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RESEARCH ARTICLE

Ethnobotanical investigation of the muthuvan tribe's medicinal plant usage in Edavanna Panchayath, Malappuram district, Kerala

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ABSTRACT

Ethnobotanical studies are always in forefront in revealing the intimate association between human beings and plants. India is widely known for its immense wealth of medicinal plants and for the fact that this plant wealth has been utilized for healing diseases since ages. Tribal societies possess their own ideologies and belief systems when it comes to the usage and protection of plants. Among many tribal communities in Kerala, *Muthuvans* are known for their knowledge in usage of plants for the preparation of medicine. Documentation of such knowledge is utmost important for the upcoming future. The present study is conducted with an aim to document the medicinal plants used by the *Muthuvan* tribe of Malappuram district, Kerala for the treatment of common ailments. Questionnaire survey, periodic field trips to the tribal area and secondary information collected from KIRTADS has been presented here. A total of 37 plants belonging to 35 genera and 20 families have been recorded along with their vernacular names, parts used, mode of preparation and administration of medicines. The commonly represented families were Fabaceae and Lamiaceae with 4 species and Asteraceae and Malvaceae with 3 species each. The current study elaborately reveals that the tribal community depends on plant wealth of Cholar Hills for the treatment of common ailments and their medicinal preparations have been effective over many years. Therefore, documentation of the knowledge possessed by the tribes is extremely important as these can be used for further studies and novel discoveries.

Keywords: Ethnobotany, Kerala, *Muthuvans*, medicinal plants.

1. INTRODUCTION

Ethnobotany is the best word to define the involvement of the first humans, who observed birds and animals and tested leaves, fruits and tubers for their capacity to satisfy hunger or heal wounds. Ethnobotany is also a multidisciplinary science which comprises unique and distinct knowledge on the economic value of plants to explore their medicinal and edible importance providing benefits for research in the field of ethnobiology, archaeology, anthropology, pharmacology, etc [1]. According to the World Health Organization (WHO), about 80% of the world's people depend on traditional indigenous medicines, since a large majority of rural people in developing countries still use these medicines as the first defence in health care [4]. Since interest in traditional medicine has been increasing world over, ethnobotanical studies have gained prominence to explore the traditional knowledge particularly in developing countries [7].

Traditionally, tribals are extremely knowledgeable about local plants and other resources, on which they are intimately dependent. Tribals depend on wild plants for food, medicine, construction materials, fuel, wood and nearly all other materials [11]. India has more than 427 tribal communities with rich biodiversity of indigenous tradition. However, traditional knowledge and medicinal practices have been marginalized due to political and socio-economic reasons. Off late, interest in traditional medicine has been initiated to explore the knowledge base from various tribal groups across the country [6, 8, 5, 10, 9].

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Based on the comprehensive details addressed, main objective of this study was to enumerate the diversity of medicinal plants used by the *Muthuvan* tribal community inhabiting Cholar Hills of Malappuram district, Kerala and to document the traditional medicinal practices followed by them for the treatment of common ailments. Since *Muthuvan* tribal communities are mostly seen in Idukki district of Kerala, the small population residing in Malappuram district is usually forgotten. Therefore, the documentation of traditional knowledge possessed by the *Muthuvan* tribal community is important for conservation of natural resources and preservation of indigenous knowledge.

2. MATERIALS AND METHODS

2.1. Area of Study

The ethnobotanical data for the present investigation were collected from *Muthuvan* tribal settlements of Cholar Hills of Malappuram District. Almost 30 families were found residing in the Cholar hills. The tribals of Malappuram district are mainly found in the regions of Nilambur valley. The valley is divided into three forest ranges, viz., the Nilambur Range, Chungathara Range and Karulai Range. The *Muthuvan* tribal communities are inhabited in the Nilambur range of Edavanna panchayath of Malappuram district (Fig.1). Geographically, the area is located approximately between 11°26'–11°9' N latitude and 75°48'–76°33' E longitude with altitudes ranging between 50 and 2500m AMSL.

Figure1. Map of Edavanna panchayath

2.2. Data Collection

Data were generated from tribal settlements, elderly tribal men, tribal physicians etc. Regular field visits were done from the months of December, 2021 to February, 2022. A total of 35 families were surveyed with the help of questionnaires and Participatory Rural Appraisal (PRA). Secondary data were collected from tribal development societies, KIRTADS, literature, etc. Plants were collected and photographed. The vernacular names of the specimens were verified with the help of inhabitants of the community. The collected plant specimens were identified and authenticated with the help of valid references [3] and further validated through herbarium referencing at the Department of Botany, Providence College for Women, Coonoor.

3. RESULTS

Plants have profoundly influenced the culture and civilization of human beings including the ethnic people of any geographical area [2]. The study highlights ethnobotanical knowledge of medicinal plants used by *Muthuvan* tribes of Edavanna panchayath, Malappuram district, Kerala. The data obtained from field surveys are depicted in Table 1. A total of 37 plants were collected, identified and documented for their medicinal uses. These 37 plants consist of 35 genera belonging to 20 families (Fig. 5). The most represented families are Fabaceae and Lamiaceae with 4 species each and Asteraceae and Malvaceae with 3 species each. All the other families are represented by one or two species.

Among them, 18 plants were herbs, 10 plants were shrubs, 8 trees and 1 climber (Fig. 2). Most of the reported preparations are drawn from a single plant; mixtures are rarely used. Leaves are the most used plant part for the preparation of medicine followed by root, whole plant and fruit (Fig. 3). Mode of preparation of medicine by the *Muthuvan* tribal community includes paste, juice, decoction, infusion etc. Out of these, the most commonly used method for preparation of medicine is paste followed by decoction and juice (Fig. 4). Administration of medicine is done both topically and orally. In this scenario, topical administration of medicine heads over oral administration. Only a few medicinal preparations are in the form of inhalers (Fig. 6).

In olden days the traditional healers (Vaidyars) of *Muthuvan* settlement of Cholar Hills

gave treatment to all kinds of diseases but at present they treat only the common ailments. For complicated diseases the people tend to consult the doctors of Manjeri town. This shows that there is a significant change in the lifestyle of the people of the community. Younger generation in their tribe nowadays don't believe in the traditional healing system. They often tend to move towards Allopathic medicine even for common ailments. Only the elders among the tribe strictly believe in their traditional healing system. Because of this fact, there is a progressive decline in traditional knowledge about medicinal plants among the younger generations.

Table 1. Medicinal plants used by *Muthuvan* tribal community

Botanical name (Family)	Vernacular name	Habit	Part used	Mode of preparation	Application
Acalypha indica Vell. (Euphorbiaceae)	Chinne maram	Herb	S, R	Paste	Topical
Adenanthera pavonina L. (Fabaceae)	Manjadi	Tree	Se, L, B	Decoction	Oral
Aegle marmelos (L.) Correa (Rutaceae)	Koovalam	Tree	L	Infusion	Oral
Aerva lanata (L.) Juss. Ex Schult. (Amaranthaceae)	Cheroola	Herb	WP	Decoction	Oral
Agrimonia eupatoria L. (Rosaceae)	Koovath	Herb	F, L	Decoction, Infusion	Oral
Alpinia calcarata (Andrews) Roscoe (Zingiberaceae)	Chittaratha	Herb	Rh	Juice	Oral
Artemisia vulgaris L. (Asteraceae)	Makkipoov	Herb	R	Juice	Oral
Artocarpus heterophyllus Lam. (Moraceae)	Chakka	Tree	WP	Ash, Decoction, Tonic	Oral, Topical
Bambusa bambos (L.) Voss (Poaceae)	Mula	Tree-like	S	Paste	Topical
Bauhinia acuminata L. (Fabaceae)	Mandaram	Shrub	L	Juice	Topical
Bixa orellana L. (Bixaceae)	Kurannumannal	Tree	L, F	Infusion, Oil	Oral, Topical
Belpharis maderaspatensis (L.) B.Heyne ex Roth (Acanthaceae)	Palavan chedi	Herb	S	Paste	Topical

Capsicum annuum L. (Solanaceae)	Cheenaparangi	Small shrub	L, F	Paste, Decoction	Topical, Oral
Caryota mitis Lour. (Arecaceae)	Choonda pana	Tree	L, F, Fl	Juice, Porridge	Oral
Colubrina Rich. Ex Brongn. (Rhamnaceae)	Kadappa	Shrub	L	Paste	Topical
Curcuma angustifolia Dalzell & A.Gibson (Zingiberaceae)	Koova	Herb	Rh	Powder, Paste, Oil	Topical, Oral
Clerodendrum infortunatum L. (Lamiaceae)	Perukku	Shrub	L, Fl	Decoction, Paste	Topical
Cynathillium cinereum (L.) H.Rob. (Asteraceae)	Poovankurunnila	Herb	L, R, Se	Paste, Juice	Topical
Cynodon dactylon (L.) Pers. (Poaceae)	Karuka pullu	Herb	WP	Juice, Paste	Oral, Topical
Datura metel L. (Solanaceae)	Ummam	Shrub	L	Paste	Inhalation
Desmodium cuspidatum (Muhl. Ex Willd.) DC. Ex G.Don (Fabaceae)	Nilambaranda	Herb	L, F	Infusion	Oral
Eclipta prostrata (L.) L. (Asteraceae)	Kanjunni	Herb	WP	Paste	Topical
Emilia sonchifolia (L.) DC. (Asteraceae)	Muyalchevi	Herb	L	Juice	Oral
Euphorbia thymifolia L. (Euphorbiaceae)	Kalkeere	Herb	S	Paste	Topical
Glycosmis mauritiana (Lam.) Tanaka (Rutaceae)	Ulakodi	Shrub	L, R	Paste	Topical
Helicteres isora L. (Malvaceae)	Edampiri valampiri	Tree	B, L, F	Decoction	Oral
Hibiscus surattensis L. (Malvaceae)	Kakkapoov	Herb	WP	Powder, Decoction, Paste	Oral, Topical
Holostemma ada-kodien Schult. (Apocynaceae)	Paal kizhangu	Climber	R	Paste	Oral

Hyptis suaveolens (L.) Poit. (Lamiaceae)	Thrijada	Herb	L	Powder, Decoction	Topical, Oral
Lawsonia inermis L. (Lythraceae)	Mylanchi	Shrub	L, Se	Powder, Paste	Oral, Topical
Mussaenda frondosa L. (Rubiaceae)	Vellila thali	Shrub	L	Juice, Paste	Topical
Ocimum gratissimum L. (Lamiaceae)	Thulasi	Herb	L, R	Paste	Topical
Ocimum tenuiflorum L. (Lamiaceae)	Malantulasi	Herb	L, R	Paste, Decoction	Topical, Inhalation
Pseudarthria viscida (L.) Wight & Arn. (Fabaceae)	Moovela	Shrub	L	Powder	Oral
Spermacoce ocymifolia Willd. (Rubiaceae)	Tharuthaval	Shrub	L	Paste, Juice	Topical
Thespesia populnea (L.) Sol. Ex Correa (Malvaceae)	Poovarasu	Tree	WP	Decoction	Oral
Trichopus zeylanicus Gaertn. (Dioscoreaceae)	Arokya pacha	Herb	L	Paste	Topical

Part used: WP – Whole Plant, L – Leaf, S – Shoot, Se – Seed, F – Fruit, Fl – Flower, R – Root, B – Bark, Rh - Rhizome

Figure 2. Classification of medicinal plants based on habit

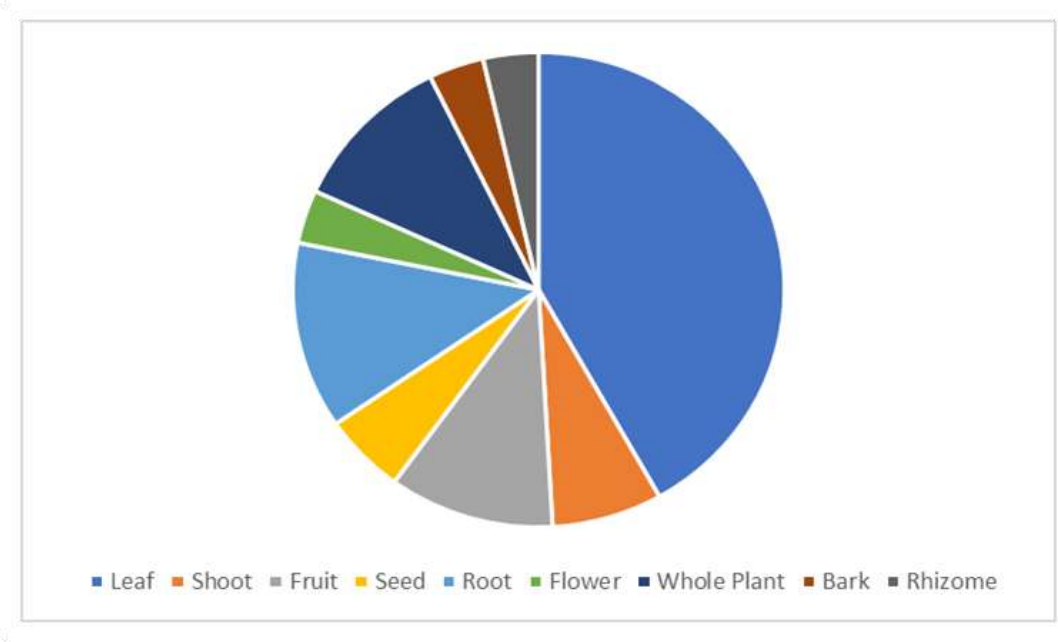

Figure 3. Percentage of different plant parts used for medicinal purposes

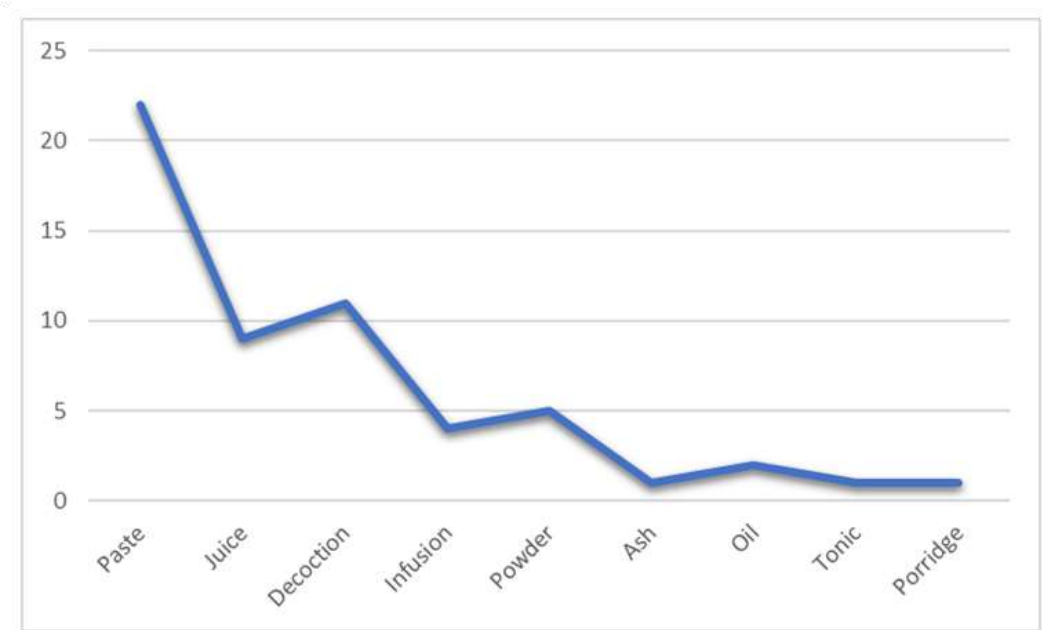

Figure 4. Mode of preparation of medicine

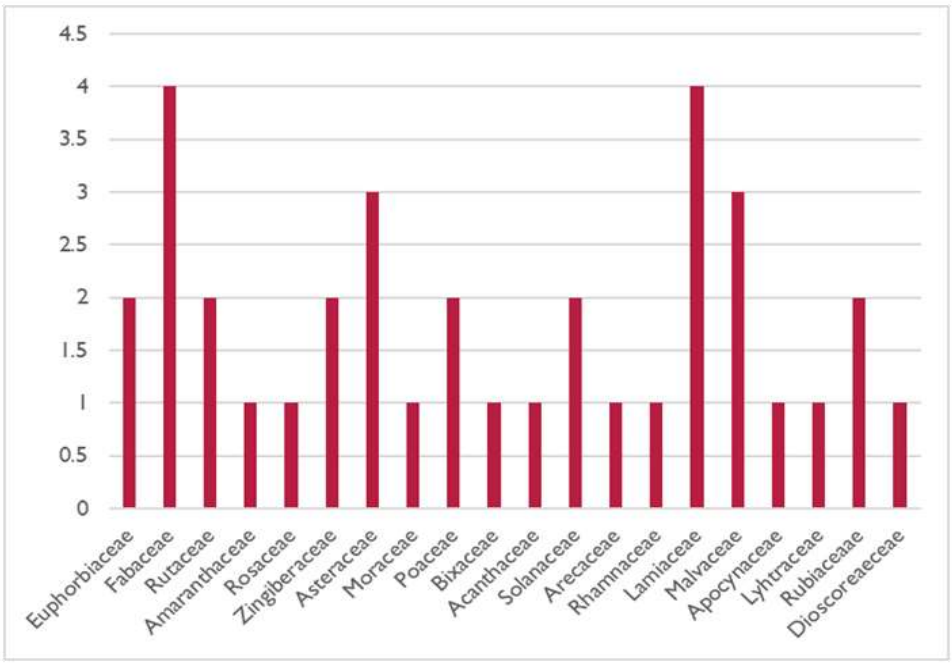

Figure 5. Species richness at family level

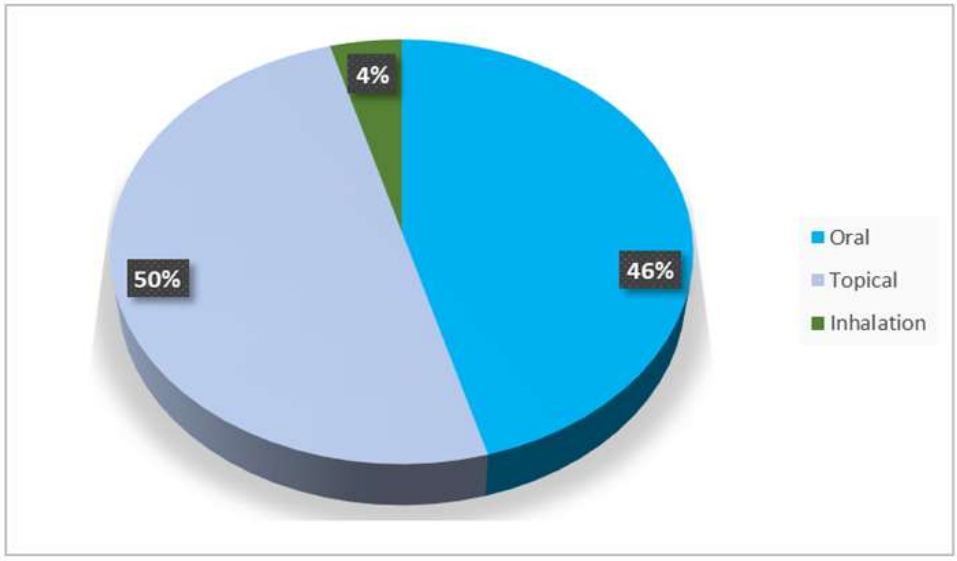

Figure 6. Mode of administration of medicine

4. CONCLUSION

In conclusion, the traditional knowledge possessed by the *Muthuvan* tribal community is immense. Their knowledge on the methods of healing common ailments is one that is achieved through years of practice. The study also reveals that Cholar Hills has plenty of medicinal plants that can be used to treat common ailments. The elders of the community have strong faith in the traditional healing system and are well versed in the utilization of medicinal plants. They are also aware of the methods of preparation of medicines, formulations and dosage.

The *Muthuvan* tribe of Edavanna Panchayath, Kerala forms a very small proportion of the total population, but they deserve special attention not only as the early inhabitants of the land but also as a group which remains separated from the mainstream of economic and social environment. The collection, identification and documentation of ethnobotanical data on medicinal plants are inevitable steps of bioprospecting. To understand the therapeutic value and potential of traditional medicine, more focused studies on traditional health care practices through pharmacological and clinical research is warranted.

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