



## Original Research Article

### Data collection methods in research for medicinal plants of Javadhu Hills, Tamilnadu, India

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#### ABSTRACT

##### Keywords

Medicinal plants;  
snake charmer;  
Fabaceae

Medicinal plants an important role in the healthcare of people around the world, especially in developing countries. About 80% of the population of most developing countries still use traditional medicines derived from plants for treating human diseases. The present study exposed that the people of the snake charmer community used 57 medicinal plant species that belonged to 51 genera and 35 families for the treatment of various diseases. The study has brought to light that the main diseases treated by this community was snakebite in which 19 different types of medicinal plants belongs to 13 families were used. Significantly higher number of medicinal plants was claimed by men as compared to women. The highest per cent of medicinal plants for traditional uses utilized by this community were belonging to family Fabaceae.

## Introduction

Utilization of plants for medicinal purposes in India has been documented long back in ancient literature because they are essential to human survival (Mohamed Tariq and Md Rayees Ifham, 2013; Sastri *et al.*, 1996). The consumption, management and valuation of wild plants are central aspects of the traditional knowledge in many human populations. Thus, plants gathering, the diffusion and conservation of knowledge within the community are traditional practices that have contribution to the subsistence of many cultures. In most of

the societies the medical system coexists with several traditional systems. These traditional medical systems are generally based on the uses of natural and local products which are commonly related to the people's perspective on the world and life (Toledo *et al.*, 2009).

In India, there are about 54 million indigenous people of different ethnic groups inhabiting various terrains. These indigenous groups possess their own distinct culture, religious rites, food habit and have a rich knowledge of traditional medicine. Even today, indigenous and

certain local communities practised herbal medicine to cure a variety of diseases, with plants particularly used as folk medicine to treat snakebites (Parinitha *et al.*, 2005). Traditional herbal medicine is readily available in rural areas for the treatment of snakebite. Application of the plant or its sap onto the bite area, chewing leaves and bark or drinking plant extracts or decoctions are some procedures intended to counteract snake venom activity. Plants are used either single or in combination, as antidotes for snake envenomation by rural populations in India and in many parts of the world (Perumal Samy *et al.*, 2008).

Snake charmers belong to the 'Nath' community living in this study area frequently use drugs prepared from medicinal plants found in the area for the treatment of snake bite victims. The community has also extensive knowledge about medicinal herbs which they gathered during their trips to the forest to trap snakes, and while roaming from one place to another place they dispense their herbal knowledge to their costumers. For centuries, snake charmers were enduring symbols of India. But the community has been virtually forgotten in a modernizing country and also due to ban of snake charming profession as part of efforts to protect India's steadily depleting wildlife. Hence, the aim of the present study was to document and analyze medicinal plants knowledge of the local ethnic group, which they use for the treatment of snakebite and other type of diseases.

### **Description of Study site**

The study was carried out from a prominent village of local community Thiruvannamalai district located about 45 Km. from district headquarter, Javadhu

hills in Tamil nadu, India (Figure ). The district lies between 28° 33' N and 28° 42' S latitude and 76° 28' 45" W and 76° 84' 15" E longitude. The district is having an area of 153 square Kms which is 4.05% of total area of the Tamilnadu state. The total population about of the District was 894072, (684975 in Rural and 209097 in Urban Areas) as per the Census record of 2001(Bharadwaj, 1981). Rural population comprised 77.83% of the total population. Population density is 490 people per sq. km. The altitude of the district is about 865 above mean sea level (MSL) and a slope from South to North from Jamuna mathur towards Javadhu hills is around 40 feet. In the western part of district, the area is considerably even. Some area is uneven and also suffers from inundation and water logging during Monsoon season. The district falls within the classified arid and semi-arid zones. Broadly four types of soil are available in the District viz. clay, loamy clay, loamy and sandy. However, the soil is deficient in Nitrogen. Hot summer, cold winter and meager rain fall are the main climatic characteristics of T.V.Malai District. Two hospitals, 18 public health centers and 8 dispensaries are present in districts. Out of these traditional healers 8 to 9 persons are the most popular for treatment of snakebite in the Tamilnadu state. Yearly about 50 to 100 peoples come to these healers for treatment of snakebite. The numbers of persons are higher in rainy season because people encountered snake mainly in rainy season.

### **Materials and Methods**

#### **Methods of informants and data collection**

In order to document the utilization of aboriginal medicinal plants, survey was

**Figure.1** Map of the district Thiruvannamalai, Javadhu hills showing the study area.



carried out during the year, July 2009 to August 2010. The information on medicinal uses of the aboriginal plants have been described after gathering information's from experienced rural folk, traditional herbal medicine practitioners who were having knowledge of traditional healing. A total of 42 selected inhabitants were interviewed. Out of 42, 41 were male and only one woman. The age of the healers was between 25 years and 75 years. A brief group discussion was made with the informants in local language, i.e. a dialect of Tamil prior to ethnobotanical data collection to get their consent and to explain to them that their cooperation is a valuable contribution to the documentation of the traditional plant used by them. In addition direct plant field observations were employed to collect the data on the knowledge and management of medicinal plants with the help of local healers known as 'Naths'. Maximum numbers of

medicinal plants used by the healers were collected from javvadu hills and in its nearby villages. A structured questionnaire was used to elicit information from the resource persons using standard methods (Nanyingi *et al.*, 2008). The data collection Performa has been Additional file 1. Information on local name of the plant, plant parts used for curing disease, their recipes and mode of administration were recorded. From the collected data a list of plants of different families with their traditional uses, plant part used, their recipes and mode of administration is prepared in alphabetical order of disease treated and along with the name of the plants. We did not use any "statistical survey" in this study.

### **Identifications of plants**

The collected plants were identified in the confirmation was made by Prof. S. Ahmed

John, Head, Research Department of Botany, Jamal Mohamed College, Trichy and the specimens of the plants. Comparison of flora was also made according to different references concerning with the medicinal plants of Tamilnadu and adjoining areas.

### **Plant categorization and abundance of the plant species**

Plants were classified in the categories of wild or cultivated and also classified into different types of growth forms (herbs, shrubs and trees). Abundance is the number of individuals of any species per sampling unit. The abundance of medicinal plants in the study area was calculated on the basis on methods mentioned by Chaudari and Sankar. The abundance was categorized as under:

S = Sporadic i.e. growing scattered; need careful monitoring.

T = Threatened i.e. the species are taken care of for conservation.

PS = Presently safe but need effort to protect them.

D = Doubtful presence

## **Results and Discussion**

### **Medicinal plants reported**

The information's on scientific name, common name, family name, habit, ailment treated, voucher specimen number, status and abundance of plants. Type of disease treated, application route, mode and methods of application of drugs has been shown in Additional file 2. The study revealed that the healers of the snake charmer community used 57 medicinal plants species that belonged to 51 genera and 35 families. The study has brought to light that the major emphasis of this

community was employed in the treatment of snakebite. It was reported that 19 plants belongs to 13 families were widely used as snakebite remedies and 48 plants belongs to 34 families were used in the treatment of other diseases. According to habit of plants, 20 were herbs (36%), 16 trees (28%), 10 climbers (18%), 9 shrubs (16%) and one creeper (2%). The common use of herbaceous medicinal plants was also reported in other parts of world (Muthu *et al.*, 2006). In the present study the most represented family with highest number of utilized medicinal plants in the area was Fabaceae (8 plants) followed by Liliaceae (5 plants), Laminaceae and Asteraceae (3 plants each). Thirty six (37.03%) plants were categorized as wild plants and 20(37.03%) as cultivated plants. The study of abundance of plant data reveled that 27(48.02%) were presently safe, 19 (33.92%) sporadic, 7(12.5%) threatened and status of 3(5.35%) plants was not known.

### **Plant parts used and mode of preparations**

In most of the preparations leaves (27%) were used for the preparation of medicines predominantly followed by roots (23%), fruits (10%), seeds (10%), stem barks (9%), whole plant (7%), latex (6%), root bark (4%), flower (3%) and gum (1%). The common use of leaf in the preparation of remedies could partly be due to the relative ease of finding this plant part. Leaves remain green and available in plenty for the most months of the years. The use of leaves in the preparation of remedies is also common elsewhere (Ignacimuthu *et al.*, 2006). The common use of leaf is also due to easily availability of this plant parts in the area. The most prevalent methods of drug preparation were as infusion (23%), powder (16%),

decoction (10%) and paste (10%). Remedies were seldom prepared as pellets (9%), juice (6%), band (2%) and fumes (2%). The use of water as dilutant was the most frequently found for the preparation of drug, other useful dilutant were reported oil, butter and cow milk. Oils from *Ricinus communis*, *Seasamum indicum*, *Brassica juncea* and *Azadirachta indica* were mixed with plant medicine as dilutant. The mixing of oil of these four plants for preparation of drugs was also reported in Kani tribals of Tamil Nadu (Ayyanar and Ignacimuthu, 2005). Healers of local community also mix sugar in herbal formulation and similar results were reported in a study from Vellore Districts, Tamilnadu. The healers of local community also use latex of *Ficus benghalensis* for mixing of various ingredients. It was reported that the healers prescribed the medicine either based on single plant parts or a combination of several plant parts and similar results were also reported in various studies conducted in Tamilnadu and other parts of India (Ayyanar and Ignacimuthu, 2005).

During the survey it was found that the healers of this community collect medicinal plants from variety of habitats. Mainly wild plants were collected from nearby Yearkadu hills (Reserve forest area) which is dominated by Gymnosperm trees. As Tamilnadu is an agricultural state with low diversity of forest area so these peoples also collect medicinal plants from agricultural land, unfruitful land and banks of canals. For the preparation of drugs the healers mainly use two methods. In the first method, drug preparation was done by shade drying and then pounding of the plant to form powder. The infusion or decoction of this powder is prepared after boiling with water. In the second method, pellets were prepared after mixing with

Cow's Ghee (clarified butter) or with other lubricant like oil of plants.

### Direction of supervision and dosage

Sixty three percent of the healer remedies were applied through oral tract while 23% were applied on the skin and 6% administrated through the eyes. Few remedy preparation were applied topically in mouth (5%) and some through the nasal tract (3%). For the treatment of snake bite, 80% remedies were applied through oral route in form of infusion or decoction and 20% were applied topically on the snake bite area. Most treatments were reported to be completed within two or three days. Majority of drugs recommended for thrice a day. But, in case of snake bite treatment these healers kept the patients for two or three days under continuous observation till the patients were antivenin. The patients were considered antivenin if the drug remedies (mixture of leaves and roots of some plants) taste bitter but if the drug is sweet to taste, the patients needs urgent attention of healers. Liquid remedies administrated to patients were usually measured by spoon or cup or number of drops. When patients did not show any sign of recovery to their diseases than the healers send the patients to nearby modern health centers. So the data recorded during this study were compared with the related literature (Chopra *et al.*, 1956) and also recently published reports on the traditional medicinal uses of the plants (Ayyanar and Ignacimuthu, 2005). It was found that some of these plants are already known for similar uses. However, their recipes, drug preparation methods, mode of use and addition of ingredients were different.

It can be concluded from study that the snake charmers healers has specialized

indigenous knowledge of medicinal plants. The medicinal plant resources of the region are diminishing due to over exploitation of certain species, illegally trading, laying of roads and other developmental works (that causes destruction of their habitats). As the people of this community inherit a rich traditional knowledge and documentation of this knowledge has provided novel information from the area. This will not only provide recognition of this undocumented knowledge but will also help in conservation of such rare, gradually vanishing important medicinal plants used for snake bite and other diseases. These highly interesting findings require further research, while the efficiency of the various indigenous practices will need to be subjected to pharmacological validation. Finally, we are advocating only recording the use of plant products by a people in a slight identified region of India.

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