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ETHNOBOTANICAL SURVEY OF INDIGENOUS MEDICINAL PLANTS USED BY THE VILLAGE PEOPLES OF VIRALUR, PUDUKKOTTAI DISTRICT, TAMIL NADU, INDIA

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ABSTRACT
This study provides significant ethnobotanical information on indigenous knowledge of medicinal plants in Viralur village, Pudukkottai District, Tamil Nadu. There is an urgency in recording such data to conserve the traditional medicinal plants. This is the first ethnobotanical study which records the traditionally important medicinal plants of Viralur village. A total of 78 species of plants belonging to 35 families were recorded in this study. This was used to treat several diseases and ailments by the villagers. The family Euphorbiaceae recorded a maximum of eight species followed by Solanaceae and Caesalpiniaceae with five species each. Leaves (33 %) were the most frequently used parts for medicine preparation. Medicines were prepared in the form of decoction, juice, paste, powder, infusion etc. Most preparations are made with water as solvent. Beside this they also used banana pulp, orange peel, lemon, black pepper, sugar, salt, camphor, etc. as adjuvant with different solvents. For the preparation of paste or ointment they often use castor oil, coconut oil, mustard oil and neem. The villagers used the medicinal plants for treating swellings, inflammation, skin diseases, urinary troubles, bronchitis, asthma, kidney stones, piles, constipation, eye diseases, stomach problems, poisonous bites, worms, menstruation troubles, rheumatism head ache, fever, cold, sinusitis etc. The study concludes that suitable measures are needed in order to protect the traditional knowledge in this particular area with reference to medicinal plant utilization. The plants need to be evaluated through phytochemical investigation to discover potentiality as drugs.

KEY WORDS: Indigenous knowledge, Viralur, medicinal plants, treatments, conservation.

INTRODUCTION
Ethnobotanical studies are very important to reveal the past and present culture about plants in the world. The survey of medicinal plants in a particular area is important to conserve the traditionally important plants of that particular landscape.[1] According to the World Health Organization (WHO) about 65–80% of the world's population in developing countries depends essentially on plants for their primary healthcare due to poverty and lack of access to modern medicine.[2] In recent years, use of ethnobotanical information in medicinal plant research has gained considerable attention in segments of the scientific community.[3] Interest in medicinal plants has been fueled by the rising costs of prescription drugs in the maintenance of personal health and well-being and the bioprospecting of new plant-derived drugs.[4] India is one of the treasure houses of medicinal plants in the world. The Indian subcontinent is praised with most varied and diverse soils and climate conditions suitable for the growth of various plant species. India is very rich in medicinal plant information and known for its rich biodiversity of medicinal plants, hence called botanical garden of the world.[5]

India has a rich and varied heritage of biodiversity encompassing a wide spectrum of habitat from tropical rain forest to alpine vegetation and from semi-arid vegetation to coastal wetlands. India is figured with two hotspots the Western Ghats and the Eastern Himalayas; in addition, India has 26 recognized endemic centers that are home to nearly one third of all flowering plants identified and described to date in India. Of the 1.7 million of the world's described biota, India contributes 3% of the global flora. Among the flowering plants, India accounts for 7% of 250,000 flowering plants so far described in the world.[6] A vast knowledge of medicinal plants exists as or amongst the primitive societies of the country, where a large number of potent medicinal plants are found growing wild. A great amount of ethnobotanical research work has been undertaken in various forests of tribal/rural populations scattered throughout the country.[7] Indigenous knowledge of using medicinal plants for healing human ailments is, however, in danger of gradually becoming extinct, because this

knowledge is passed on orally from generation to generation without the aid of a writing system and because many traditional healers do not keep written records.[8]

The tremendously growing world population, increasing anthropogenic activities, rapidly eroding natural ecosystem are the main threats for medicinal plants. The natural habitat for a great number of herbs and trees are dwindling. Many of them are in an edge of extinction. According to the Red list of threatened species 44 plant species are critically endangered, 113 endangered and 87 vulnerable in India alone.[9] Unsustainable harvesting practices by herb gathers, often for commercial purpose, have resulted in the depletion of many medicinal species in the forests. Low prices also discourage cultivation as with less effort.[10] Conservation of natural resources in order to maintain the structure and functions of the ecosystem and ensure tangible benefits in term of fuel, fodder and other resource base needs is also a matter of much concern to the whole world today.[11] During the last few decades there has been an increasing interest in the study of medicinal plants and their traditional use in different parts of India. In the recent years number of reports on the use of plants in traditional healing by either tribal people or indigenous communities of India is increasing.[12,13,14,15,16,17,18]

The documentation of indigenous knowledge through ethnobotanical studies is important in conservation and utilization of biological resources. The identification of local names, scientific names and indigenous uses of plants not only preserves indigenous knowledge but also facilitates future research on safety and efficacy of medicinal plants in treatment of various ailments.[19] It agreement to this background the utilization of medicinal plants as a source of primary health care by communities in Viralur is documented. This will ensure that traditional knowledge about use of the plants is conserved. It will also facilitate the discovery of new sources of drugs and promote sustainable use of medicinal plant resources in Viralur village. In addition conservation of medicinal plants will add value to the recreational environment as well as health improvement through sustained ecosystems. This study was aimed at collecting and documenting plant species used to treat different health conditions by communities in Viralur.

MATERIALS AND METHODS

Viralur is a village of Viralimalai a Taluk located in the Pudukkottai district of Tamil Nadu state, India. The latitude 10.435089 and longitude 78.639394 are the geo co-ordinate of the Viralimalai. Chennai is the state capital that is located around 349.1 kilometer away from Viralur. The other nearest state capital from Viralimalai is Pondicherry and its distance is 211.8 km. The surrounding nearby villages and its distance from Viralimalai are Viralur 3.0 km, Ramakkaundanpatty 5.0 km, Agarapatti 6.5 km, Pakkudi 15.7 km, Meenaveli 16.8 km, Vemmani 19.7 km, Neerpalani 21.9 km, Kalamavur 22.5 km, Avoor 25.3 km, Rajalipatti 26.8 km, Mandaiyur 27.5 km, Thennathirayanpatti 28.3 km, Kalkudi 28.7 km, Mathoor 30.0 km, Nambampatti, Rajagiri and Maruthampatti. Black soil and Red Sandy soils are found in Viralimalai Taluks. The rainy months for this District can be grouped as South – West monsoon rains from June to September (ii) North – East monsoon from October to December (iii) Winter period from January to February and Hot weather period from March to May. The least amount of rainfall occurs in March. The average in this month is 10 mm. The greatest amount of precipitation occurs in October, with an average of 189 mm. The temperatures are highest on average in May, at around 41 °C. The lowest average temperatures in the year occur in January, when it is around 28.2 °C. Viralimalai is a Census Town city in district of Pudukkottai, Tamil Nadu. The Viralimalai Census Town has population of 10,883 of which 5,483 are males while 5,400 are females as per report released by Census India 2011. Literacy rate of Viralimalai city is 85.72 % higher than state average of 80.09 %. In Viralimalai, Male literacy is around 91.54 % while female literacy rate is 79.85 %. Water resources are utilized mainly for three purposes: irrigation, industrial use and domestic water supply. The major sources of irrigation are wells, tanks and Canals. There is only one river in Pudukkottai District namely Vellaru (water flows only in Rainy season). The sources of water supply are canals, wells, tube wells and tanks. The important agricultural crops are Paddy, Cholam, Cumbu, Ragi, Green Gram, Red Gram, Ground nut, Gingelly, Chillies, Sugarcane and Cashew nut.

Methodology

The ethnobotanical study was conducted in Viralur village of Viralimalai Taluk for a period of four months, October 2016 to February 2017 (Fig. 1). The interviews were conducted in the local language, Tamil and specific question based proforma were designed and information were recorded in the ethnobotanical field notebook. Ethnobotanical information included the local name of the particular plant, parts utilized, medicinal uses and methods of preparation and administration. All the species cited as medicinal plants were collected from the field at reproductive stage, with the help of informants in duplicate. A field sheet was recorded with collectors name, vernacular name, local name and ecological parameters. Information was gathered from all categories of village people such as the local healers, village head man, elderly persons and the person having a thorough knowledge of medicinal practices. Canon PC1474 camera with 12.1 Mega pixels, 4X Optical Zoom, Canon Inc., Malaysia was used for taking photographs.

Herborization

The plant specimen were freshly collected and arranged properly within the folded sheets of pressing papers (12''/18''), each of which was placed between two dry blotters of same size to make the herbariums. The whole piles of blotters and pressing sheets was then locked up

in a field press for 24 hours. Since drying of plants was done without heat, it needed five changes of blotters and pressing sheets properly spread over a span of 12 days. Each specimen was mounted on a white card sheet (11.5''/16.5'') by using white gum paste.[20,21] The information's collected regarding the medicinal uses of plants were analyzed properly and documented. The plants were identified taxonomically using the Flora of the Presidency of Madras,[22] Flora of Tamil Nadu [23] and Flora of Tamil Nadu Carnatic.[24]

RESULTS AND DISCUSSION

The experiences of the local people were recorded during the interviews. The results of the field survey were presented (Table 1). The plants were arranged in alphabetical order of their binomials. For each species, the botanical name, family, vernacular name (Tamil), part(s) used and medicinal uses were presented (Table 1). According to the results of identification of specimens, 78 medicinal plant species belonging to 35 families were found in the research area. Among them 69 species belonged to 29 dicot families; 8 species belonged to 5 monocot families and 1 species belonged to Pteridophyta. The number of species belonging to each individual family was furnished (Fig. 2). The family Euphorbiaceae was represented with eight species followed by Solanaceae and Caesalpiniaceae with five species each. This was followed by Malvaceae with four species. The families Acanthaceae, Lamiaceae, Amaranthaceae, Apocynaceae, Cucurbitaceae,

Fig. 1. Satellite Map of Viralur village, Viralimalai Taluk, Tamil Nadu, India.

Table: 1. List of traditional medicinal plants investigated in this study with their related information

Voucher No.	Botanical Name	Family	Vernacular name	Part(s) used	Uses
VM58	*Abrus precatorius*	Fabaceae	Kundumani	Leaf, root, seed	Emetic, purgative, expectorant, aphrodisiac, tonic, pain, swelling, alopecia, sore throat
VM26	*Abutilon indicum*	Malvaceae	Tutthi	Leaf, seed, root, bark, flower	Aphrodisiac, diarrhoea, emollient, asthma, cystitis, gonorrhoea, vermifuge
VM4	*Acalypha indica*	Euphorbiaceae	Kuppaimeni	Whole plant	Fistula, vermifuge, bed sores, headache, psoriasis, skin diseases, scabies, antidote
VM53	*Adhatoda vasica*	Acanthaceae	Adathodai	Leaf, root, flower, bark	Chronic asthma, bronchitis, rheumatism, swellings, malarial fever
VM65	*Aegle marmelos*	Rutaceae	Vilvam	Leaf, fruit, bark	Redness of the eye, cough, cold, dropsy, leucorrhoea, gonorrhoea, jaundice, ulcer, dysentery, chronic diarrhoea, general health tonic
VM59	*Aerva lanata*	Amaranthaceae	Sirupoolai	Whole plant	Diuretic, kidney stones, removes urinary tract blockage
VM78	*Albizia amara*	Mimosaceae	Usilai	Leaf, bark, gum	Body coolant, cures digestive tract problems, astringent
VM72	*Allium cepa*	Liliaceae	Vengayam	Whole plant	Diuretic, rubefacient, emmenagogue, aphrodisiac, tonsilitis, piles, fistula, cough
VM5	*Aloe vera*	Liliaceae	Chottrukkathalai	Leaf	Quenching thirst, gastric troubles, venereal diseases, skin ulcer, itching, swelling, wounds, constipation
VM56	*Alternanthera sessilis*	Amaranthaceae	Ponnanganni	Whole plant	Eye diseases, reduce body heat, improves vision, irritation of hand, leg and eye, body pain, stomach ache, thirst quencher
VM6	*Amaranthus spinosus*	Amaranthaceae	Mullukkeerai	Whole plant	Stomach ache, diuretic, poultice, appetite, loose motion, internal piles
VM55	*Andrographis paniculata*	Acanthaceae	Nilavembu	Whole plant	Malaria, fevers, stimulant, anthelminthic, promotes vigor, induces appetite
VM27	*Annona squamosa*	Annonaceae	Seetha	Leaves, fruit, seed	Anthelminthic, abscesses, boils, astringent, purgative
VM8	*Azadirachta indica*	Meliaceae	Vembu	Whole plant	Chicken pox, reduce swellings, intestinal worms, acute diabetes, tuberculosis, wheezing, asthma, liver toner, leprosy, rheumatism
VM9	*Bambusa vulgaris*	Poaceae	Moongil	Leaf, root, seed	Coughs, bandage, wound healing, menstrual disorders, intestinal worms, delivery-onset problems in uterus, wounds, eczema
VM42	*Bauhinia tomentosa*	Caesalpiniaceae	Mandharai	Leaf, flower, root, bark	Laxative, astringent, vomiting, indigestion, excess menstrual bleeding, constipation, body slimming
VM40	*Boerhaavia diffusa*	Nyctaginaceae	Mookirattai	Leaf, root	Diuretic, laxative, constipation, piles, diarrhoea, vomiting, jaundice, cold and fever, joint pain, wheezing,

					dropsy, anemia, cirrhosis of liver
VM28	*Caesalpinia bonduc*	Caesalpiniaceae	Kazharchikai	Leaf, root, seed	Hydrocele, orchitis, piles, fever, gas troubles, ovaritis, scrophula
VM10	*Calotropis gigantea*	Asclepiadaceae	Erukku	Leaf, bark, root, flower, latex	Antidote, intestinal worms, ear pain, cold, catarrh, cholera, gonorrhoea, syphilis, leprosy, camel sores
VM47	*Cassia auriculata*	Caesalpiniaceae	Aavaram	Whole plant	Increases stamina, excess thirst, hunger, body slimming, skin cracks, diabetes, excessive menstrual flow
VM52	*Cassia tora*	Caesalpiniaceae	Tagarai	Leaf, root, seed	Germicide, febrifuge, smooth bowel movement, poultice, swellings, kills ringworms, itches, leprosy, deep ulcers
VM7	*Catharanthus roseus*	Apocynaceae	Nithyakalyani	Root, flower	Body weakness, abnormal appetite, diabetes, control tumors and cancers
VM45	*Citrus limon*	Rutaceae	Elumichchai	Leaf, fruit	Refrigerant, carminative, cure heat, gonorrhoea, hair growth, vomiting due to acid, tastelessness, diarrhoea, whitlow
VM63	*Cleome gynandra*	Cleomaceae	Nallavelai	Leaf, flower, seed	Carminative, anthelminthic, heaviness in the head, dropsy, rheumatic fever, cold, phlegm in the chest, cough, poultice
VM11	*Cleome viscosa*	Cleomaceae	Nayvelai	Leaf, seed, root	Gastric trouble, menstrual disorders, intestinal worms, inflammation of the ear
VM29	*Clitoria ternatea*	Fabaceae	Sangupushpam	Leaf, seed, root	Diuretic, anthelminthic, demulcent, laxative, emetic, errhine
VM46	*Coccinia grandis*	Cucurbitaceae	Kovai	Leaf, unripe fruit, root	Diuretic, body heat, irritation of eyes, urinary blockade, bruises, reduce the side effects of medicines, scabies, eczema, ulcer, asthma, diabetes
VM12	*Cocos nucifera*	Arecaceae	Thennai	Whole plant	Diabetes, dysentery, piles, leucorrhoea, blood vomiting, nervous debility, hernia, general debility, thirst, antidote, psoriasis, skin disorders
VM1	*Coleus aromatics*	Lamiaceae	Omavalli	Leaf, stems	Epilepsy and other convulsive affections, cholera, asthma, bronchitis, cold, fever and chronic cough
VM13	*Colocasia esulenta*	Araceae	Seppankilangu	Tender shoots, leaf, stem, tuber	Piles, swellings, boils, ear ache, rubefacient, stimulant, laxative
VM54	*Commelina benghalensis*	Commelinaceae	Kanavazhai	Whole plant	Febrifuge, astringent, mild fever, dysentery, increases semen volume and sperm count, gonorrhoea, pimples
VM14	*Croton bonplandianum*	Euphorbiaceae	Milakaipoondu	Leaf, seed, root	Laxative, navicular diseases, rheumatism, paralysis, pleurisy, polio
VM15	*Cucumis sativus*	Cucurbitaceae	Vellari	Leaf, fruit, seed	Diuretic, kidney stone, fissures, gonorrhoea, refrigerant
VM2	*Datura metel*	Solanaceae	Oomaththai	Whole plant	Headache, epilepsy, convulsions, cramps, rigid thigh

					muscles, febrifuge, diarrhea, rheumatism and narcotic
VM69	*Dichrostachys cinerea*	Mimosaceae	Vidathalai	Leaf, bark, gum	Demulcent, dysentery, diarrhoea, internal heat, gonorrhoea, increases virility, diabetes
VM30	*Eclipta prostrata*	Asteraceae	Karisalanganni	Leaf	Anemia, dropsy, jaundice, wheezing cough, hair growth, sinusitis, giddiness
VM16	*Eucalyptus globulus*	Myrtaceae	Nilagiri tailam	Leaf	Diaphoretic, expectorant, bronchitis, wounds, sinusitis, decongestant, tuberculosis
VM41	*Euphorbia hirta*	Euphorbiaceae	Amman pachcharisi	Whole plant	Inflammation of mouth, lips and tongue, burning sensation, eczema, syphilis, pimples, skin eruptions, constipation, urinary tract infections
VM17	*Ficus racemosa*	Moraceae	Atthi	Leaf, fruit, bark, latex	Laxative, aphrodisiac, diabetes, arthritis, menstrual pain, dysentery, diarrhoea, heart strengthening
VM67	*Hibiscus rosa-sinensis*	Malvaceae	Chemparuththi	Leaf, flower, root	Laxative, demulcent, emollient, chest pain, hair growth, urinary infections, swelling of the liver, cardiotonic
VM3	*Indoneesiella echioides*	Acanthaceae	Gopuranthangi	Leaf, root	Psoriasis, hair fall, strengthen bones and nerves
VM18	*Ixora coccinea*	Rubiaceae	Vetchi	Flower, root	Stomachic, cholagogue, antiseptic, sedative, dysentery, blood pressure, wounds, ulcers
VM33	*Jatropha gossypifolia*	Euphorbiaceae	Kattamanakku	Leaf, latex	Breast milk secretion, boils, swollen gums, scabies, eczema, herpes, sores, pruritus, jaundice, leprosy
VM34	*Marsilea quadrifolia*	Marsileaceae	Aaraikkerai	Leaf	Stops excessive urination with blood, refrigerant
VM19	*Mimosa pudica*	Mimosaceae	Thottarchinungi	Leaf, root	Aphrodisiac, poultice, hydrocele, urinary disorders, piles, hip pain
VM51	*Mollugo cerviana*	Molluginaceae	Parpatakam	Whole plant	Antiseptic, body freshener, all kinds of fever, diaphoretic, antiperiodic
VM49	*Momordica charantia*	Cucurbitaceae	Pavakkai	Leaf, fruit,	Anthelminthic, nullify the toxicity of toxic medicines, diabetes, burning sensation of sole, piles, jaundice, liver and spleen problems
VM20	*Morinda tinctoria*	Rubiaceae	Nuna	Leaf, fruit, root	Deobstruent, emmenagogue, febrifuge, stimulant, leucoderma, constipation
VM21	*Murraya koenigii*	Rutaceae	Kariveppilai	Leaf, bark and root	Carminative, indigestion, constipation, cold, cough, fever, delirium, dropsy, hysteria
VM22	*Nerium oleander*	Apocynaceae	Arali	Root, root bark	Head ache, swellings, treatment for snake bite
VM64	*Ocimum basilicum*	Lamiaceae	Thiruneetrup--pachchilai	Leaf, seed	Expectorant, carminative, stimulant, headache, fast heart palpitation, sleeplessness, chest pain, cough, ulcer in the cheeks, impaired hearing, leucorrhoea, constipation
VM23	*Ocimum tenuifolium*	Lamiaceae	Thulasi	Leaf, flower,	Stimulant, bronchitis, chest ailments, asthma, fever, heart

				seed	ailments, ear pain, whooping cough, increases sperm count and motility
VM37	*Opuntia stricta*	Cactaceae	Pathalamooli	Stem, root, fruit	Antidote, refrigerant, demulcent, expectorant, bronchial catarrh, hepatic congestion, antidote, rheumatism
VM68	*Oryza sativa*	Poaceae	Arisi	Rice grains	Inflammation, sedative, energy giving
VM32	*Passiflora incarnata*	Passifloraceae	Maypop	Fruit	Insomnia, hysteria, diarrhoea, head ache, flatulence, whooping cough, antispasmodic
VM36	*Phoenix sylvestris*	Arecaceae	Pereecham	Fruit	Urinary and reproductive disorders, diarrhoea, nutritive tonic, expectorant, cough, asthma, tuberculosis, gonorrhoea, laxative
VM71	*Phyla nodiflora*	Verbenaceae	Poduthalai	Whole plant	Chronic sores, syphilis, gonorrhoea, leucorrhoea, piles, lung infections, asthma, skin infections in the head, dandruff
VM48	*Phyllanthus amarus*	Euphorbiaceae	Keezhanelli	Whole plant	Fever, itches, prurience, night blindness, menorrhagia, leucorrhoea, dysmenorrhoea, jaundice, ulcer in nostrils, early onset of ageing, liver disorders, anemia
VM24	*Phyllanthus emblica*	Euphorbiaceae	Nelli	Leaf, bark, fruit	Dysentery, diabetes, jaundice, dandruff, night blindness, sinusitis, vomiting, stomach disorders
VM50	*Phyllanthus emblica*	Euphorbiaceae	Nelli	Leaves, bark, fruit	Dysentery, diabetes, cataract, night blindness, dandruff, falling of hair, sinusitis, stomach disorders, inflammation, dizziness, sores in the penis
VM31	*Psidium guajava*	Myrtaceae	Koyya	Leaf, root	Cholera, indigestion, thirst, loss of appetite, external piles, gas trouble
VM35	*Punica granatum*	Punicaceae	Mathulai	Leaf, flower, fruit, bark	Vomiting, dysentery, bleeding of the nose, throat infection, fever, inflammation, uterine defects
VM60	*Ricinus communis*	Euphorbiaceae	Aamanakku	Leaf, root, seed	Laxative, emollient, rheumatism, swellings, constipation, menstrual problems, bronchial infection
VM76	*Sida acuta*	Malvaceae	Arivalmanaipoondu	Leaf	Styptic, wound healing, antidote for snake venom
VM57	*Solanum nigrum*	Solanaceae	Manatthakkali	Leaf, berry	Anodyne, hydrogogue, sedative, cathartic, diaphoretic, expectorant, piles, herpes, rheumatism, cure ringworm, cardiac tonic, diuretic
VM38	*Solanum surattense*	Solanaceae	Kandangkattari	Whole plant	Aperient, anthelminthic, diuretic, fever, pneumonia, asthma, tuberculosis, phthisis, toothache
VM75	*Solanum torvum*	Solanaceae	Sundaikkai	Fruit	Germicide, expectorant, diarrhoea, piles, loss of appetite, intestinal worms
VM61	*Solanum trilobatum*	Solanaceae	Thudhuvalai	Whole plant	Promotes brain power, tuberculosis, asthma, phlegm in the lungs, constipation, pneumonia, typhoid, general health

VM70	*Syzygium cumini*	Myrtaceae	Naval	Leaf, bark, fruit, seed	Indigestion, dysentery, diabetes, frequent urination, diabetes
VM39	*Tabernaemontana divaricata*	Apocynaceae	Nanthiyavattai	Flower, root	Anodyne, medicine for eye defects, tooth ache, cataract, anthelminthic
VM77	*Tamarindus indica*	Caesalpiniaceae	Puli	Leaf, flower, bark, seed, fruit, pod	Laxative, astringent, diuretic, dysentery, poultice, prolapse of the uterus, gastric troubles, duodenal cancer, stomach pain
VM25	*Tephrosia purpurea*	Fabaceae	Kollukkaivelai	Leaf, seed, root, bark	Expectorant, diuretic, indigestion, dropsy, swelling, pimples, carbuncles, tooth ache
VM73	*Terminalia bellirica*	Combretaceae	Thantri	Fruit	Piles, laxative, improves vision, irritation, expectorant, astringent
VM74	*Terminalia chebula*	Combretaceae	Kadukkai	Fruit	Antibilious, aperient, laxative, fistula, swellings, piles, heart disease, mouth sores, wounds, stomachic, vomiting
VM43	*Thespesia populnea*	Malvaceae	Poovarasu	Leaf, fruit, bark	Antiphlogistic, itching, swelling, ringworm cure, skin diseases, insect bites, cirrhosis, jaundice
VM66	*Tribulus terrestris*	Zygophyllaceae	Nerunjil	Whole plant	Aphrodisiac, astringent, demulcent, tonic, oozing of water from eyes, scanty urination, urinary tract stones, blood in the urine
VM44	*Tridax procumbens*	Asteraceae	Vettukkaya thalai	Leaf	Poultice on wounds, cures wounds quickly without forming pus
VM62	*Zizyphus jujuba*	Rhamnaceae	Ilanthai	Leaf, fruit, root, bark	Expectorant, laxative, diseases of uterus, facilitates conception, menorrhagia, dysentery, diarrhoea

Myrtaceae, Mimosaceae, Rutaceae and Fabaceae were represented by three species each. The families Liliaceae, Poaceae, Cleomaceae, Arecaceae, Rubiaceae, Asteraceae and Combretaceae were represented with two species each and the rest of the families possessed a single species (Fig. 2). The villagers used the medicinal plants for treating swellings, inflammation, skin diseases, urinary troubles, bronchitis, asthma, kidney stones, piles, constipation, eye diseases, stomach problems, poisonous bites, worms, menstruation troubles, rheumatism head ache, fever, cold, sinusitis etc. (Table 1). Among the various plant parts used for the preparation of medicine, Leaves (33 %) were most widely used followed by fruit (19 %), whole plant (18 %), seed (9 %), flower (6 %,), root (5 %), Bark (3 %), gum, latex, stem (2 % each) and tuber (1 %) (Fig. 3). The age of the plant and part to be used is also a valuable factor while selecting them as drugs.

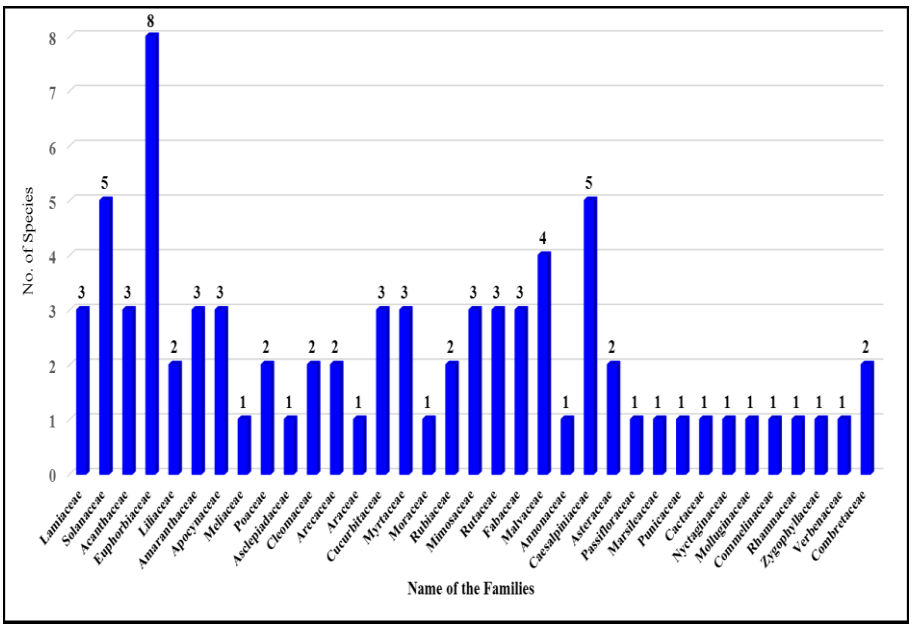

Fig. 2. Shows the number of Plants belonging to individual families

Of the various plants reported in the study, some were consumed internally whereas some of the plants were used externally while some of them were used both internally and externally. These valuable medicinal plants are used in the form of juice, paste, powder, extract and decoction, cooked or raw forms. In majority of the cases, fresh preparations are administered to avoid complications due to storage. Infusion is done by suspending plant material in either cold or pre-warmed water and decoction is done by boiling or heating of plant material in water.[25] Powder is obtained by finely grinding the plant parts to be used, after drying them. Juices are usually extracted from succulent plants. Most preparations are made with water as solvent. Beside this the village people used banana pulp, orange peel, lemon, black pepper, sugar, salt, camphor, tobacco leaf etc. as adjuvant with different solvents. For the preparation of paste or ointment they often use

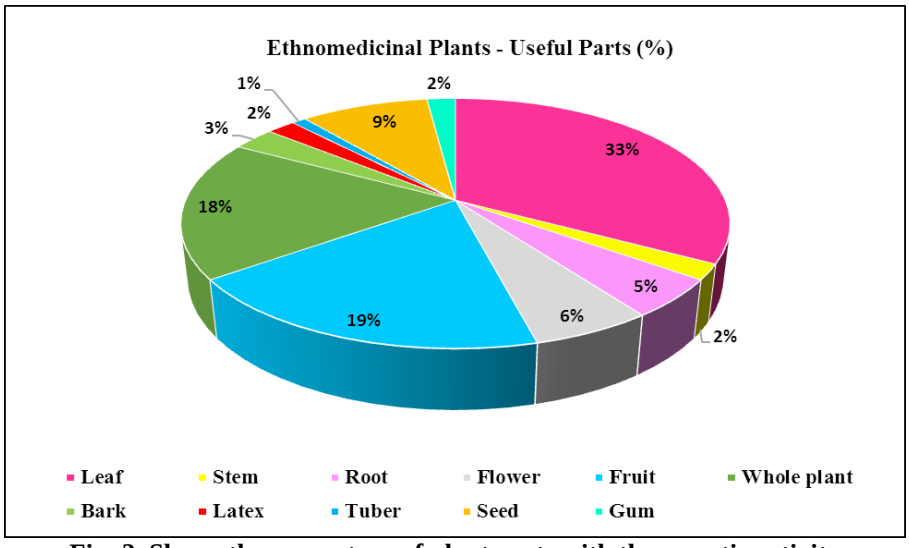

Fig: 3. Shows the percentage of plant parts with therapeutic activity

castor oil, coconut oil, ginger, mustard oil and neem. The advantage of external application is safety because external application results in indirect yet immediate local effects on the area and allows for easier regulation of dosages depending on the concentrations of beneficial or toxic compounds.[26] Oral administration is mostly suggested by the healers due to the ease of administration without using complex accessories and this result agrees with some other studies conducted elsewhere.[17] Viralur people were semi-skilled in identification, collection, processing and use of medicinal plants. They prepared drugs with the help of traditionally designed simple techniques which include the flat stone and pestle. Leaf juice was extracted by twisting it in clean cloth. In all preparations, standardized decoction in water was prepared. Drying of fresh plant in direct sun is avoided to maintain plant constituents. The traditional healers of the village usually collect the important medicinal plants from the field, dry and crush them, before storing the plant material in bottles. The medicinal preparations were made out of a single plant part or combination of several plant parts.[16]

From earliest times people have made use of plants for their basic needs, sustenance, medicare and livelihood. Some plants used by tribal people are cultivated, while others grow in wild conditions. The tribals depend predominantly on plants for food, clothing, housing, medicine, oil, agricultural implements, arts and crafts and a host of other requirements. They also have some superstitious beliefs on some plants which were found to be tied/ worn on the body parts to cure various ailments. It is well known that during the process of evolution plants have synthesized compounds whose structured diversity is often beyond the dreams of even the most imaginative organic chemists. Plants are still the main source of medicines to majority of people. Reliance on traditional medicine is not only associated with the traditional belief of its effectiveness but also on harmonious existence of spirit and matter. The efficacy of herbal medicines is believed to be enhanced when they are prepared and administered by enhancing mantras and incantations. The major resource of medicines arising from plants and their phytochemical constituents and medicinal properties of most of the medicinal plants were recorded in the last few decades by a number of workers. The survey and documentation of medicinal and aromatic plants in each and every place is mandatory for easy identification of local traditional healers, conservation and sustainable utilization. The most important utilization of these plants is through medicines. However, plants and their parts and the pattern of administration vary from person to person. Thus, there is enormous scope for tribal medicines based on plant products which are yet to be studied, analyzed and documented.[27]

There are plenty of possible applications of this work for use in the treatment of various diseases among the rural people. The indigenous people are using these plants from several thousands of years till today to treat many infectious and non-infectious diseases. Besides this another important application of this study is to create awareness among the rural people on traditional medicinal plants. The present investigation is very important because the herbal drugs are free from toxicity and side effects. The herbal drugs are also used as house hold remedy for common diseases since time immemorial. The present study mainly focuses on the documentation of medicinal plants used by the people at Viralur. The unprecedented interest and demand for plants with medicinal properties and potency for treatment of various ailments is causing over exploitation of such plant genetic resources. The depletion rate of plant resources generally is high, yet little is known about most of the world's plant species especially tropical floras.[28] For the first time, information about traditional uses of the medicinal plants in the Viralur village, Viralimalai Taluk, Tamil Nadu, South India has been obtained through this study. Our study reveals that medicinal plants are major source of medicine for the local people living in the village. Results recorded in this study represents a useful and long lasting information about the medicinal plants, which can contribute to preserve the indigenous knowledge on the use of medicinal plants in this region and also attract the future generations towards the traditional healing practices. Through this study we found that a great variety of medicinal plants were used by village peoples for the treatment of numerous diseases and ailments but several peoples only have the appropriate knowledge on the plants and their medicinal properties. However this study provides baseline information for scientific studies leading to isolation of bioactive compounds that can serve as starting materials in the discovery of new plant based drugs or standardized extracts as improved traditional medicine and also create awareness among the village peoples about the importance of medicinal plants and their conservation.

CONCLUSION

For the first time, information about traditional uses of the medicinal plants in the Viralur village, Pudukkottai District, Tamil Nadu, South India has been obtained through this study. Our study reveals that medicinal plants are major source of medicine for the local people living in Viralur village. Results obtained in this study represents a useful and long lasting information about the medicinal plants, which can contribute to preserve the indigenous knowledge on the use of medicinal plants in this region and also attract the future generations towards the traditional healing practices. Through this study we found that a great variety of medicinal plants were used by village peoples for the treatment of numerous diseases and ailments but some peoples alone have the appropriate knowledge on the plants and their medicinal properties. Many parts of the biogeographical areas of the country still remains unexplored. Hence, it is the need of the hour that major thrust should be given an intensive inventory and documentation of useful species,

their chemical constituents, habitats and potential utilization as raw materials. Deforestation, soil erosion, overgrazing and drought are the major factors that affect different medicinal plants in the study area. Priority should be given to *in-situ* conservation of the species. Such steps will not only contribute to protect the habitats but also help to maintain the ecological processes. Emphasis should also be given to conserve the habitats and useful species via *ex-situ* conservation. Attempt should be made to launch special programmes for raising people's awareness about conservation and utilization of plants around them.

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