Ethnobotanical Study of Traditionally Used Medicinal Plants in Malayali Ethnic People of Pachamalai Hills, Tamil Nadu, India

S. Prabhu, S. Vijayakumar*

PG and Research Department of Botany and Microbiology, A.V.V.M. Sri Pushpam College, Poondi, Thanjavur – 613 503, Tamil Nadu, India.

1. Introduction

According to World Health Organization (WHO) up to 80% of the populations in some developing countries use traditional medicine [1]. Traditional herbal medicine is still an important component of healthcare in India. India is the second largest country in the world with over one billion with diverse socio-cultural backgrounds. It accounts for 16% of the world’s population and holds 21% of the world’s global burden of diseases. The impact of traditional systems of medicine in the public healthcare system of India is substantially high and medicine is intimately interwoven with religiosity and ethnicity [2]. During the last two decades, some notable progress has been made in the field of medicinal plants and their traditional use in different parts of India [3]. Indigenous use of medicinal plants all over the world precedes the origin of modern medicine in healthcare system [4]. The flowering plants used for medicinal purpose worldwide are estimated to be about 50,000 out of total 422,000 flowering plant species [5, 6]. World Health Organization (WHO) estimated that prescribed drug (25%), consider drug (11%) and precursor compound produced as a result of various synthetic drugs are of plant origin [7]. Treatment of diseases with medicinal plants is more beneficial than synthetic and modern medicines as, ease of use, treatment efficacy, affordable cost and minimal side effects. Life styles of people are poor and economically they depend on cattle grazing, agriculture and use of natural resources. The current study was aimed to explore and document the indigenous knowledge of plants and to evaluate the importance of medicinal plants used in local healthcare system. This study was also aimed to educate the traditional healers about conservation status of medicinal plants. Pachamalai hills possess a rich biological and cultural diversity which translates into a wealth of traditional knowledge and practices including the use of floristic resources for medicinal purposes by various ethnic groups. Indeed, traditional medicine is omnipresent in the Malayali community where by Pachamalai hills people still use traditional medicine for the treatment and/or management of various ailments. Nonetheless, with globalization and access to conventional medicines, particularly the younger Malayalis have no knowledge about the traditional medicines because it is concealed by the traditional practitioners.

2. Experimental Methods

2.1 Pachamalai Hills Geographical Location

The Pachamalai hills are located (11°18’14.1” N, 78°39’15.2” E) in northeast of Tamil Nadu, India with an area of 14,122 square kilometers and elevation of above sea level. Pachamalai hills located between the Tiruchirappalli and Salem district of Tamil Nadu, India.

2.2 Climate of the Area

The Pachamalai hills have a semi-arid climate with dry and cold winter and hot and dry summer. A semi-arid climate prevails with a maximum temperature ranging between 23°C to 31°C and a minimum temperature ranging 12 °C to 10 °C. These hills receive maximum rainfall during the months of September, October and November through the Northwest monsoon. The hills receive rainfall in the months of June and August through Southwest monsoon.

2.3 Data Collection

The study area was investigated to get information from local people having practical knowledge of medicinal plants. Selection of informant is depended upon the distribution of local people having sound knowledge about medicinal plants. They were requested to collect specimens of the plants they know and to show the plant species on site. The wealth of medicinal plant knowledge among the people of these hills is based on hundreds of years of beliefs and observations. This knowledge has been transmitted orally from generation to generation.

2.4 Preservation and Identification of Plant

Standard method was followed with record to collection of plant materials, drying, mounting, preparation and preservation of plant specimens [8]. Voucher specimens of medicinal plants in triplicate were collected, prepared and identified. Plants with their correct nomenclature were arranged alphabetically by family name, vernacular name, ethno medicinal uses and route of administration and dosage. The identification and nomenclature of the listed plants were based on the Flora of Tamil Nadu Carnatic [10]. They were later verified at Botanical Survey of India, Southern Circle, Coimbatore, India.

*Corresponding Author
Email Address: svijaya_kumar2579@rediffmail.com (S. Vijayakumar)

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3. Results and Discussion

3.1 Habit of Medicinal Plants

In the current survey, 68% of the reported species are herbs followed by shrub (18%), climber (9%) and shrub (5%) (Fig. 1). The common use of herbaceous medicinal plants was also reported in other parts of the world [11] and attributed to their wide range of bioactive ingredients [12]. Traditional healers used herbs most commonly used as medicine due to easy availability in nature [13, 14].

3.2 Different Plant Families Recorded

The plant used for medicinal purposes in Pachamali hills is presented in Table 1. Information relevant to these is presented in the research area. The most represented family was Fabaceae, the highest number of species (4 species) followed by Acanthaceae, Apocynaceae, Asteraceae, Lamiaceae and Malvaceae with two each species, other families with one species each (Fig. 2). The high proposal of medicinal species Euphorbiaceae families has already reported [15]. Euphorbiaceae also known to have the highest number species, more than any other plant family in the world [16].

![Figure 1 Percentage of medicinal plant habit](image)

### Table 1 Medicinal plant used in Pachamali hills ethnic people

<table>
<thead>
<tr>
<th>No.</th>
<th>Botanical Name, Family and traditional name</th>
<th>Life Form</th>
<th>Parts used</th>
<th>Traditional use</th>
<th>Mode of Other Prepara- tion</th>
<th>Route of administration, dosage and duration of treatment</th>
</tr>
</thead>
</table>
| 1   | Abelmoschus manihot (L.) Crantz. | Herb | Leaves | Topical: Dried rhizome | Water | - 
|     | Averrhoa bilimbi L. | Herb | Leaves | Oral: Leaf juice is taken | Water | 20 ml of fruit juice taken as daily twice a day. 
|     | Arctocarpus heterophyllus L. & A. L. | Tree | Bark | Oral: 150 gm of fresh rhizome is applied | Water | 40 days. 
|     | Aristolochia clematitis (Burm. f.) Wall. | Herb | Leaves | Oral: 1 fruit is taken as mixed with ingredients daily morning. | Water | 2 - 3 leaves taken as daily twice a day. 
|     | Aristolochia clematitis | Tree | Leaves | Oral: 45 days daily. | Water | 40 days. 
|     | Aristolochia clematitis | Tree | Leaves | Oral: Leave is extracted as mixed with ingredients daily morning. | Water | 2 - 3 fruits taken as daily twice a day. 
|     | Aristolochia clematitis | Tree | Leaves | Oral: Leave is extracted as mixed with ingredients daily morning. | Water | 2 - 3 fruits taken as daily twice a day. 
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3.3 Plant Parts Used for Traditional Medicine

Plant parts used by the ethnic people of Pachamalai hills to treat various ailments were mainly leaves, fruits and root (Table 1). Aerial parts of plant and whole plants were also used in case of small herbaceous plants. The most frequently utilized medicinal plants parts were leaves (51%) used for the preparation of medicine solely, it was followed by fruit (20%), root (9%), stem (6%), flower, latex, rhizome, seed and whole plant (each 5%) and gel (3%) (Fig. 3). All over the world tribal communities, utilized for the preparation of herbal medicine using leaves [15, 17-19]. The local people point of view leaves were used mostly that part is collected very easy to compare the underground parts flowers and fruits etc. [20] and in scientific point of view leaves are active in photosynthesis and production of metabolites [21].

3.4 Mode of Preparations and Administrations in Indigenous Medicine

Considering the mode of preparation of herbal medicines, reports include paste, powder, decoction, juice, and raw. Among these majority of the plant remedies were prepared by paste (36%) followed by raw (34%), juice (18%), decoction (7%) and powder (5%) (Fig. 4). According to the informants, preparation of paste for the treatment of ailments is a common method of the tribal communities in global level [20, 22, 23]. The paste was prepared by grinding the fresh or dried plant parts with oil or water. In some cases, the processing involves drying of the plant material followed by grinding into fine powder. The juice was taken as orally along with water or milk or honey, Raw (taken as raw plant parts orally), Decoction was obtained by boiling the plant parts in water until the volume of water reduce to required amount. Water is commonly used if a solvent is required for the preparation. Sometimes milk or honey is used as a matrix or added to increase a viscosity of the preparation [24]. Oral administration was the main mode (62%) of intake of medicine followed by topical administration (36%) and brush (3%) these modes of preparation and administration are the most used in traditional medicine (Fig. 5). Similar results were obtained in previous ethnobotanical surveys carried out in Cameroon and other part of the world [25-28].

Fig. 2 Percentage of families

Fig. 3 Percentage of parts used

Fig. 4 Percentage of preparation and consumption

4. Conclusion

In the present study concluded that documented 27 plant species belongs to 18 families, Euphorbiaceae is mostly used families in the study area. The leaves are the favoured part of local users. Documentation of this knowledge is valuable for the communities and their future generations and for scientific consideration of wider uses of traditional knowledge in treating human beings. The low cost and no side effects of these traditional preparations with medicinal plants make them adaptable by the local community. The wealth of this traditional knowledge of medicinal plants points to a great potential for research and the discovery of new drugs to cure the diseases of human. So, further scientific assessment of these medicines for phytochemical, biological, preclinical and clinical studies is, however, greatly needed. The present research work indicates that research projects should be designed in priority on this area for the pharmacological evaluation and conservation of medicinal plants of this area.

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References


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