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Primary healthcare medicinal plants and market value of the tribal inhabitant area of Palamalai Hills, Coimbatore Districts, Tamil Nadu

Saradha MDOI: <https://doi.org/10.22271/flora.2023.v11.i6a.910>**Abstract**

Primary healthcare medicinal plants survey was carried out in Palamalai hills used by the aboriginal community of Irula tribe in Coimbatore District, Tamil Nadu. Irula tribes have rich knowledge about primary healthcare medicinal plants and their uses. In this study 34 primary healthcare medicinal plant species belonging to 23 families were identified. The documented plants categorized with their botanical name, family name, vernacular name, parts used and primary healthcare ailments.

Keywords: Medicinal plants, healthcare, tribal community and ailments

1. Introduction

India is rich in its tribal population from the ancient time with traditional knowledge system which deals with various important aspects and the health issues of the tribal people. The folk people get their treatment with the help of local practitioners and own herbal preparations [1, 2]. The use of herbal medicines by the tribal communities is influenced by distinct socio-cultural practices, beliefs, support of traditional authority and services of traditional medicine [1]. The documentation of traditional knowledge on medicinal plants has been considered [3, 4] to support the discoveries of new drugs for the benefit of mankind. More than 90% of raw materials required for the pharmaceutical industries are obtained from the wild resources [5]. Globally, about 80% of the traditional medicine used for primary healthcare is derived from plants [6]. The medicinal plants provide accessible and culturally relevant sources of primary healthcare. The healthcare remedies based on these plants often have more nutritional value [7, 8]. Most of the tribal people having traditional knowledge of medicinal plant that are used for primary healthcare to treat cough, cold, fever, headache, wound healing, jaundice, ring worm and poisonous bites [9]. The information from this quantitative inventory will provide valuable documentation of forest resources and improve our healthcare knowledge. The objective of this study is to identify the primary healthcare medicinal plants and its utilization by the tribal people inhabitant at Palamai hills, Coimbatore District, Tamil Nadu.

2. Materials and Methods**2.1 Study area**

The study site Palamai hill is located in the Coimbatore district of Tamil Nadu, India, which are part of the Western Ghats of Tamil Nadu. The district lies between the longitude 76° 57' 41.8752" E, 11° 0' 16.4016" N and an altitude of 1400 m on the Western Ghats [10]. The natural vegetation of the district has a broad sense of tropical deciduous and dry deciduous and semi evergreen types with most of the species characteristic to the deciduous forest of the Western Ghats. The study area inhabiting aboriginal community of Irula tribes are still in curative of plants, food and food additive plants by gathering whole plants, leaves, roots, rhizomes, tubers and also occupied in seasonal collection of honey, bee wax, fire woods and some minor forest products.

2.2 Methodology

The traditional knowledge of primary health care medicinal plants (local name, medicinal uses and mode of consumption) were collected through interviews and discussions among the tribal practitioners in and around the study area. The local names, photographs and sample specimens were collected for the preparation of herbarium. The collected specimens were identified taxonomically using The Flora of Presidency of Madras [11];

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The Flora of Tamil Nadu and Carnatic [12] and the following reference authors [13, 14]. Voucher specimens have been deposited in the form of herbarium, Department of Botany, Nirmala College for Women (Autonomous), Coimbatore, Tamil Nadu, India.

3. Results

The field survey was carried out in the Palamai hills, Coimbatore District, Tamil Nadu to identify the primary healthcare medicinal plants. The tribal communities of Irular tribe have rich knowledge about primary healthcare medicinal plants and their uses. In this study 34 primary healthcare medicinal plant species belonging to different families were identified. The documented plants categorized with their botanical name, family, vernacular name, parts used and primary healthcare ailments (Table 1).

The primary healthcare medicinal plants were utilized day to day life for their health benefits of various ailments such as common cold, fever, cough, headache, wound healing, stomach pain, appetizer, dysentery, asthma, dandruff, diuretic, diabetes, jaundice, indigestion, infertility, piles, skin diseases, snake bite, carminative, expectorants and ulcer. The plant parts applied as a paste, boiled, decoction, juice extracted from the fresh plant parts, powder made from dried plant parts. Paste is the main method of preparation, either for oral or external administration. The inhabitants in the villages of Palamalai Hills, Coimbatore District used a number of primary healthcare medicinal plants were used frequently for the treatment of various diseases. The indigenous knowledge about medicinal plants and therapies was composed verbally and passed orally from generation to generation. They fear that their recognition in the society which they have earned due to their knowledge will be lost and hence they want to keep it secret.

The primary healthcare medicinal plants of *Aloe vera* (Kathalai), *Aerva lanata* (Siru poolai), *Andrographis paniculata* (Siriyanangai), *Corallocarpus epigaeus* (Agasa karudan), *Cardiospermum halicacabum* (mudakkathan), *Cissus quadrangularis* (Pirandai), *Decalepis hamiltonii* (Magali kizangu), *Indigofera tinctoria* (Neeli Avuri), *Embelica officinalis* (Malai nelli), *Sapindus emarginatus* (Soap nut), *Hemidesmus indicus* (Nannari), *Gymnema sylvestre* (Sirukurinjan), *Tribulus terrestris* (Nerunji) and *Terminalia bellirica* (Kadukai) were collected from natural habitat and explained about the commercial value of the collected plants (Table 2). Marketing strategy was also taught to the tribal women for the successful and sustainable generation of the income.

4. Discussion

Now a day's primary health care medicine is a recognized

system of medicine throughout the World for their daily needs. For centuries, plants with medicinal properties have been utilized successfully in the treatment of various ailments and management of primary healthcare. Medicinal plants provide major source of molecules with medicinal properties due to presence of natural compounds [15]. Medicinal plants are useful for curing human diseases and play an important role in healing due to presence of phytochemical constituents. The natural and unique medicinal plants are used for curing various diseases/ailments and income generation [16]. Ayurveda and other Indian literature have mentioned the use of plants in treatment of various human ailments. Medicinal plants are important source to combat the serious diseases in all over the World [17]. The present study focuses the traditional knowledge on medicinal uses of plants and the scientific investigation to confirm their medicinal values and the role, contributions and usefulness of medicinal plants in tackling the diseases of public health importance [18]. Medicinal plants have provided a large variety of potent drugs to alleviate or eradicate infections and suffering from diseases in spite of advancement in synthetic drugs, some of the plant-derived drugs still retained their importance and relevance [2]. The leaf part is the most frequently used part for the treatment of various diseases. The external applications and internal consumption are involved in the treatment of wounds, snake bite; headache, jaundice, stomach pain, dysentery, indigestion and skin diseases [19]. The most common ailments are digestive problems followed by respiratory disorders, skin diseases, wound healing, genital disorders, snake bite and diabetes. Traditional medicinal plants are used as raw materials in pharmaceutical industries cannot therefore be overemphasized. The practice of herbs to treat diseases is almost universal among non-industrialized societies [20].

5. Conclusion

The present studies on primary healthcare medicinal plants and market value of the tribal inhabitant area of Palamalai Hills, Coimbatore Districts, Tamil Nadu are very important in traditional system of medicine and primary health care needs are very effective presence in the study species. The primary health care medicinal plants are important to maintain to keep traditional knowledge and keep digitalize. Hence, the disappearance ethnobotanical knowledge of the healthcare medicinal plants is to be well documented for constantly and recommended for sustainable cultivation practices and future medicine.

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Table 1: List of primary healthcare medicinal plants used for various ailments by the tribes Inhabitant of Palamalai Hills, Coimbatore district, Tamil Nadu

| S. No | Plant Species | Family | Habitat | Parts Used | Primary healthcare Uses | References |
|-------|----------------------------------------------|------------------|----------------|------------|----------------------------------------------------------------------------------------------|-----------------------------------|
| 1 | <i>Acalypha indica</i> L. | Euphorbiaceae | Herb | Leaf | Leaf paste applied on affected area of skin disease. | Nor Syahiran <i>et al.</i> , [21] |
| 2 | <i>Adhatoda vasica</i> Nees | Acanthaceae | Shrub | Leaf | Leaf powder mixed with honey taken orally to cure asthma, bronchitis and chest congestion. | Claeson, <i>et al.</i> , [22] |
| 3 | <i>Aerva lanata</i> L. | Amaranthaceae | Herb | Leaf | Leaf infusion taken orally to remove kidney stone. | Manoj, <i>et al.</i> , [23] |
| 4 | <i>Aloe vera</i> (L.) Burm.f. | Asphodelaceae | Succulent Herb | Leaf | Jel used for cosmetics preparation and juice of this plant jel used for deworming. | Anteneh <i>et al.</i> , [24] |
| 5 | <i>Andrographis paniculata</i> (Burm.f) Nees | Acanthaceae | Herb | Leaf | Intake of leaf powder in the early morning benefit for diabetic and also used for snake bite | Samyurair, <i>et al.</i> , [25] |
| 6 | <i>Aristolochia indica</i> L. | Aristolochiaceae | Climber | Root | Root powder used for snake bite and poisonous bite. | Gopal Krishna [26] |

| | | | | | | |
|----|----------------------------------------------------------|----------------|----------------|-----------------|-------------------------------------------------------------------------------------------------------------------------|--------------------------------------------|
| 7 | <i>Basella alba</i> L. | Basellaceae | Climber | Leaf | Leaf used as greens for compensate the deficiency of nutrition. | Deshmukh and Gaikwad ^[27] . |
| 8 | <i>Bryophyllum pinnatum</i> (Lam) Pers | Crassulaceae | Herb | Leaf | Leaf infusion taken orally for kidney stone. | Mahendra, et al., ^[28] |
| 9 | <i>Capparis zeylanica</i> L. | Capparaceae | Shrub | Fruit | Fruit used in pickle preparation and eaten after cook. | Nitin ^[29] |
| 10 | <i>Caralluma adscendens</i> (Roxb.) Haw. | Apocynaceae | Succulent Herb | Stem | Young shoot eaten raw for obesity, diabetic and control thirsty. | Maria Francis et al., ^[30] |
| 11 | <i>Cardiospermum halicacabum</i> L. | Sapindaceae | Climber | Leaf | Leaf cooked as vegetable and leaf oil has good health benefit of arthritis and swelling. | Maria Francis et al., ^[30] |
| 12 | <i>Carmona retusa</i> (Vahl) Masam. | Boraginaceae | Shrub | Leaf | Leaf used as carminative, digestion and bronchitis. | Ignacimuthu, et al., ^[31] |
| 13 | <i>Cassia auriculata</i> L. | Fabaceae | Shrub | Leaf and Flower | Leaf powder used for diabetic and flower used for cosmetic purpose. | Umapriya, et al., ^[9] |
| 14 | <i>Ceropegia juncea</i> Wight | Apocynaceae | Climber | Young shoots | Young shoot eaten raw to prevent thirsty and body booster. | Samyudurai, et al., ^[7] |
| 15 | <i>Cissus quadrangularis</i> L. | Vitaceae | Climber | Young shoot | Young shoot cooked as vegetable and rich in calcium and gives strength to bone. | Ignacimuthu, et al., ^[31] |
| 16 | <i>Coccinia grandis</i> (L) Voigt | Cucurbitaceae | Climber | Young Leaf | Young leaf cooked as greens and rich in minerals. | Sarvalingam and Rajendran ^[33] |
| 17 | <i>Coleus forskohlii</i> Willd | Lamiaceae | Herb | Leaf | Leaf extract mixed with honey to take internally for cold, cough, fever and bronchitis. | Umapriya et al., ^[9] |
| 18 | <i>Corallocarpus epigaeus</i> (Rottl.) C. B. Clark | Cucurbitaceae | Climber | Tuber | Tuber powder used for poisonous bite and folk belief. | Samyudurai et al., ^[7] |
| 17 | <i>Decalepis hamiltonii</i> Wight & Arn. | Apocynaceae | Woody climber | Tuberous root | Tuberous root used as pickle and it is substitute for Nannari. It is used for body cooling, appetizer and body booster. | Samyudurai et al., ^[7] |
| 20 | <i>Dioscorea pentaphylla</i> L. | Dioscoreaceae | Climber | Tuber | Tuber Cooked as vegetable and eaten raw | Maria Francis et al., ^[30] |
| 21 | <i>Gymnema sylvestre</i> R. Br. | Apocynaceae | Climber | Leaf | Leaf powder taken orally to cure diabetic and it is called Sarkaraikolli. | Samyudurai et al. ^[32] |
| 22 | <i>Hemidesmus indicus</i> (L.) R.Br. | Apocynaceae | Climber | Tuberous root | Root extract used as Nannari health drink for body cooling, appetizer and rejuvenating purpose. | Ignacimuthu et al. ^[31] |
| 23 | <i>Indigofera tinctoria</i> L. | Fabaceae | Shrub | Leaf | Leaf powder used as Cosmetic purpose. | Ignacimuthu et al., ^[31] |
| 24 | <i>Ocimum sanctum</i> L. | Lamiaceae | Herb | Leaf | Leaf extract used as common cold, cough and fever. | Ignacimuthu et al. ^[31] |
| 25 | <i>Orthosiphon aristatus</i> (Blume) Miq. | Lamiaceae | Shrub | Leaf | Leaf extract used as insect bite and repellent. | Samyudurai et al. ^[32] |
| 26 | <i>Phyllanthus amarus</i> L. | Euphorbiaceae | Herb | Leaf | Fresh leaf extract mixed with goat milk taken internally to cure Jaundice. | Umapriya et al., ^[9] |
| 27 | <i>Plumbago zeylanica</i> L. | Plumbaginaceae | Shrub | Root | Root powder used to cure skin disease. | Umapriya et al. ^[9] |
| 28 | <i>Rhinacanthus nasutus</i> (L.) Kurz | Acanthaceae | Shrub | Leaf | Leaf extract used for insect bite. | Samyudurai et al. ^[32] |
| 29 | <i>Ruta graveolens</i> L. | Rutaceae | Herb | Leaf | Leaf powder used as cosmetic for children. | Samyudurai et al. ^[32] |
| 30 | <i>Sapindus emarginatus</i> (Vahl) Radlk. | Sapindaceae | Small tree | Fruit | Dry fruit used as soap and dandruff shampoo and also used to prepare cosmetic items. | Umapriya et al., ^[9] |
| 31 | <i>Solanum xanthocarpum</i> L. | Solanaceae | Herb | Fruit | Young fruit used as vegetable after cooking for stomach cleaning and deworming. | Ganesan ^[18] |
| 32 | <i>Terminalia bellirica</i> (Gaertn.) Roxb. | Combretaceae | Herb | Fruit | Fruit extract used as carminative, digestion and heart health tonic. | Samyudurai et al. ^[32] |
| 33 | <i>Tinospora cordifolia</i> (Willd.) Hook. f. and Thoms. | Menispermaceae | Climber | Leaf | Leaf extract used for fever, memory booster, immunity booster and increase sterility. | Sarvalingam and Rajendran. ^[33] |
| 34 | <i>Tribulus terrestris</i> L. | Zygophyllaceae | Herb | Leaf | Leaf infusion taken orally for kidney stone. | Samyudurai et al. ^[32] |

Table 2: The highly valuable primary healthcare medicinal plants of Coimbatore District

| S. No. | Botanical Name | Common Name | Price/Kg |
|--------|----------------------------------|----------------|----------|
| 1 | <i>Aloe vera</i> | Kathalai | 20.00 |
| 2 | <i>Aerva lanata</i> | Siru poolai | 15.00 |
| 3 | <i>Andrographis paniculata</i> | Siriyangai | 20.00 |
| 4 | <i>Corallocarpus epigaeus</i> | Agasa karudan | 50.00 |
| 5 | <i>Cardiospermum halicacabum</i> | Mudakkathan | 25.00 |
| 6 | <i>Cissus quadrangularis</i> | Pirandai | 25.00 |
| 7 | <i>Decalepis hamiltonii</i> | Magali kizangu | 50.00 |
| 8 | <i>Indigofera tinctoria</i> | Neeli Avuri | 50.00 |
| 9 | <i>Embelica officinalis</i> | Malai nelli | 30.00 |
| 10 | <i>Sapindus emarginatus</i> | Soap nut | 100.00 |
| 11 | <i>Hemidesmus indicus</i> | Nannari | 20.00 |
| 12 | <i>Gymnema sylvestre</i> | Sirukurinjan | 35.00 |
| 13 | <i>Tribulus terrestris</i> | Nerunji | 10.00 |
| 14 | <i>Terminalia bellirica</i> | Kadukai | 50.00 |



Fig 1: Showing primary healthcare medicinal plants in Palamalai Hills, Coimbatore district, Tamil Nadu. a - *Corallocarpus epigaeus*; b-*Cissus quadrangularis*; c-*Decalepis hamiltonii*; d-*Carmona retusa*; e-*Capparis zeylanica*; f-Fruit of *Capparis zeylanica*.

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