

ETHNO-ECOLOGICAL STUDIES ON THE MEDICINAL PLANTS OF WESTERN GHATS REGION WITH SPECIAL REFERENCE TO VALPARAI TRIBES

Nithya Jeniffer, P.,^{1*} and Manish Kumar², and K. Logan Kumar¹

¹PG and Research Department of Zoology, Kongunadu Arts and Science College, Coimbatore- 641 029.

²Environmental Impact Assessment Division Sálim Ali Centre for Ornithology and Natural History (SACON), Anaikatti (PO), Coimbatore – 641 108

* E-mail: jenie@rediffmail.com

ABSTRACT

Traditional knowledge on plant has a long-standing history in many indigenous communities, and continues to provide useful tools for treating various diseases. Tribal communities living in biodiversity rich areas possess a wealth of knowledge on the utilization and conservation of food and medicinal plants. They are well versed in the usage of plant for treating various diseases. The present study carryout by survey method aimed to identifying the plants used for the general health of the tribal communities such as Kadar, Muthuvar and Malai Malasars of Western Ghats region. Ethno medicinal information was gathered through questionnaire from the majority of tribal people of Valparai hills Coimbatore, Tamil Nadu. All the traditional and other knowledge related to the collection and consumption of the medicinal plants, their environment on which communities depends was documented. The present study observed that, the tribal peoples from valparai having knowledge of 29 species on the traditional medicine. These tribes are one of the major conservators of environments. Their traditional knowledge can be utilized for the breeding technology of variety of threatened species and develop for the biodiversity conservation as well as for pharmacological research in various dimensions.

Keywords: Valparai tribes, Traditional knowledge, Ecological studies, Medicinal plants.

1. INTRODUCTION

India is proud to be rich in biodiversity possess about 8% of the estimated biodiversity of the world with around 12600 species. It is one of the 12 mega biodiversity centers with 2 hot spots of biodiversity in the Western Ghats and North-eastern region. It's also rich in ethnic diversity, there are about 67.37 million tribal people belonging to 537 tribal groups living in different geographical locations with various subsistence patterns (Amuthavalluvan 2011, Shanmugam *et al.*, 2012). These tribal groups living in diversity rich areas possess a wealth of knowledge and skills on the utilization and conservation of food and medicinal plants. Ethnobotany is the scientific study of the relationships that exists between people and plants. Since the beginning of civilization, people have used plants as medicine. The World Health Organization (WHO, 2005) has estimated that 80% of the populations of developing countries still rely on traditional medicines, mostly plant drugs, for their primary health care needs. Demand for medicinal plant is increasing in both developing and developed countries due to growing needs of natural products being non-toxic and consider of no side-effects, apart from availability at affordable prices. The medicinal plant sector has traditionally occupied a pivotal position in the socio cultural, spiritual and medicinal areas of rural and tribal families. It is

estimated that tribal people of Tamil Nadu occupy 1.05% of the total state population and 0.77% of the total tribal population of the country. Ministry of Tribal affairs has released a list of tribal communities in India for each state and Tamil Nadu contains 36 types of tribal communities and they are distributed in different districts in the forests and adjoining areas.

The practices of traditional medicine are based on hundreds of years of belief and observations, which predate the development and spread of modern medicine (Aburjai *et al.*, 2007). In developing countries, there is an increasing attempt to incorporate traditional medicines, especially herbal preparations in the local health care systems and a modernize preparations in the local health care systems and a modernized people are increasingly turning to herbal medicine (Njoroge and Wondimu *et al.*, 2007). In India, medicinal plants are widely used by all sections of the population with an estimated 7500 species of plants used by several ethnic communities and it is known that India has the second largest tribal population in the world after Africa (Kala 2005). With enormously diversified ethnic groups and rich biological resources, India represents one of the great emporia of ethnobotanical wealth. Even today, tribal communities in India still collect and preserve locally available wild and cultivated plant species and

practice herbal medicine to treat a variety of diseases and disorders (Mahishi *et al.*,2005).

2 .MATERIALS AND METHODS

2.1. Study area

The Western Ghats are globally recognized for their biological diversity and extend along the west coast of India from the River Tapti in the north almost to the southern tip of the peninsula. Toward its southern ranges lie the Anamalai hills ('elephant hills' in Tamil), an important conservation area in the southern Western Ghats. The present study was carried out in Indira Gandhi Wildlife Sanctuary (earlier known as the Anamalai Wildlife Sanctuary, 987 km², 10° 12' N to 10° 35' N and 76° 49' E to 77° 24' E) particularly Valparai plateau fringed largely by tea estates. The altitude within the sanctuary ranges from 220 m in the foothills along the northern fringes to 2,513 m in the Grass Hills at the southern portion of the reserve. (Chandi, 2008). These hill ranges have been home to indigenous communities of different ethnic origin such as the Kadar, Muthuvar and Malai Malasars. The study was conducted in three types of tribal communities to ascertain the detailed information on the traditional healing potential of tribes inhabit the forest areas in Valparai , Coimbatore district of Tamil Nadu, South India.

2.2. Methods

The Ethnobotanical data were collected from December 2012 to November 2013 according to the methodology suggested by Jain, 2001. The ethnomedicinal data (local name, mode of preparation, medicinal uses) were collected through questionnaire, interviews and discussions among the tribal practitioners in their local language. Our questionnaire allowed descriptive responses on the plant prescribed, such as part of the plant used, medicinal uses, detailed information about mode of preparation (i.e., decoction, paste, powder and juice), and form of usage either fresh or dried and mixtures of other plants used as ingredients. They were selected based on their knowledge of medicinal plants either for self-medication or for treating others.

The species mentioned by the informants were taxonomically identified.

3. RESULTS AND DISCUSSION

The result shows that the tribal communities of Valparai especially Kadar, Muthuvar and Malai Malasars possess a very good knowledge of medicinal plants available in the forest area. The study includes information on 29 plant species

belonging to 18 families (Table 1).They are used to treat liver and stomach diseases, snake bite, piles, skin diseases, hair problems, appetizer, antiseptic, gonorrhoea, urinary infections, fever, cough, wound healing, anti diabetic etc. Many species of the family Amaranthaceae, Moraceae, Solanacea, Tiliacea are frequently used.

Valparai tribal practitioners use specific plant parts and specific dosages for the treatment of ailments. The plant products are consumed raw or in the form of a decoction, as infusion for oral treatment and as burnt product, ointments or raw paste when applied externally. The parts of the plants mostly used for medicinal purposes are leaves, root, stem, fruits, and the whole plant, barks (root and stem) and flowers (including the flowering heads). (Fig 2& 3). The most common forms of preparing the medicines from the plants are fresh juice, powder, paste, and decoction. Internal uses invariably predominate over external uses. Juice (almost mixed with water and goat's or cow's milk) and paste are the main methods of preparation, either for oral or for external administration. For topical use, the most important methods used are direct application of the paste or ointment (with oil). Among the different plant parts used by the tribal communities of Valparai, leaves constituted the major portion of the medicine. These indigenous methods of treatment based on medicinal plants are still an important part of their life.

All ethno medicinal plants documented in the presence study have continuously been used and also revealed that some of them are less known and some of them supplements the available earlier data. Based on their experience and common sense, the Valparai tribal communities (Kadar, Muthuvar and Malai Malasars) have the capability to search for number of uses of plants at the same time they have also the talent to exploit the plants of even a new area where they have settled. The study indicated that, the study area was rich in medicinal plants and provides evidence that medicinal plants continue to play an important role in the healthcare system of this tribal community. Therefore it is an urgent need for the scientific awareness about the importance of biodiversity and medicinal plants for the sustainable utilization of natural resources.

REFERENCE

Aburjai, T., M. Hudaib, R. Tayyem M. Yousef and M, Qishawi, (2007). Ethnopharmacological survey of medicinal herbs in Jordan, theAjloun Heights region. *J Ethnopharmacol* **110**: 294-304

- Amuthavalluvan, V. (2011). Ethno medicinal practices and traditional healing system of Kattunayakan in Tamilnadu: *An anthropological study. Int. Mult Res* 1(7): 47-51
- Chandi, M., (2008). Tribes of the Anamalais: livelihood and resource-use patterns of communities in the rainforests of the Indira Gandhi Wildlife Sanctuary and Valparai plateau. *NCF Technical Report No. 16*, Nature Conservation Foundation, Mysore.
- Jain, SK. (2001). Ethnobotany in Modern India. *Phytomorphology Golden Jubilee Issue: Trends in Plant Sciences* 39-54.
- Kala, C.P. (2005). Current status of medicinal plants used by traditional vaidyas in Uttaranchal State of India. *Ethnobot. Res. Appl.* 3: 267-27
- Mahishi, P., B.H. Srinivasa and M.B. Shivanna, (2005) Medicinal plant wealth of local communities in some villages in Shimoga District of Karnataka, India. *J Ethnopharmacol*; 98: 307-312.
- Njoroge, G.N. and R.W. Bussmann, (2007) Ethno therapeutic management of skin diseases among the Kikuyus of Central Kenya. *J Ethnopharmacol.* 111: 303-307
- Shanmugam, S., K. Rajendran and K. Suresh, (2012). Traditional uses of medicinal plants among the rural people in Sivagangai district of Tamil Nadu, Southern India. *Asian Pac J Trop Biomed* 5: 429-434
- Wondimu, T., Z. Asfaw and E. Kelbessa, (2007) Ethnobotanical study of medicinal plants around 'Dheeraa' town, Arsi Zone, Ethiopia. *J Ethnopharmacol* 112: 152-161
- World Health Organization. (2005). *WHO Traditional Medical Strategy*, Geneva.

Table 1: Medicinal plants and their product consumed by Tribal peoples of Valparai-Western Ghats

S.No.	Binominal/Common name	Family	Habit	Part (s) used	Diseases
1	<i>Alternanthera sessilis</i> DC/Ponnakanni	Amaranthaceae	Herb	Seed	As Contraceptive, Hair tonic & Leucoderma
2	<i>Achyranthus aspera</i> L./Nayurivi				Wound healing, Dog bites.
3	<i>Amaranthus spinosus</i> /Mullukerai	Amaranthaceae	Herb	Leaves	Reduces urination in urinary duct
4	<i>Boerhavia diffusa</i> L./Mukkarattai	Amaranthaceae	Herb	leaves	Diuretic
5	<i>Alangium salvifolium</i> Wang./Azhinzal	Nyctaginaceae	Herb	Leaves	Stomach Problems, Jaundice, Snake bite.
6	<i>Cissus quadrangularis</i> L./Pirandai	Vitaceae	Climber	Stem & Leaves	Bone- breakage, appetizer.
7	<i>Ficus bengalensis</i> L./Aal	Moraceae	Tree	Stem Bark,	Wound healing.
8	<i>Lantana indica</i> Roxb./ Unnichi	Verbenaceae	Shrub	Leaves	Anti Inflammatory, Antiseptic
9	<i>Syzygium</i> sp/ Naval	Mrytaceae	Tree	Bark Seeds	Anti Diabetic
10	<i>Artocarpus</i> sp./Cheeni pala	Moraceae	Tree	Bark and seed	Liver and stomach diseases
11	<i>Cassia tora</i> /Thakara	Caesalpinaceae	Herb	Leaves roots & seeds	Gonorrhoea
12	<i>Cymbopogon citratus</i> Stapf./lemon grass	Poaceae	Herb	leaves	Body pain
13	<i>Coccinia grandis</i> (L)Voigt./kovai kai	Cucurbitaceae	Climber	leaves	Piles and Skin diseases
14	<i>Centella asiatica</i> Urb/Vallarai	Apiaceae	Herb	leaves	Memory power
15	<i>Solanum surattense</i> burm.f./Kantankathari	Solanaceae	Herb	leaves	Cough and asthma and fever
16	<i>S. torvum</i> Sw./Sundai	Solanaceae	Herb	leaves	Skin diseases
17	<i>Carisa spinarum</i> L./kalakai	Apocynaceae	Shrub	fruit	Wound healing

8	<i>F.glomerata</i> Roxb./Athi	Moraceae	Tree	Bark and fruit	Insect bite and skin diseases
19	<i>Grewia hirsuta</i> Vahl./Sirukadalai	Tiliacea	Shrub	roots	Treatment for swellings
20	<i>G. tiliaefolia</i> vahl/Sadachi	Tiliacea	Tree	fruit	Stomach problem
21	<i>G. villosa</i> Wild/Perukadalai	Tiliacea	Shrub	fruit	and skin diseases skin diseases and intestinal problem, antibiotic
22	<i>S. gardneri</i> thw./Neer naval	Mrytaceae	Tree	Bark Seeds	Anti Diabetic
23	<i>Ziziiphus mauritiana</i> Lam/Elanthai	Rhamnaceae	Tree	leaves	Skin diseases and hair treatment
24	<i>Terminalia bellirica</i> Roxb.	Combretaceae	Tree	fruit	Stomach problem
25	<i>Ficus religiosa</i> /athi	Moraceae	Tree	Bark and fruit	Decoction - Gonorrhoea
26	<i>Barleria prionitis</i> /kattukanagambaram	Acanthaceae	Shrub	leaves	Headache
27	<i>Solanum nigrun</i> L/sukutti keerai	Solanaceae	Herb	leaves	Stomach problem
28	<i>Hibiscus rosasinesis</i> /Semparuthi	Malvaceae	Shrub	Leaves and flowers	Hair tonic
29	<i>Curcuma aromatica</i> /Kasturi manjal	Zingiberaceae	Shrub	Rhizome	Pimple

Figure 1: Percentage of plant parts used for the preparation in Different Category

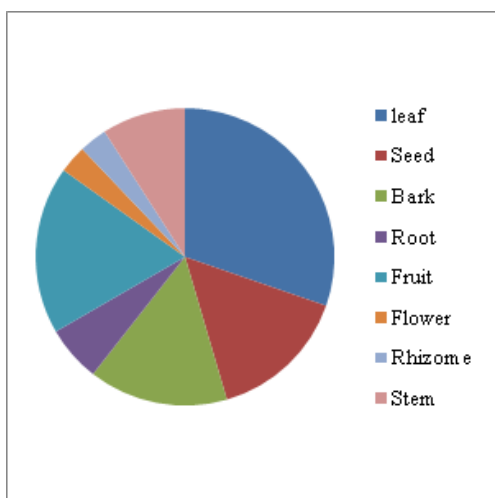


Figure 2: Medicinal plants of medicine by tribal people, Valparai region.

