubramanian et al., 1997; Senthil Kumar et al., 2006; Pandikumar et al., 2007; Uma Priya et al., 2011) but investigated area is still unexplored. Therefore, a need was felt to document and conserve the traditional knowledge of the area before the information is lost forever. Hence, the present study aimed to explore the traditional knowledge, possible threats and conservation strategies with respect to the local flora.

2. Materials and Methods

2.1. Study area

Siruvani hills is situated in the foothills region of the Western Ghats of Tamil Nadu, India (part of Western Ghats - 76 °33'' to 76° 46'' E and 11° 2'' to 10° 54'' N) lying 34 km west of Coimbatore City (Fig. – 1). The forest in the study area comes under the Southern Tropical Moist Deciduous type. The common agricultural cultivation present in the vicinity is sugarcane, paddy, cotton, banana and some millet's. The study area is divided into mountainous area, small hills and plains having most of clayey or sandy soil. The soil is reddish with irregular galleries filled with yellow clay running through its mass. The area receives good rainfall from both the Southwest and Northeast monsoons. The temperature ranges between 10°C during December and January and 40°C during March to May.

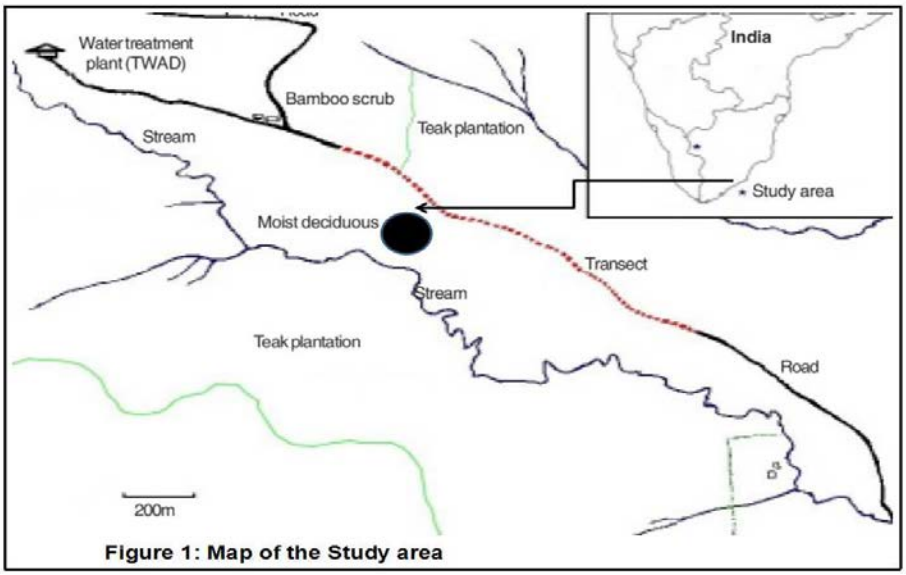

Figure 1: Map of the Study area

2.2. Informant selection

General information about the study area was collected before start of the research work. Medicinal plants grow in different seasons and therefore, ethnobotanical data was collected covering all the seasons. Data was collected in four trips, i.e. one in each season. Data collection and voucher specimens were collected following standard method of Jain (1991). In total, 20 native informants were selected as resource persons for data collection. Among all the informants, 17 were old age people (12 males and 5 females), which were aged between 50 – 70 years. Remaining 3 informants in which mostly male were below 30 years of age. The selected respondents were experts in field of medicinal plants and were having great reputation in the society about their knowledge on traditional medicines.

2.3. Data collection

Structured questionnaire was designed containing predefined questions about medicinal plants. Informants were asked about the local names of plants, ailment treated, part used, other uses beside medicinal, most commonly used plants. In addition, focus group discussions were also designed so as to gain further information on medicinal plants knowledge of the community and prove the reliability of the data collected through questionnaire. Interviews were conducted in the local language (Tamil) by visiting each respondent individually.

3. Results and Discussion

A total of 60 plant species belonging to 53 genera and 34 families were collected from the study area. All the species were identified and their ethnobotanical information was elucidated (Table 1). Out of 34 families, 6 were monocotyledons (Arecaceae, Poaceae, Liliaceae, Araceae, Zingiberaceae and Cyperaceae) and the remaining 28 families belonged to dicotyledons. The dominant family was Euphorbiaceae (4 species), followed by Solanaceae, Liliaceae, Apiaceae, Poaceae, Caesalpiniaceae and Amaranthaceae each were sharing 3 species.

Table 1: List of medicinal plants documented in the study area

Plant families	Plant species	abit	Part (s) used	Ethno-medicinal Uses
Acanthaceae	Hygrophila auriculata	Herb	Leaves	Leaves are pasted with onion and applied to cure arthritis.
Amaranthaceae	Achyranthes aspera	Herb	Leaves	Leaves are crushed and is smelled to cure headache.
Amaranthaceae	Alternanthera sessilis	Herb	Leaves	Leaves are cooked and eaten to improve eye vision.
Amaranthaceae	Amaranthus spinosus	Herb	Leaves	Leaves are cooked with salt and coconut oil and is eaten to cure urinary problems and body pains.
Anacardiaceae	Mangifera indica	Tree	Bark	Bark extract is taken orally for two days to cure stomach problems. Bark paste is applied on body swellings.
Apiaceae	Centella asiatica	Herb	Leaves	Leaves are cooked and eaten to improve

				memory and body health.
Apiaceae	*Coriandrum sativum*	*Herb*	*Seed*	*Seeds are boiled with water and is taken as bath to cure headache. The decoction of seeds and milk is given orally to cure stomach problems.*
Apiaceae	*Cuminum cyminum*	*Herb*	*Fruit*	*Dried fruit is boiled with water and is taken orally to cure chest pain.*
Araceae	*Colocasia esculenta*	*Herb*	*Stem*	*Stem is cooked with salt, onion, and coriander and is taken orally to expel stomach worms.*
Arecaceae	*Areca catechu*	*Tree*	*Fruit*	*Nuts are boiled with water and the extract is given with cure to cure dysentery and stomach problems.*
Arecaceae	*Phoenix humilis*	*Shrub*	*Root*	*Tuber is cooked and eaten to improve brain development*
Asclepiadaceae	*Pergularia daemia*	*Climber*	*Leaves*	*Leaf extract is given along with honey to cure fever.*
Asteraceae	*Spilanthes oleracea*	*Herb*	*Flower*	*Crushed flower is kept in tongue to increase saliva secretion.*
Basellaceae	*Basella alba*	*Climber*	*Leaves*	*Leaves are cooked and taken as vegetable to improve body health.*
Brassicaceae	*Brassica juncea*	*Shrub*	*Seed*	*Seeds are boiled with coconut oil and applied on head to cure fever and headache.*
Caesalpiniaceae	*Cassia fistula*	*Tree*	*Bark*	*Bark is boiled with water and the extract is given orally to cure stomach problems and body pain.*
Caesalpiniaceae	*Cassia tora*	*Shrub*	*Root*	*Roots are boiled with water and the decoction is taken to reduce fever.*
Caesalpiniaceae	*Tamarindus indica*	*Tree*	*Leaves*	*Leaf paste is applied on cuts and wounds.*
Combretaceae	*Terminalia bellirica*	*Tree*	*Bark*	*Bark paste is applied externally on body swellings*
Convolvulaceae	*Ipomoea batatas*	*Shrub*	*Fruit*	*Pod is cooked and eaten to cure diabetes.*
Cucurbitaceae	*Coccinia grandis*	*Herb*	*Stem*	*Stem is cooked with salt, onion and coriander and is taken orally to expel stomach worms.*
Cucurbitaceae	*Momordica charantia*	*Climber*	*Leaves*	*Leaf paste is applied on mouth to cure mouth ulcers. Fruits are cooked and eaten to expel stomach worms*
Cyperaceae	*Cyperus rotundus*	*Herb*	*Root*	*Bulb extract is taken orally to cure dysentery and stomach problems*
Dioscoreaceae	*Dioscorea alata*	*Climber*	*Root*	*Tuber is cooked and eaten to expel stomach worms*
Euphorbiaceae	*Phyllanthus*	*Herb*	*Root*	*Root extract is given with goat milk to*

	amarus			*cure jaundice.*
Euphorbiaceae	*Phyllanthus emblica*	*Herb*	*Bark*	*Bark extract is used to cure tooth problems.*
Euphorbiaceae	*Ricinus communis*	*Shrub*	*Seed*	*Seed oil is used to treat rheumatism and chest pain*
Fabaceae	*Dolichos lablab*	*Climber*	*Leaves*	*Leaves are boiled and the extract is given with lime juice to cure dry cough and throat problems*
Fabaceae	*Vigna mungo*	*Herb*	*Seed*	*Seed paste applied on chest to reduce pain.*
Lamiaceae	*Leucas aspera*	*Herb*	*Leaves*	*Leaves are crushed and smelled to cure headache and cold.*
Lamiaceae	*Ocimum tenuiflorum*	*Herb*	*Leaves*	*Leaf extract is heated well and is taken along with honey for three days to cure cold and cough.*
Liliaceae	*Allium cepa*	*Herb*	*Root*	*Bulb is boiled with coconut oil and taken orally to cure stomach ulcer.*
Liliaceae	*Allium sativum*	*Herb*	*Root*	*Bulb is boiled with gingely oil and eaten with rice to cure asthma.*
Liliaceae	*Aloe vera*	*Herb*	*Stem*	*Young stem is crushed and tied well on cuts and wounds.*
Malvaceae	*Sida acuta*	*Herb*	*Leaves*	*Leaves and roots are pasted and applied on wounds.*
Malvaceae	*Sida rhombifolia*	*Herb*	*Whole plant*	*Whole plant extract is used for rheumatism, arthritis and diarrhoea.*
Malvaceae	*Thespesia populnea*	*Tree*	*Fruit*	*Fruit paste is applied on cuts and wounds.*
Meliaceae	*Azadirachta indica*	*Tree*	*Leaves*	*Young leaves are eaten to cure stomach ulcer and worms. The leaf paste is applied on wounds*
Mimosaceae	*Acacia nilotica*	*Tree*	*Bark*	*Extract of bark is boiled with water and is used to clean teeth.*
Moraceae	*Artocarpus heterophyllus*	*Tree*	*Bark*	*Bark is boiled with water and the extract is used to cure tooth pain.*
Moraceae	*Ficus glomerata*	*Tree*	*Bark*	*Bark is boiled with water and the extract is taken orally to cure stomach problems and indigestion.*
Moringaceae	*Moringa pterygosperma*	*Tree*	*Leaves*	*Leaves are cooked and eaten as vegetables to improve body health. The bark paste is applied on wounds*
Musaceae	*Musa paradisica*	*Shrub*	*Root*	*Rhizome is cooked and eaten to cure urinary problems and the extract is used to cure stomach problems.*
Myristicaceae	*Myristica fragrans*	*Tree*	*Fruit*	*Fruit extract is taken with curd and given orally to for stomachache.*
Myrtaceae	*Syzygium cumini*	*Tree*	*Fruit*	*Fruits are eaten to treat diabetes.*

Piperaceae	*Piper betle*	*Climber*	*Leaves*	*Leaf extract is taken orally to cure cold and cough. Leaf paste is applied on chest to reduce pain.*
Piperaceae	*Piper nigrum*	*Herb*	*Seed*	*Seed powder is taken with honey to cure cold and cough.*
Poaceae	*Bambusa arundinacea*	*Shrub*	*Stem*	*Young shoots are cooked and eaten to improve body health.*
Poaceae	*Cynodon dactylon*	*Herb*	*Root*	*Root extract is taken in empty stomach to cure fever and body*
Poaceae	*Eleusine coracana*	*Herb*	*Seed*	*Seed is soaked with water and the paste is applied on chest to reduce pain and body heat*
Rutaceae	*Aegle marmelos*	*Tree*	*Leaves*	*Leaves are crushed with lime and tied well on wounds.*
Rutaceae	*Citrus medica*	*Shrub*	*Fruit*	*Fruit is crushed and tied on infected part on leg to cure pain*
Sapindaceae	*Cardiospermum halicacabum*	*Climber*	*Leaves*	*Leaves are cooked and eaten to cure stomach ulcer. The leaf extract is given with milk to reduce fever.*
Solanaceae	*Capsicum annuum*	*Herb*	*Leaves*	*Leaf paste is applied on wounds.*
Solanaceae	*Solanum nigrum*	*Herb*	*Leaves and Fruit*	*Leaves and fruits are cooked and eaten to cure stomach ulcer and expel stomach worms.*
Solanaceae	*Solanum surattense*	*Herb*	*Fruit*	*Fruits are cooked and eaten to cure stomach problems*
Solanaceae	*Solanum trilobatum*	*Herb*	*Leaves*	*Leaves are cooked and eaten to improve body health.*
Sterculiaceae	*Helicteres isora*	*Tree*	*Fruit*	*Nut extract is poured along with coconut oil to cure ear problems*
Verbenaceae	*Lantana camara*	*Shrub*	*Leaves*	*Leaves are crushed and the extract is used on wounds.*
Zingiberaceae	*Curcuma longa*	*Herb*	*Root*	*Dried rhizome paste is taken along with milk to cure stomach problems.*

Out of total plant species, 24 were herbs followed 16 trees, 13 shrubs and 7 climbers (Fig. 2). More over, out of the total 60 plant species, 48 were used for the preparation of various ethnomedicines, 8 as fuel wood and 4 were used as fodder species (Fig. 3). Mostly the leaves of 39% plant species were used for medicinal purpose followed by root (17%), fruit (17%), bark (12%), seed (8%) and stem (7%) (Fig. 4).

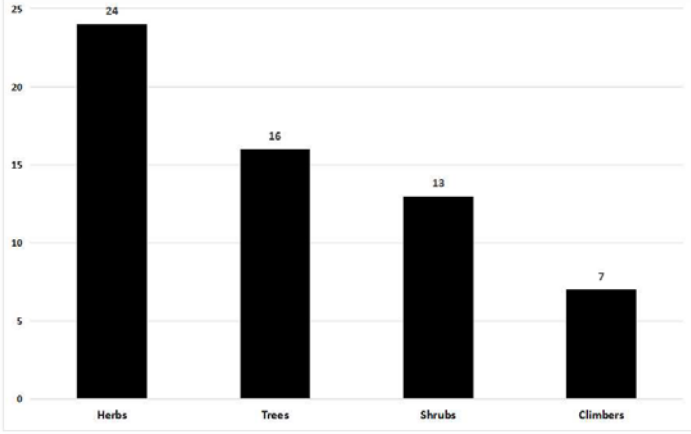

Figure 2: Classification of the plants on the basis of their habits

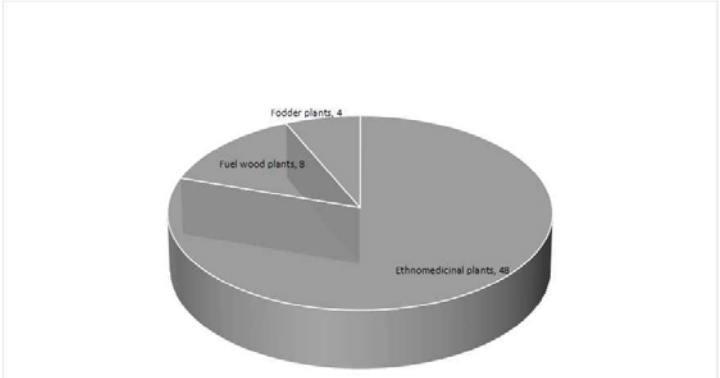

Figure 3: Ethnobotanical uses of plants in the study area

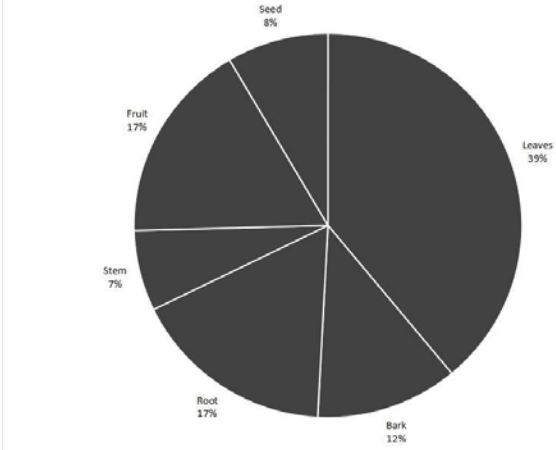

Figure 4: Percentage of plant parts used in traditional medicine

It was observed from the study that, all the remedies are administered by both externally and internally which includes oral, paste applying and inhalation methods. The ailments like skin diseases, cuts and wounds, swellings and inflammations were cured by external application and the internal consumption were also involved in the treatment of some of the ailments such as stomachache, dysentery, stomach ulcers and urinary disorders.

The study revealed that the local people are used mostly fresh plant materials for the preparation of remedies and the dried plant materials are also used in some of the remedies. These remedies were prepared either as single form or in combination with other plants. They are also prescribed to take along with milk, hot water, jaggery and honey. Most of the remedies are prepared in the form of extract / juice followed by paste, decoction, powder and from freshly collected plant parts.

The study also reveals that people of the area are much dependant on the native flora for acquiring their basic requirements such as medicines, fodder, fruits, vegetables, fuel, furniture and roof thatching. The local people utilize over 60 plants in their day to day life. All these species are the main sources of traditional health care needs and economic opportunity for the local people. Traditional healers of the study area mostly use herbs in the remedy preparation for the treatment of various ailments, which might be due to their strong therapeutic activity and easy extraction from the wild.

It was noted that ethnomedicinal knowledge is becoming restricted only to the elders; while young people are totally ignorant of this wealth. Advancement in science and technology has changed the social values and therefore, younger generation are transforming at a much faster rate into the new tradition. It is therefore very important to document the native flora along with their ethnomedicinal recipes before extinction of the indigenous knowledge.

4. Conclusion

It is concluded from the present study that the natives of the region are very much dependent on plant species for their health care needs, fuel wood and fodder. Due to financial constraints, changing life styles and unavailability of resources, the local medicinal flora is facing over-exploitation from the local inhabitants. Over grazing, fodder collection, logging and medicinal plants collection are major threats to the vegetation of the studied area. Hence, certain precautionary measures (controlled grazing, reforestation, range-land management, etc.) need to be addressed for the protection of natural resources in the study area. Moreover, in-situ and ex-situ conservation methods should be practiced as long-term conservation programme. Conservation education may be extended to the local communities and their local technologies may be incorporated in developing plans.

6. Reference

Bako, S.P., Bakfur, M.J., John, I. and Bala, E.I. (2005). *Ethnomedicinal and phytochemical profile of some savanna plant species in Nigeria. Int. J. Bot.* ***1****:147–150.*

Balasubramanian, P., Rajasekaran, A. and Prasad, S.N. (1997). *Folk medicine of the Irular of Coimbatore forests. Ancient Sci. Life* ***16 (3)****: 222–226.*

Carbono, E. (1995). *Current outlook for ethnobotany in Colombia. In: Schultes, R.V. and S.V. Reis. Ethnobotany: Evolution of discipline. Chapman & Hall, London. pp.211 – 215.*

Jain, S.K. (1991). *Dictionary of Indian Folk medicine and Ethnobotany. Deep Publications, New Delhi, India.*

Jain, S.K., Sinha, B.K. and Gupta, R.C. (1991). *Medicinal plant in Ethnobotany of India. Deep Publications, New Delhi.*

Mathias, E. and Anjaria, J. (1998). *Forthcoming Prospects of ethnoveterinary medicine in the modern world. In: Directory on Indian agriculture. Rashtra Deepika Ltd., Kerala, India. pp.526–534.*

Pandikumar, P., Ayyanar, M. and Ignacimuthu, S. (2007). *Medicinal plants used by Malasar tribes of Coimbatore district, Tamil Nadu. Ind. J. Trad. Knowl.* ***6 (3)****: 575–582.*

Rajendran, A. and Henry, A.N. (1994). *Plants used by the tribe Kadar in Anamalai Hills of Tamil Nadu. Ethnobot.* ***6:*** *19–24.*

Ramachandran, V.S. and Manian, S. (1991). *Ethnobotanical studies on the Irulas, the Koravas and the Puliyas of Coimbatore district, Tamil Nadu. Ind. Bot. Report* ***8 (2)****: 85–91.*

Senthil Kumar, M., Gurumoorthi, P. and Janardhanan, K. (2006). *Some medicinal plants used by Irular, the tribal people of Maruthamalai hills, Coimbatore, Tamil Nadu. Nat. Prod. Rad.* ***5 (5)****: 382–388.*

Thurston, E. (1909). *Castes and Tribes of South India. Cosmo Publications, New Delhi.*

Uma Priya, T., Rajendran, A., Aravindhan, V., Binu Thomas and Maharajan, M. (2011). *Ethnobotany of Irular tribe in Palamalai Hills, Coimbatore, Tamil Nadu. Ind. J. Nat. Prod. Rad.* **2(2)***: 250–255.*

Vohora, S.B. (1992). *Medico-potential plants of India. Ind. Drug* **26***: 526–530.*

Walter, W. and Hamilton, A. (1993). *The vital wealth of plants. Bates and Sons Ltd, UK.*