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SPECIES SURVEY

Herbalists and Wild Medicinal Plants in Kolli Hills (Eastern Ghats, India): An Ethnopharmacology Survey

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ABSTRACT

The main aim of this study was to identify and document the different folk medicinal plants used in the kolli hills region (Eastern Ghats, India) for the ailment of various diseases. Another important objective is to overcoming the amount of an orally transmitted pharmacopoeia, as an attempt to exploit the ethnopharmacology endowment of the region for further therapeutic purposes. A field study was carried out over a period of one year in kolli hills region (April 2013 to March-2014). During this period, Malayalis (tribal people of Kolli hills) were interviewed using semi-structured questionnaires, investigating the their basic informations (gender, age and educational level) and about wild medicinal plants (local name, uses and part used). A total of 47 Malayalis were interviewed and men were found to be dominating in the practice of folk medicine in the region. About 45% of them are between 31 and 51 years, and about 31% are illiterate. The traditional herbal knowledge passed from generation to generation verbally and writing practice being almost totally lacking. With the help of interviewed Malayalis, we identified and recorded 100 plants species and 84 Genera belonging to 47 families. Solanaceae and Asteraceae were the most represented plant families among the identified. The aerial parts were the most commonly used plant part, while infusion and Maceration were the most common method of traditional drug preparation. The survey provides a genuine source of information on the Malayalis and folk medicinal plants used by them. Plants were used for the treatment of various diseases worldwide deemed to their advantages over pharmacological terms. The knowledge of these medicinal plants will assist in the discovery and development of herbal drugs for various health complications.

Keywords: Kolli hills, Malayalis, Ethnopharmacology, Questionnaires, Folk medicines.

1. INTRODUCTION

The Eastern Ghats are the discontinuous range of mountains along eastern coast of India, which extends between the states West Bengal in the north and Tamil Nadu in the south. The Eastern Ghats are not as lofty as the Western Ghats but, older than the Western Ghats. Both

Eastern Ghats and Western Ghats are rich in biodiversity. The Kolli hills of Eastern Ghats lies in Tamil Nadu, and its Geology has resulted in isolated ecosystem and extraordinary biological diversity and it is familiar for plants mainly with therapeutic and aromatic applications. It is also one of the ancient hills in India, in which a small group of tribal peoples, Malayalis are living in. These people are found to be using various plants grown in Kolli hills for ailment purposes, without knowledge of exact action of the plant compounds. But, they are using their traditional knowledge, Indian siddha medicine practice, gained from ancient Monks (Sithars (or) Monk). These sithars are lived in these hills and believed themselves as devotees of god. The tribal peoples are following their practices of using selected medicinal plants for therapeutic purposes. Few Indian ancient monks practiced rekey medicine practice, which is nothing but holding selected plants for some time for the plants to release chemical compounds, for the treatment of certain diseases. Most of these practices are not properly documented, that was threatened by on-going development and change of lifestyle.

The total geographical area of kolli hills is about 28,293 ha which comprised 51% of agricultural land and 44% of forestland. The hill supports 37,000 inhabitants living in 274 hamlets. The population is primarily Malayalis, the cultural group comes under Scheduled Tribe labeled by the Government of India. The resident malayalis are largely live in Solakkadu, Semmedu, Keel Solakadu, Valavanthinadu, and Othakadai hamlets, which are located at the top of the Kolli hill. Tribal families in the Kolli hill depend on forest for their food, fodder, herbal medicines, and firewood and timber assets. Each tribe and sub-tribe has unique cultures, customs, traditional idea and lingo of their own. These differences have contributed to the high assortment of indigenous traditional knowledge and practices of medicinal plants in conventional health care management. Most of the researchers are working in last two decades in these hills.

The medicinal plants usage and corresponding pharmacological assessment were not systematically studied in Kolli hills. The documentation of medicinal plants used in kolli hills will help to acquire knowledge that is not widely available internationally. As per the literature evidences, we are having the knowledge of about only 100 medicinal plants available in kolli hills used for treatment of various ailments (Francis Xavier et al., 2011). Botanical and ethnopharmacological studies are most significant for the protection and use of biological resources, and at the same time represent a vital tool in the protection of biodiversity (Heywood, 2011). Therefore, documenting the localand scientific names and indigenous uses of plants will finds significant potential benefits for the society (Cakilcioglu and Turkoglu, 2010). Few ethnobotanical surveys have been carried out in this region in last few decades (Ranjithakani et al., 1992. Francis Xavier et al., 2011. Ravikumar et al., 2014). The socio economic and cultural status are strongly influence the people's choice in fighting several diseases through the use of medicinal plants, as does the high cost of modern medicine.

2. MATERIALS AND METHODS

2.1. Survey area

The study area of kolli hills is located at the Eastern Ghats range (Figure 1) in Namakal District, Tamil Nadu State, which is sharing boundaries with two districts Trichy and Salem (Latitude: 10°12' - 11°7'N; Longitude: 76° - 77°56'E) (Mani, 1975). The average annual rainfall in Kolli hill ranges 1324 mm and annual mean maximum and mean minimum temperatures are 35ºC and 18ºC, respectively (Harikrishnan, 1977). The total population of Kolli hill during 2014 is 63,888 as per the census of India. The main source of income of the people is from agriculture and livestock. Climate of the district is generally dry except during north east monsoon season. The soil type is loamy and black soil on kolli hills. About 44% of the total geographical area is occupied by forest vegetation and 51% is utilized for agricultural works (Ravikumar et al., 2014).

2.2. Interviews

A questionnaire (Annexure I) was provided to the Tribals and filled through face-to-face interviews (Mehdioui and Kahouadji, 2007). The information is divided into two parts. The first concerns the tribal, the holder of the information; while the second gathers information concerning the medicinal plants such as local names, plant part used, medicinal uses, preparation and dosage. This ethno-botany survey was carried out for nearly one year during March 2013 to March 2014 and all the informations were gathered from the local Malayali tribes. The information was collected in the questionnaire and field notebook.

2.3. Collection and authentication of Medicinal plants

During the study, our team approached the herbal doctors in kolli hills (tribal or non-tribal) and the specific questionnaire was asked about the medicinal plants and their uses. The informations were documented in the field Notebook and crosschecked with the conventional medical practitioner and other professional beneficiaries. Same time our team photographed, and collected plant samples for herbarium preparation with their help of the local tribes. The collected plants were identified by their vernacular names by consultations with the local tribal people. The Flora of Presidency of Madras (Gamble, 1935.) and The Flora of Tamil Nadu Carnatic (Matthew, 1983.) were used to determine the nomenclature. The collected plants were identified by Dr. D. Narasimhan, Department of Botany, Madras Christian College, Chennai, India. According to Kirtikar et al. (1993), ethno-medicinal medicinal plants were verified and crosschecked. The herbarium specimens were deposited in the department herbarium at Government Arts College, Nandanam, Chennai, Tamil Nadu, India.

3. RESULTS

The ethno-botanical survey study on Kolli hills resulted with 100 species of medicinal plants belonging to 84 Genera and 47 families with their medicinal uses, and reported activities (Table1). Tribal applications of the plants to cure diseases like dog bite, fever, skin diseases, Anticancer, Diabetes, vomiting, wounds, Anticonvulsant, dental caries, Antileprotic, antipruritic, purgative, Jaundice, liver diseases, leprosy, Bronchitis, ear-

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ache, increase sperm count in men, cardio tonic, urinary troubles, blood purification, increase the memory, Carminative, antiepileptic, syphilis indigestion, antidote, Aphrodisiac, anaemia, Chest pain, burns, Ulcer, antispasmodic, Aphrodisiac, anti-asthmatic, scabies, Sedative, reduce body heat, Aphrodisiac, bitter tonic, Diuretic, uterus disorders, Fever, facial paralysis, Antifertility, Antiseptic, tooth ache, Dysentery, fits, colic pain, prevention of white discharge in women, healing borne fracture Antifungal, Anti-inflammatory, hydrocele, Amoebic dysentery, Refrigerant, diaphoretic, Anticonvulsant, brain tonic, gastric stimulant, haemorrhagic enteritis, appetizer, killing worms in stomach, kidney problems.etc. Mostly leaves and stem bark are used (Figure 2) and most of the plants are collected from Keel Solakadu Hamlet (Figure 3).Asteraceae and Solanaceae (Table 2) family members are widely used in herbal medicine in the survey area,.

In the present survey, 73 native herbalists from Kolli hills were interviewed. Men (74%) dominate the practice of traditional medicine due to the cultural traditions of the region, where women are not encouraged to work. The age group of herbalists varied as 31-40 (41%)and over 60 years is at very low Frequency roup (6%).About one third of herbalists are illiterate (34%) or with a primary or secondary education (11%and31% respectively); even herbalists with a university education exist (24%) this is still low compared to the level of the other herbalists in the Algerian countryside.

A total of 100 plant species and 84 genera distributed over 47 families with dominance of especially Asteraceae and Solanaceae family (7% and 7%, respectively) and were listed in table 2. The aerial parts of the plant are most commonly used (79%), with flowered tops and leaf (45%); roots (6%); rhizomes (5); fruit (3); and bark (4%). It is well known that not all the plant parts contain the same concentration of the active constituents. Not only that, but many different parts of plants contain different phytochemical substances (Bruneton, 1999). Herbalists in kolli hills are not fully aware of this and they always employ the plant parts based on traditional knowledge rather than a scientific knowledge.

The most common methods for the preparation of medicinal plants were Decoction (31%) and infusion (45%); other methods of preparation were powder (13%) and compress (10%). A search through the literature for other field surveys carried out in kolli hills and lying within the neighboring region of similar bio geographical zone and biodiversity revealed a great degree of agreement concerning medicinal plants and their traditional remedial uses (Ranjithakani et al., 1992. Francis Xavier et al., 2011. Ravikumar et al., 2014).

Modern medicines may be available in some developing countries; herbal remedies enjoy great popularity for historical and cultural reasons (Aburjai et al., 2007; Yan et al., 2008; Mukherjee et al., 2010). Concurrently, in many developed countries an increasing portion of people have begun to turn to alternative medicines or complementary therapies, which include the use of medicinal herbs (Craker, 2007; Espin etal.,2007; Nobili etal.,2009; Napoli and Ruberto,2012). For these reasons therefore, the documentation, registration and analysis of traditional medicinal practices are essential; large sectors of the population in a large number of countries use these medicines, and scientific support on the safety, efficacy and composition of these treatments must be considered necessary. Moreover, an ethnobotanical and ethno pharmacological survey such as the one reported here, when supported by phytochemical studies, could open the way to the addition of new bio molecular scaffolds to the pharmacological field. Above all, however, its aim is to give further tools for developing strategies to improve the health of the indigenous people incorporating local medicinal plants in to the health care delivery system of the country.

4. CONCLUSION

The present survey study elucidates the importance of the herbal medicines and conservation of the biological vegetations. The survey area is mostly known as sitharmallai, it has number of medicinal plants. Most of these plants are grown only in the hilly area, and fragrance/ volatile compounds of few plants itself are able to cure diseases. According to estimates by the World Health Organization, more than 3.5 billion people in the developing world rely on plants as components for their primary healthcare. The survey shows that there is a high diversity of medicinal plants used in malayali's for treating common ailments and complicated rare diseases. The preservation of such traditional knowledge is an essential requirement for maintaining continuity and transmission of traditional medicinal practice. The recording of traditional cultural heritage based on local biodiversity is important as the medicinal practices are being at risk.

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Figure 1
Geographical location of the survey area, Kolli hills

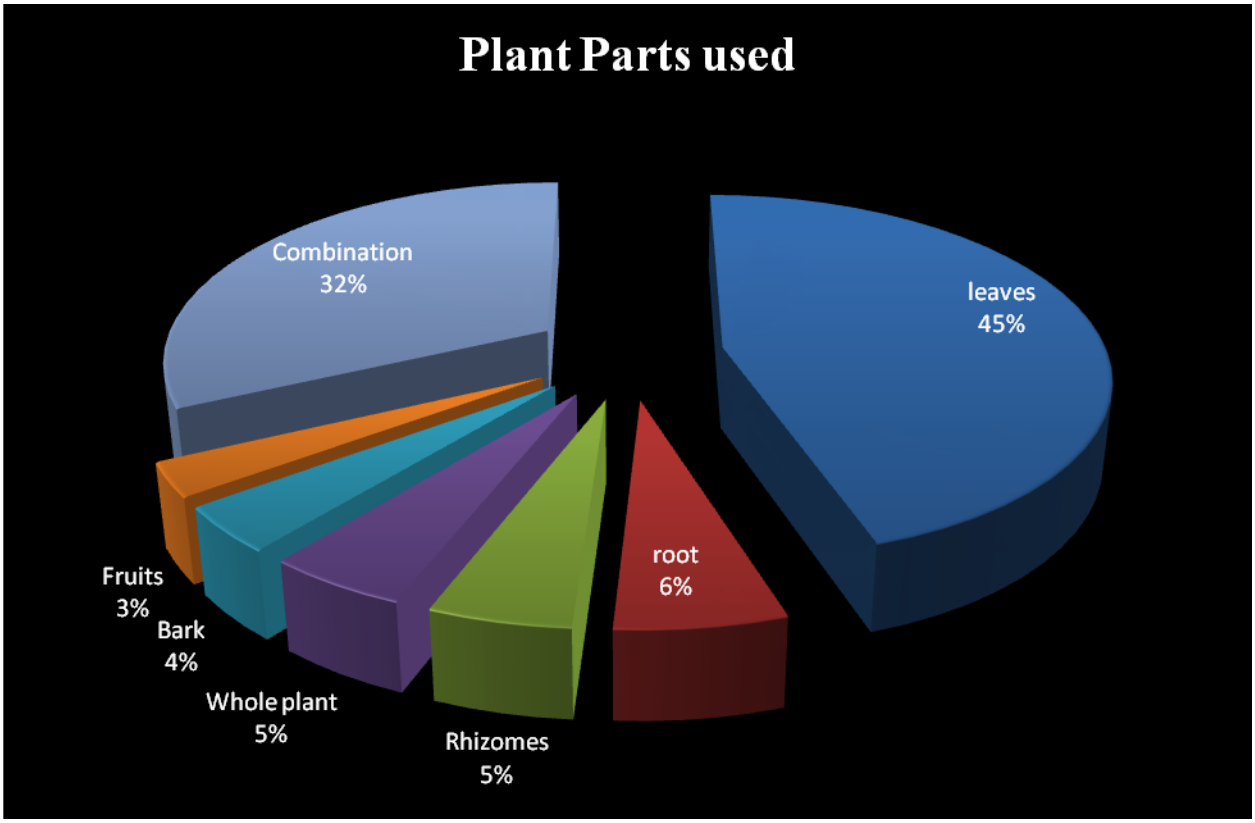

Figure 2
Plant parts used for folk medical practice in Kolli hills

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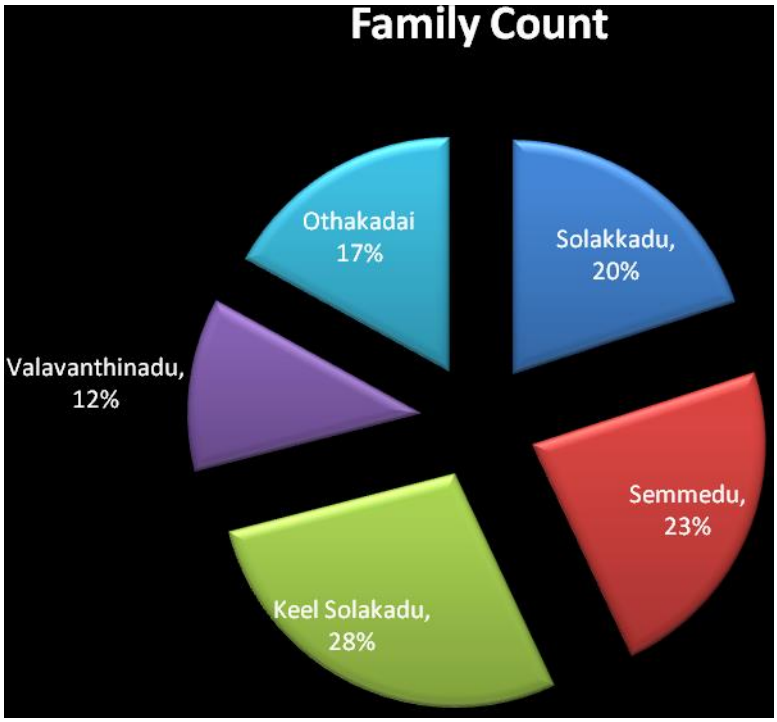

Figure 3
Distribution of collected medicinal plants in different hamlets of Kolli hills

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Table 1

List of folk medicinal plants collected and reported by various researchers

Botanical name	Family	Local name	Parts Used	Ethno medicinal uses	Reported activity	References	Site
Alangium salviifolium L.F.	Alangiaceae	Alangi	leaves	Wangerin diarrhoea, dog bite, fever,skin diseases	Antibacterial activity	Ashik Mosaddik et al. (2000)	S1
Catharanthus roseus L. G. Don	Apocynaceae	Nithya kalyani	leaves	Anticancer	Wound Healing Potential	Nayaka et al. (2007)	S1
Gymnema sylvestre (Retz) R. Br.	Asclepiadaceae	Sirukurinja	Leaves, root	Diabetes, vomiting	Hyphoglycemic effect	Sathya et al. (2008)	S1
Eclipta prostrata L.	Asteraceae	Karisalanganni	Leaves	Skin diseases	Hypolipidemic activity	Dhandapani. (2007)	S1
Tridax procumbens L.	Asteraceae	Vettukaya Poondu	Leaves	wounds	Wound Healing Potential	Yaduvanshi et al. (2011)	S1
Anacyclus pyrethrum DC.	Asteraceae	Akkirakkaram	Leaves	Anticonvulsant, dental caries	Toxicological evaluation	Kuttan Sujith et al. (2012)	S1
Artemisia nilagirica (C.B. Clarke) Pamp.	Asteraceae	Masipattari	Leaves	Antileprotic, antipruritic	Antifeedant activity	Paraj shukla et al. (2012)	S1
Launaea nudicaulis Hook. f.	Asteraceae	Ezhuthani poondu	Leaves	Anti-inflammatory, purgative	Antimicrobial screening	Mahrezi et al. (2011)	S1
wedelia calendulacea less.	Asteraceae	Karisalankanni	Leaves	Jaundice, liver diseases,leprosy	Antiulcer and cytoprotective action	Hegde et al. (1994)	S1
Eclipta alba L. Hassk.	Asteraceae	Kaikesi	Whole plant	Worms, jaundice	Analgesic property	Pandey et al. (1997)	S1
Anisochilus carnosus Wallich & ex	Lamiaceae	Saetthupun thazhai	leaves	skin diseases.	Anticancer and antimicrobial efficacy	Meenakshi sundaram muthuraman et al. (2012)	S1
Coleus aromaticus Benth.	Lamiaceae	Omavalli	leaves	cough.	Protective effect	Vijayavel et al. (2013)	S1
Leucas aspera Spreng (Satodron)	Lamiaceae	Thumbai chedi	leaves	skin diseases	Anti-ulcer activity	Kannappa Reddy et al. (1992)	S1
Anisomeles malabarica L. R.Br. Ex Sims	Lamiaceae	Paeimiratti	Stem	wounds	Chemical Composition and Antibacterial Activity	Ushir Yogesh et al.(2011)	S1
Ocimum basilicum Linn	Lamiaceae	Thineerpachai	Flowers, leaves	Bronchitis, ear-ache	Antioxidant and hepatoprotective activities	Meera et al. (2009)	S1
Lawsonia inermis L.	Lythraceae	Maruthondri	Bark, leaves	Skin disorders	Anthelmintic activity	Bairagi et al. (2011)	S1
Moringa oleifera L.	Moringaceae	Murangai	leaves	increase sperm count in men.	hepatoprotective activities	Pari et al.(2002)	S1
Argemone maxicana L.	Papaveraceae	Brumma thundu	leaves	skin diseases	Antibacterial Activity	Rahman et al. (2011)	S1

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Dryopteris filix-mass L. Schott.	Polypodiaceae	Mail sikki	Rhizomes	Worms, cardio tonic	Antioxidant Activity, Polyphenols Content and Antimicrobial Activity	Soare et al. (2012)	S1
Tribulus terresteris L.	Zygophyllaceae	Nerunchimul	root	urinary troubles	Hypoglycemic effect	Li et al. (2002)	S1
Adhatoda zeylanica Medi.	Acanthaceae	Adathodai	leaves	cough	Renal protective activity	Arunachalam kumar et al. (2013)	S2
Andrographis lkineate Wallich ex.	Acanthaceae	Siriyanangai	leaves	snake Nees bite.	Antimicrobial Activity	Chinnappan Alagesaboopathi. (2011)	S2
Andrographis paniculata Burm. F.	Acanthaceae	Nilavembu	leaves	diabetics.	Antiulcer Activity	Saranya et al. (2011)	S2
Justicia gendarussa, Burm. F.	Acanthaceae	karunochi	leaves	Arthritis	Anti-inflammatory potential	Kavitha et al. (2012)	S2
Adhatoda vasica Nees	Acanthaceae	Adatodai	Leaves, root	Expectorant, broncho-dialator	Anti- Ulcer Activity	Shrivastava et al. (2006)	S2
Rhinacanthus communis Nees	Acanthaceae	Nagamalli	Root, leaves,seeds	Ring worm, skin diseases	Anti microbial activity	Christy Jeyaseelan et al. (2012)	S2
Centella asiatica L	Apiaceae	Vallari	leaves	gastritis and blood purification,increase the memory	Antioxidant and Cytotoxic Activities	Frederico Pittella et al. (2009)	S2
Carum roxburghianum Benth. ex Kurz	Apiaceae	Omum	Fruits	Carminative, respiratory diseases	Potential antifertility agents from plants	Dinesh Kumar et al. (2012)	S2
Alstonia venenata R. Br.	Apocynaceae	Chinnapalai	Ripe fruits	Worms, antiepileptic, syphilis	Phytochemical and antibacterial properties	Khyade et al. (2009)	S2
Terminalia arjuna Roxb. Ex. Dc Wight & Arn	Combretaceae	Marutha Maram	Bark	indigestion	Antimicrobial activity	Atul et al. (2011)	S2
Terminalia bellirica (Gaertn.) Roxb.	Combretaceae	Thanrikkai	Fruits, kernels	Toothache, small pox	acetylcholinesterase inhibitory activity	Gargi Nag et al. (2011)	S2
Psoralea corylifolia L.	Fabaceae	Karbogarisi	Seeds	Purgative, antidote	Antimicrobial activity	Hosamani et al. (2012)	S2
Mucuna pruriens L. DC.	Fabaceae	Poonai kali	Seeds, pods	Aphrodisiac, anaemia	Antibacterial activity	Murugan and Mohan (2011)	S2
Pongamia pinnata L.	Fabaceae	Pungu	Seeds, root	Chest pain, burns	Fungitoxic properties	Digamber et al.(2013)	S2
Glycyrrhiza glabra L.	Fabaceae	Athimathuram	Root	Ulcer, antispasmodic	Antimicrobial, cytotoxic and antioxidant activity	Shapna Sultana et al. (2010)	S2
Curculigo orchioides Gaertn.	Hypoxidaceae	Nilappanaikila	Rhizomes	Aphrodisiac, anti-asthmatic, jaundice	Antimicrobial and antitumor activity	Rajesh Singh et al. (2014)	S2
Aloe vera L.	Liliaceae	Sothukathalai	Sucker	sexual debility and fever	Antidiabetic activity	Yongchaiyudha et al. (1996)	S2
Michelia champaca L.	Magnoliaceae	Sembagam	Bark, root-bark	Expectorant, purgative	Antiinflammatory and antipyretic activity	Vimala et al. (1997)	S2
Azadirachta indica A. Juss	Meliaceae	Vembu	leaves	smallpox and skin diseases.	Antimicrobial Activity	Nishant Rai et al. (2011)	S2
Acacia nilotica L.	Mimosaceae	Shikakaai	Stem bark	skin diseases and scabies.	Anticancer Activity	Sakthivel et al(2012)	S2

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Cymbidium aloifolium L. SW	Orchidaceae	Uttuchedi	leaves	wounds	Antibacterial activity	Radhika et al. (2013)	S2
Passiflora edulis Sims	Passifloraceae	Thatboot sedi	Pulp of fruits	Stimulant, tonic	Sedative and anticonvulsant properties	Elisabeth Ngo Buma et al. (2004)	S2
Alpinia galanga Willd.	Zingiberaceae	Perarathai	Rhizomes	impaction.	Antibacterial Activity	Kiranmayee Rao et al. (2010)	S2
Agave sisalana Perr.	Agavaceae	Narkatralai S	leaves	ear diseases.	Antimicrobial activity	Jener Santos et al. (2009)	S3
Sansevieria roxburghiana Schult. f.	Agavaceae	Nagathale	Root, tender, shoots	Throat phlegm	analgesic, cytotoxic and antioxidant activities	Jimuty Roy et al. (2012)	S3
Achyranthus aspera L.	Amaranthaceae	Naiuruvi	leaves	Eye pain.	Phytochemical composition and in vitro antioxidant activity	Priyaet al. (2012)	S3
Acorus calamus L.	Araceae	Vayambu	Rhizomes	Worms, vomiting, sedative	Pharmacological Activities	Divya et al. (2011)	S3
Hemidesmus indicus L. R. Br.Muell	Ascelpiadaceae	Nannani chedii	Root	reduce body heat	antibacterial activity on human pathogenic bacteria and larvicidal effect	Sujatha et al. (2010)	S3
Evolvulus alsinoides L.	Convolvulaceae	Vishnu kradi	Whole plant	Aphrodisiac, worms, bitter tonic	Preliminary studies on antiin!ammatory, antipyretic, and antidiarrhoeal properties	Dhana Lekshmi et al. (2011)	S3
Gloriosa superba L.	Liliaceae	Senganthal	leaves	wounds	Phytochemical Screening	Mariappan Senthilkumar (2013)	S3
Asparagus racemosus Willd.	Liliaceae	Satavali	Root	Diuretic, uterus disorders	Antimicrobial Activity	Patel et al. (2013)	S3
Abutilon indicum L.	Malvaceae	Thuthi	leaves	dental problems	Antioxidant Potential	Ahmad et al. (2012)	S3
Hibiscus abelmoschus L.	Malvaceae	Kasturi vendai	Petals	In scabies, skin diseases	antimicrobial activities	Nwaiwu et al. (2012)	S3
Pavonia zeylanica L. Cav.	Malvaceae	Citramutti	Whole plant	Purgative, worms	Antibacterial activity	Perumal Samy et al. (2000)	S3
Sida cordifolia L.	Malvaceae	Nila thutti	Root-bark	Fever, facial paralysis	Phytochemical screening and Antibacterial activity	Kalaiarasan et al. (2010)	S3
Acacia caesia L. Willd	Mimosaceae	Nanjupatti	Bark	kin diseases	In vitro antioxidant potential	Thambiraj et al. (2012)	S3
Acacia farnesiana L. Willd.	Mimosaceae	Kasthuri velan	Bark	Astringent, demulcent	Antimicrobial activity	María del Carmen Vega Menchaca et al. (2013)	S3
Mimosa pudica L.	Mimosaceae	Thottar sinungi	leaves	Antifertility, diuretic	Phytochemical screening and antimicrobial activity	Palwinder Kaur et al.(2011)	S3
Eugenia caryophyllata Thunb.	Myrtaceae	Kirambu	Dried flower,buds	Antiseptic, tooth ache	Comparison of antioxidant activity	Ìlhami Gülçin et al. (2004)	S3
Boerhavia diffusa L.	Nyctaginaceae	Mukkuratai	leaves	skin diseases.	Phytochemical screening and antibacterial effect	Deepti Malhotra et al. (2013)	S3
Plumbago zeylanica L.	Plumbaginaceae	Venkodiveli	Root	Worms, fever	Antibacterial activity	Jeyachandran et al. (2009)	S3
Polygala chinensis L.	Polygalaceae	Kakurthothe	leaves	Expectorant, stimulant	Free radical scavenging activity	Shailendra Gurav et al. (2007)	S3

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Aegle marmelos L. Corr. ex Roxb.	Rutaceae	Vilvam	Half-ripe fruits	Diarrhoea, diabetes	Antifungal activity and kinetics	Ranaa et al. (1997)	S3
Citrus aurantifolia Christm. Swingle	Rutaceae	Ezhumitchai	leaves,fruit	asthma,emollient	Pharmacognostic and Phytochemical Evaluation	Vinita Apraj et al. (2011)	S3
Ruta graveolens L.	Rutaceae	Aruvatha Plant,	leaves	Dysentery, carminative	Anti-inflammatory effect	Raghavet al. (2006)	S3
Cardiospermum halicacabum L. WC	Sapindaceae	Mudakkathan	leaves	fits	Protective effect	Chinnadurai Veeramania et al. (2012)	S3
Clerdendron phlomides L.	Verbenaceae	Thaluthalai	leaves	urinary tract disorders.	Antidiabetic activity	Dhanabal et al. (2008)	S3
Lantana camera L.	Verbenaceae	Unnichedi	leaves	stomach-ache	Phytochemical screening, antioxidants and antimicrobial potential	Rabia Naz et al. (2013)	S3
Vitex negundo L.	Verbenaceae	Notchi	leaves	headache and fever	Screening and evaluation of antioxidant, antimicrobial, cytotoxic, thrombolytic and membrane stabilizing properties	Shamsuddin Sultan Khan et al. (2013)	S3
Clerodendrum serratum L.	Verbenaceae	Sirutekku	Moon Root, leaves	Carminative, stimulant, worms	hepatoprotective activity	Vidya et al.(2007)	S3
Cissus quadragularis L.	Vitaceae	Pirandai	Stem	dog bites	Antiviral activity	Balasubramanian et al. (2010)	S3
Calotropis gigantiea L. R.Br	Acslepiadeaceae	Erukku	leaves	tumours	A phytochemical and pharmacological review	Madhuri Kadiyala et al. (2013)	S4
Aristolochia bracteata L.	Aristolochiaceae	Aduthinna Pazhi	leaves	colic pain	Toxicity studies	Krishnappa et al. (2012)	S4
Cassia auriculata L.	Caesalpiniaceae	Avvarai	leaves	prevention of white discharge in women,skin rashes.	anti-arthritic activity	Bandawane et al. (2014)	S4
Cassia occidentalis L.	Caesalpiniaceae	Ponnavarai	leaves	healing borne fracture	Acute and subacute toxicity	Mirtes Silva et al. (2011)	S4
Cassia alata L.	Caesalpiniaceae	Seemai agathi	leaves	Antifungal	Antimicrobial activity	Darah Ibrahim et al. (1995)	S4
Caesalpinia bonducella L. Flem.	Caesalpiniaceae	Kalarchikkai	Pods	Anti-inflammatory, hydrocele, diuretic	Antidiabetic activity	Shrabana Chakrabarti et al. (2005)	S4
Cleome viscosa L.	Capparaceae	Naikadugau	leaves	treat wounds.	anti-diarrheal activity	Parimala Devi et al. (2002)	S4
Maranta arundinacea L.	Marantaceae	Kuvai kilangu	Rhizomes	Amoebic dysentery	Antioxidant activity	Nishaa et al (2012)	S4
Myristica fragrans Houtt.	Myristicaceae	Jadhikkai	Seeds	Carminative, stimulant, aphrodisiac	Anti-Parasitic Activity	Suthagar Pillai et al. (2012)	S4
Cynodon dactylon L.	Poaceae	Arugampul	leaves	digestion.	LC–MS analysis, anticancer, antioxidant and antimalarial activities	Daycem Khlifi et al. (2013)	S4
Vetiveria zizanioides L. Nash.	Poaceae	Vettiver	Root	Refrigerant, diaphoretic	Anti-tuberculosis activity	Dharmendra Saikia et al. (2012)	S4
Bacopa monnieri L. Penn.	Scrophulariaceae	Nirpirami	Whole plant	Anticonvulsant, brain tonic	Antioxidant approach	Govindarajan et al. (2005)	S4
Allium sativum L.	Alliaceae	Poondu	Bulb	gastric stimulant.	Utilization of hydrolytic enzymes	Hyun Jung Lee et al. (2013)	S5

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Euphorbia cyathophora L.	Euphorbiaceae	Palperuki	leaves	induce lactation in women	Antimicrobial and wound healing activities	Chitra et al. (2014)	S5
Euphorbia hirta L.	Euphorbiaceae	Ammanpatcharisi	leaves	haemorrhagic enteritis	green synthesis, Characterization and antimicrobial activity	Annamalai et al. (2013)	S5
Acalypha indica L.	Euphorbiaceae	Kuppaimeni	leaves	skin diseases	Biosynthesis and characterization of Acalypha indica mediated copper oxide nanoparticles and evaluation of its antimicrobial and anticancer activity	Rajeshwari Sivaraj et al. (2014)	S5
Cinnamomum zeylanicum Breyn.	Lauraceae	Pattai	Bark	Carminative, stimulant	Antifungal Activity	Sameer (2012)	S5
Cinnamomum tamala Nees & Eberm.	Lauraceae	Lavangapatri	Bark, leaves	Diaphoretic, appetizer	Gastroprotective activity	Bavani Eswaran et al. (2010)	S5
Ficus racemosa L.	Moraceae	Atthi	Root, fruits	Blood-purifier, laxative	Reversible Antifertility Activity	Dheeraj Ahirwar et al. (2011)	S5
Piper nigrum L.	Piperaceae	Milagu	Fruits	Rubifacient	Antioxidant activity	Hossein Bagheri et al. (2014)	S5
Piper longum L.	Piperaceae	Thippili	Root, fruits	Respiratory diseases	Anti-snake venom activities	Shenoy et al. (2013)	S5
Rubia cordifolia L.	Rubiaceae	Sevalaikodi	Root, stem	Astringent, bitter tonic	possible precursor of an antitumor peptide	Yukio Hitotsuyanagi et al. (2012)	S5
Solanum torvum Sw.	Solanaceae	Sundaikkai	Fruits	killing worms in stomach	Evidence of parietal amine oxidase activity	Marcel Aribaud et al. (2009)	S5
Datura metel L.	Solanaceae	Karuoomathi	leaves	eye diseases	Comparative study of total phenolics, flavonoids contents and evaluation of antioxidant and antimicrobial activities	Mohammad et al. (2014)	S5
Physalis minima L.	Solanaceae	Sodukku Thakkali	leaves	kidney problems.	rowth arrest and induction of apoptotic and non-apoptotic programmed cell death	Kheng Leong Ooi et al. (2010)	S5
Solanum trilobatum L.	Solanaceae	Thuthuvalai	leaves	cold and cough	Mosquitocidal properties	Selvaraj Premalatha et al. (2013)	S5
Physalis peruviana L.	Solanaceae	patasu chedi	Whole plant	Worms, skin diseases	antidiabetic activity and acute toxicity	Félicien Mushagalusa Kasali et al. (2013)	S5
Solanum nigrum L.	Solanaceae	Mana thakkali	Berries, shoots	Fever, diuretic, skin diseases	Mosquito larvicidal and antimicrobial activity	Anjali Rawani et al. (2013)	S5
Withania somnifera L. Dunal	Solanaceae	Amukkara	Root, leaves	Aphrodisiac, stimulant	Metabolic profiling for studying chemotype variations	Anil Bhatia et al. (2013)	S5

*Sites Were Medicinal Plants Collected
S1-Solakkadu,
S2-Semmedu,
S-3 Keel Solakadu,
S-4 Valavanthinadu, and
S-5Othakadai

Table 2

Number of plant species collected from different families

Family name	Count
Asteraceae	7
Solanaceae	7
Acanthaceae	6
Lamiaceae	5
Caesalpiniaceae	4
Fabaceae	4
Malvaceae	4
Mimosaceae	4
Verbenaceae	4
Aristolochiaceae	3
Euphorbiaceae	3
Liliaceae	3
Rutaceae	3
Agavaceae	2
Apiaceae	2
Apocynaceae	2
Combretaceae	2
Lauraceae	2
Piperaceae	2
Poaceae	2
Acslepiadeaceae	1
Alangiaceae	1
Alliaceae	1
Amaranthaceae	1
Araceae	1
Capparaceae	1
Convolvulaceae	1
Hypoxidaceae	1
Lythraceae	1
Magnoliaceae	1
Marantaceae	1
Meliaceae	1
Moraceae	1
Moringaceae	1
Myristicaceae	1
Myrtaceae	1
Nyctaginaceae	1
Orchidaceae	1
Papaveraceae	1

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Passifloraceae	1
Plumbaginaceae	1
Polygalaceae	1
Polypodiaceae	1
Rubiaceae	1
Sapindaceae	1
Scrophulariaceae	1
Vitaceae	1
Zingiberaceae	1
Zygophyllaceae	1

ANNEXURE I

Questionnaire Card

SECTION-A

Date	Area	Gender		Age	Educational level			
		Male	Female		Illiterate	Primary	Secondary	Academic

SECTION-B

		Botanical classification Plant name (family)				Common/Tribal name		
Utilization (Name of disease)								
Mode of use	Infusion	Decoction	Fumigation	Maceration	Powder	Cream	Bath	Tablet
used part(s)	Root	Leaf	Fruit	Flower	Seed	Flowered tops	Aerial parts	Whole plant
Why? (reason)								

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