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ETHNOMEDICINAL PLANTS USED BY THE PEOPLE OF THICKANAMCODE VILLAGE, KANYAKUMARI DISTRICT, TAMIL NADU, INDIA

S. JAYAKUMAR[1*], T.S. SHYNIN BRINTHA[2], C. DOMETTILA[3], R. MARY SUJIN[4], A. R. FLORENCE[5], G. JEBIA CHINNA RANI[5], A. AYUN VINUBA[6] AND V. SATHIA GEETHA[7]

1: Department of Botany, Nesamony Memorial Christian College (Affiliated to Manonmaniam Sundaranar University, Tirunelveli), Marthandam, Tamil Nadu, India

2: Department of Botany, Scott Christian College (Affiliated to Manonmaniam Sundaranar University, Tirunelveli), Nagercoil, Tamil Nadu, India

3: Department of Botany, St. Jude's College (Affiliated to Manonmaniam Sundaranar University, Tirunelveli), Thoothoor, Tamil Nadu, India

4: Department of Botany, PTMTM College (Affiliated to Alagappa University, Karaikudi), Kamuthi, Tamil Nadu, India

5: Department of Botany, Holy Cross College (Affiliated to Manonmaniam Sundaranar University, Tirunelveli), Nagercoil, Tamil Nadu, India

6: Department of Botany, TDMNS College (Affiliated to Manonmaniam Sundaranar University, Tirunelveli), Kallikulam, Tamil Nadu, India

7: Department of Botany, A.V.V.M. Sri Pushpam College (Autonomous), Bharathidasan University, Poondi, India

***Corresponding Author: Dr. S. Jayakumar: E Mail: solomonjeeva@gmail.com**

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ABSTRACT

Plants have been used since ancient times for the treatment of various ailments. The present study documents the commonly used medicinal plants used by the people of Thickanamcode village through Participatory Rural Appraisal (PRA) method and interview method. A total of 70

plants belonging to 67 .genera and 41 families with has been reported were recorded. They were used in the treatment of various ailments like bone fracture, hair fall, diabetes, cold, cough, jaundice, wounds and cuts, poisonous bite, breathing problem, fever, vomiting, body pain, pimple, ulcer, stomach disorders etc. The information on binomial with family, plant parts used, method of preparation and dosage to treat various ailments are documented**.** The data recorded can be used for the discovery of most of the allopathic medicines. Further investigations are used to identify the availability of chemical constituents which are useful for producing a more number of pharmaceutical drugs in low cost.

Keywords: **Ailments, Ethnobotany, Medicinal plants, Thickanamcode, Traditional medicine**

1. INTRODUCTION

Plants have been used in the traditional healthcare system from time immemorial particularly among the local and indigenous communities **[1-5]**. The value of medicinal plants to the mankind is very well proven. Many people, especially in the poorer underdeveloped countries rely on wild plants for food, construction materials, fuel wood, medicine and many other purposes. It is estimated that 70 to 80 percent of the people in worldwide rely on herbal medicines **[6]**. Out of 18,500 higher plant species recorded in India, about 7,500 species are reported to be medicinal by the rural and tribal communities **[7-10]**. In the rural and tribal lives of India, medicinal plant sector has traditionally occupied an important position in the socio-cultural, spiritual and medicinal area **[11,12]**. The use of plants for medicinal treatment in India dates back to prehistoric time. Today medicinal plants play a great role in human health services worldwide. Many people in the modern world are turning to herbal medicine because they do not have any side effects as like that of modern medicines. Traditional medicines are easy to consume by the rural people and they were obtained from the local plants seen around our homesteads **[13-15]**.

Traditional knowledge on uses of plant parts as medicine used by the tribal and rural people were well documented in many literatures **[16-20]**, but still most of areas were unexplored. Thickanamcode village which is rich in plant biodiversity is one among them. Most of the people residing in this area depend on traditional medicine for their primary healthcare. So, the present investigation was carried out to document the medicinal plants of this area.

2. MATERIALS AND METHODS

An ethnobotanical survey was carried out in Thickanamcode village during June 2018 to February 2020. It is situated in Kalkulam taluk of Kanyakumari district, Tamilnadu, India and is 4.3 km far from the main town Thucklay **(Figure 1)**. It lies between 8.325 North latitude and 77.344 East longitudes. It covers an area of about 130.33 sq. km. Tamil and Malayalam is the main languages spoken by the people of this area. Hindus and Christians form a sizeable percentage of the population. 'Nadar' is the major community seen in this area. Some of the other communities residing in this area are Vellalars, Paravas, Mukthavars and Vilakki. Rice is the staple food of the rich and poor alike in the district. Beverages like tea and traditional coffee (using ginger and palm sugar) are widespread even in the rural areas of the district **[21]**.

The climate of the district is favorably warm and humid. The forests of this village are coming under traditional agroforesty system with integrated farming practices. Most of the household had lofty trees such as mangoes and tamarind. Ethno-medicinal information on medicinal plants was gathered from knowledgeable experienced people of the study area. The information about plants, their local names, useful parts, mode of administration was documented during the survey. The medicinal uses of species were cross checked through the literature available and were identified with standard floras **[22-24]**.

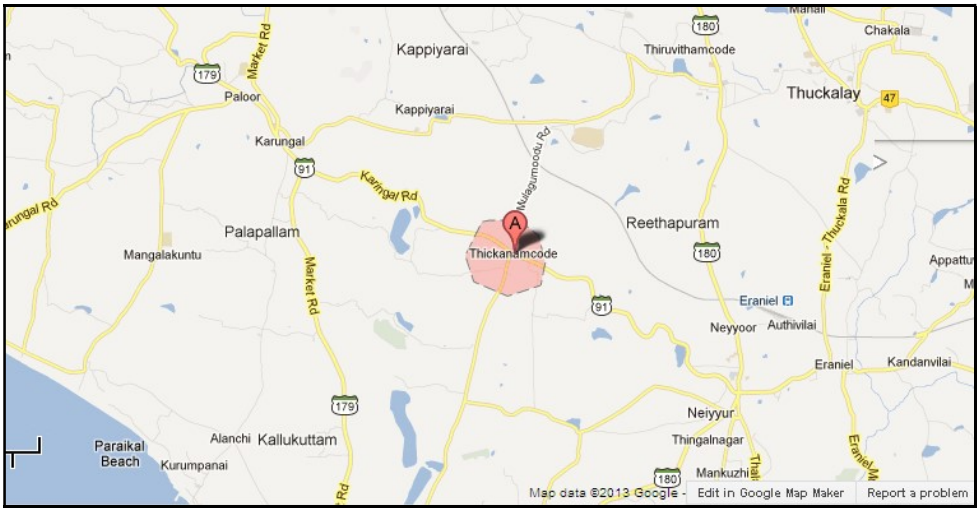

Figure 1: Map showing the study area

3. RESULTS AND DISCUSSION

A total of 70 plants belonging to 67 .genera and 41 families with medicinal value has been reported form the study area **(Table 1)**. Family wise distribution of the medicinal plants shows that Euphorbiaceae,

Solanaceae, Verbenaceae were the dominant families with 4 species each, the co-dominant position was occupied by Rutaceae, Asteraceae, Malvaceae, Ascelpidaceae, Fabaceae, Amaranthaceae and Moraceae each with 3 species each, Arecaceae, Cucurbitaceae, Lamiaceae, Apocynaceae, Anacardiaceae, and Rubiaceae possess 2 species each, 25 families were monospecific **(Figure 2)**.

In the present study plants are used to treat of bone fracture, hair fall, diabetes, cold, cough, jaundice, wounds and cuts, poisonous bite, breathing problem, fever, vomiting, body pain, pimple, ulcer, stomach disorders etc. Similarly in the present study the various plant parts used as medicines were leaves, whole plant, Roots, flowers, Bark, fruits, nuts, stem, latex and young stem **(Figure 3)**. Leaves were predominantly used than other parts of the plants for the medicinal purpose and it was also agreed by other ethnobotanical researches **[25-27]**. The plant parts were used as decoction, paste, juice, oil and as raw form. Juice and paste were mostly preferred by people in the study area **[28-30]**. Fresh plant parts were commonly used for the medicine preparation. The method of preparation of medicine and use is same or different from place to place.

Hemidesmus indicus the powdered root is given for veneral diseases **[26, 31]**. Decoction of leaves and roots of *Cardiospermum halicacabum* is used to treat rheumatism **[32]**. *Centella asiatica* juice is used to cure pyresia, swellings and also used as a vital tonic **[16]**. The fresh juice extracted from the leaves of *Ocimum sanctum* is drunk to cure cough and fever **[31, 33]**. Crushed leaves of *Tridax procumbens* are used to stop bleeding from cuts and cure wounds **[33]**. *Mimosa pudica* leaf juice is used to stop bleeding and dried powder cures diabetes, *Leucas aspera* leaf decoction used as antipyretic **[17]** and extracted juice of leaves and young shoots used for gastric disorder, *Aloe vera* fresh leaves are applied on the forehead and fever **[15, 18]**.

Cissus quadrangularis is ground and the paste used to cure fractures and body pain. *Capsicum annum* fruits are given for cold, cough, fever and dyspepsia, cooked plant of *Helitropium indicum* can be used to cure stomachache, *Gynandropis peataphylla* seed oil is used to expel round worms, *Murraya koenigii* leaves are very useful for digestive problems. *Ricinus commuinis* oil is used for rheumatic pain, constipation **[34]**. *Abrus precatorius* juice is used in the treatment of rheumatism **[35]**.

Table 1: List of medicinal plant species recorded from the study area

Botanical Name	Family	Local Name	Common Name	Phenology	Useful Parts	Mode of Uses
Abrus precatorius L.	Leguminosae	Kunni	Rosary pea	Throughout the year	Leaves	Leaves juice is used to treat fever and rheumatism.
Abutilon indicum (L.) Sweet	Malvaceae	Thutti	Indian mallow	June - September	Whole plant	Seeds ground into paste and applied on the skin to cure skin diseases. The juice obtained from the whole plant is drunk to cure stomach problems.
Acalypha indica L.	Euphorbiaceae	Kupaimeni	Indian copper leaf	June - November	Leaves	The paste obtained from the leaves is applied on the burns, wounds and it is also applied on forehead to cure headache. The juice extracted from the leaves is mixed with lime and applied on skin to cure skin diseases.
Achyranthes aspera L.	Amaranthaceae	Naiyurvi	Prickly chaff flower	August - February	Whole plant	Leaf paste is applied on the cuts to cure wounds. Juice is drunk by pregnant women for easy delivery. The juice obtained from the root is used to cure of snake bites.
Aegle marmelos (L.) Correa	Rutaceae	Vilvam	Bengal quince	Throughout the year	Fruit	Unripe fruit is eaten to treat indigestion, dysentery and kills intestinal parasites.
Aloe vera (L.) Burm. f.	Xanthorrhoeaceae	Chothukathalai	Aloe vera	September - January	Leaves	Leaf paste is used to treat stomachache.
Amaranthus viridis L.	Amaranthaceae	Kuppai keerai	Green Amaranth	August - December	Leaves	The juice obtained from the leaves is used to treat fever.
Anacardium occidentale L.	Anacardiaceae	Mundiri	Cashew nut	December - March	Nuts	The oil taken from the shells of nuts is applied on the cracks.
Ananas comosus (L.) Merr.	Bromeliaceae	Annasi	Pineapple	Throughout the year	Fruit	The fruit is used to promote digestion.
Annona squamosa L.	Annonaceae	Chethapalam	Custard Apple	June - August	Leaves	The juice extracted from the leaves is used to treat cough.
Areca catechu L.	Arecaceae	Pakku	Areca nut	Throughout the year	Leaves	Paste obtained from the leaves is used to cure skin diseases.
Aristolochia indica L.	Aristolochiaceae	Karudakodi	Indian Birth wort	September - January	Leaves	The paste obtained from the leaves is used to cure leg pain.
Artocarpus heterophyllus Lamk.	Moraceae	Pala	Jackfruit	February-May	Fruit	Fruit is used to cure skin diseases and reduces cough.
Azadirachta indica A. Juss.	Meliaceae	Veppamaram	Neem	March - May	Leaves and flower	Paste obtained from the leaf is used to treat skin diseases. Decoction prepared from the leaves is used to treat ulcers.

Botanical Name	Family	Local Name	Common Name	Phenology	Useful Parts	Mode of Uses
						Juice extracted from the leaves and flowers is used to cure stomachache.
Calotropis gigantea (L.) R. Br.	Asclepiadaceae	Erukku	Crown flower	December - March	Leaves and root	The paste obtained from the leaves and root is applied on the knee to cure rheumatism.
Capsium annuum L.	Solanaceae	Kantharimilau	Chilli	Throughout the year	Fruit	The fruit is used to treat blood pressure.
Cardiospermum halicacabum L.	Sapindaceae	Muddakkathan	Wedge leaf rattle pod	December - March	Roots and leaves	Decoction prepared from the roots and leaves is used to treat rheumatism
Carica papaya L.	Caricaceae	Pappali	Melon like fruit	Nearly continuous all year	Fruit and leaves	Juice obtained from the leaves is helpful to cure fever. Fruit is eaten to destroy germs.
Catharanthus roseus (L.)G. Don.	Apocynaceae	Poonaari	Periwinkle	Throughout the Year	Leaves	Decoction prepared from the leaves is used to cure whooping cough.
Centella asiatica (L.) Urb.	Apiaceae	Vallarai	Asiatic pennywort	July - September	Leaves	Fresh leaves are eaten daily to improve memory power.
Chrysanthemum indicum L.	Asteraceae	Sevanthi	Chrysanths	Throughout the Year	flower	Decoction prepared from the flower is used to cure fever and headache.
Cissus quadrangularis L.	Vitaceae	Pirandai	Hadjora	Throughout the year	Whole plant	The paste obtained from the stem and root of this plant is applied on the bone fractures to cure pain. Juice extracted from the whole plant is helpful to treat asthma, stomach troubles and bleeding of nose.
Citrus limon (L.) Burm. f.	Rutaceae	Elumchai	Lemon	January - March	Leaves and fruit	The decoction of leaves is used to treat fever, headache and cold. Skin of the fruit is used to treat pimples and black dots.
Cleome gynandra L.	Cleomaceae	Thivazai	African spider flower	Throughout the year	Leaves	Juice obtained from the leaves is used to cure cough, headache and rheumatism.
Clerodendrum phlomidis L.	Verbenaceae	Vathamadakki	Ami irun	August - September	Leaves	The paste obtained from the leaves is used to treat rheumatism.
Clitoria ternatea L.	Leguminosae	Sangupuspam	Butterfly pea	July - March	Whole plant	Paste obtained from the whole plant is applied on the cuts to cure wounds.
Coccinia grandis (L.) Voigt	Cucurbitaceae	Kovaikkai	Ivy-Gourd	September - October	Leaves and fruits	Fruit is eaten to cure diabetics. Paste obtained from the leaves is used to cure headache.
Cocos nucifera L.	Arecaceae	Thengu	Coconut tree	Throughout the year	Fruit	Coconut mixed with panner is applied on the pimples and black dots.
Plectranthus amboinicus (Lour.) Spreng.	Lamiaceae	Navarpacchilai	Indian Borage	Throughout the year	Leaves	Used to flavor drinks and also used in herbal medicine.

Botanical Name	Family	Local Name	Common Name	Phenology	Useful Parts	Mode of Uses
Crosssandra infundibuliformis (L.) Nees.	Acanthaceae	Kanakambaram	Fire cracker flower	Throughout the Year	root	Juice extracted from the root is used to cure cough.
Crotalaria retusa L.	Leguminosae	Kilukiluppai	Deril bean	November - September	Leaves	The juice extracted from the leaves is used to treat skin diseases.
Cynodon dactylon (L.) Kuntze	Poaceae	Argampul	Bermuda grass	Throughout the year	Leaves	Juice obtained from the leaves is used to cure stomach problems, skin diseases and blood purification.
Datura metel L.	Solanaceae	Umathai	Devil's trumpet	July - December	Leaves	Juice extracted from the leaves is used to cure cough.
Eclipta prostrata (L.) L.	Asteraceae	Karisalangani	False Daisy	Throughout the Year	Roots	The paste obtained from the root is applied on the heel cracks.
Ficus benghalensis L.	Moraceae	Alamaram	Banyan tree	November	Stem latex and yound stem	The stem latex is applied on the heel crackers
Ficus religiosa L.	Moraceae	Arasu	Peepal tree	July-September	Bark	Paste obtained from the bark is used to treat rheumatism.
Hemidesmus indicus (L.) R. Br.	Asclepiadaceae	Nannair	Indian	June - February	Whole plant	The juice obtained from the plant is used to treat fever, rheumatism and urinary disorders.
Hibiscus rosa-sinensis L.	Malvaceae	Sembaruthi	Shoe flower	Throughout the year	Leaves	The paste obtained from the leaves is applied on the head to get rid of dandruff.
Ixora coccinea L.	Rubiaceae	Thettichedi	Jungle geranium	Throughout the year	Leaves	The leaf boiled with coconut oil is used to treat skin infections.
Jasminum angustifolium (L) Willd.	Oleaceae	Kattupichi	Wild Jasmine	November-January	leaves	Paste obtained from the leaves is used to treat skin diseases
Justicia adhatoda L.	Acanthaceae	Adhathodai	Malabar nut	January - June	Leaves	The decoction obtained from the leaves is used to control chest diseases, neurological pain and various skin diseases. Juice extracted is used to treat asthma and cough. The leaves are boiled with coconut oil and applied on the head to cure headache.
Lantana camara L.	Verbenaceae	Unnichedi	Wild sage	September - May	Leaves	The juice extracted from the leaves is used to cure rheumatism.
Lawsonia inermis L.	Lythraceae	Maruthani	Henna	December- June	Leaves	The paste obtained from the leaves is applied on the skin to cure skin diseases.
Mangifera indica L.	Anacardiaceae	Mau	Mango	November-March	Leaves	Decoction prepared from the leaves is used to treat ulcer.

Botanical Name	Family	Local Name	Common Name	Phenology	Useful Parts	Mode of Uses
Mentha arvensis L.	Lamiaceae	Pudina	mint		Whole plant	Juice extracted from the plant is used to treat diarrhoea.
Mimosa pudica L.	Mimosaceae	Thottal churunki	Touch me not	September - November	Root	Decoction prepared from root is drunk to cure asthma, diarrhea, skin wounds and whooping cough.
Morinda pubescens Sm.	Rubiaceae	Manjanathi	Nuna	Throughout the Year	Leaves	Juice extracted from the leaves is used to treat body pain and dysentery.
Moringa oleifera Lam.	Moringaceae	Murungai	Drumstick tree	March-September	Leaves and Fruit.	Juice obtained from the leaves is used to treat indigestion and eye diseases. Fruit juice is used in hair falling.
Murraya keonigii (L.) Spreng	Rutaceae	Karuveppala	Curry leaf	February - may	Leaves	Juice obtained from the leaves is used in vomiting. Powdered leaves boiled with coconut oil and applied on the hair to promote the hair growth.
Musa paradisiaca L.	Musaceae	Valai	Banana tree	Throughout of the year	Fruit	The fruit is used to cure stomach ache.
Nelumbium speciosum Willd.	Nelumbonaceae	Thammarai	Lotus Flower	August-April	Flower	Juice extracted from the flower is used to cure rheumatism.
Nerium oleander L.	Apocynaceae	Arali	Oleander	April-October	Flower	The paste obtained from the flower is applied on the heel cracks.
Ocimum tenuiflorum L.	Lamiaceae	Thulasi	Sacred basil	November - January	Leaves	The fresh juice extracted from the leaves is drunk to cure cough and fever. Paste obtained from the leaves is used to cure white patches.
Opuntia stricta (Haw.) Haw.var.dillenii (Ker Gawl.) L.D. Benson	Cactaceae	Prickly pear	Sapathikalli	November - April	Whole plant	The juice obtained from the whole plant is used to treat fever, headache and stomachache.
Pergularia daemia (Forsk.) chiov.	Asclepiadaceae	Veliparuthi	Paergularia	November - March	Leaves	The fresh juice extracted from the leaves is used to clot blood. The paste obtained from the leaves is used to cure headache.
Phyllanthus amarus Schumach & Thonner	Euphorbiaceae	Keela nelli	Carry me seed	Throughout the year	Leaves	Fresh juice obtained from the leaves is drunk to treat jaundice.
Phyllanthus emblica L.	Euphorbiaceae	Nellikai	Amla	December - January	Fruit	Juice obtained from the fruit is helpful to cure asthma and dysentery. The oil extracted from the fruit is mixed with coconut oil and applied on hair to promote hair growth and prevents hair fall.
Psidium guajava L.	Myrtaceae	Koya	Guava	April - August	Leaves and	The juice extracted from the leaves is

Botanical Name	Family	Local Name	Common Name	Phenology	Useful Parts	Mode of Uses
					fruits	used to treat diarrhea. Fruit is used to treat diabetes.
Punica granatum L.	Punicaceae	Mathulai	Pomegranate	March - June	Fruit	The juice extracted from the skin of the fruit is used to treat diarrhea and stomachache. Fruit is used to increase blood level.
Ricinus communis L.	Euphorbiaceae	Amanaku	Caster seed	December - April	Leaves and roots	The fresh juice extracted from the roots is drunk to cure inflammations, fever, cough, skin diseases and rheumatism. Paste obtained from the leaves is used to treat burns.
Santalum album L.	Santalaceae	Santhanam	Sandel wood	August - November	Leaves	Drinking of the juice obtained from the leaves is helpful to receive body heat and blood purification.
Solanum nigrum L.	Solanaceae	Manathakkali	Black	September - February	Whole plant	Juice extracted from the whole plant is drunk in the treatment of liver disorders, fever, dysentery and it promotes urination.
Solanum trilobatum L.	Solanaceae	Thudavalai	Purple fruited pea egg plant	Throughout the year	Leaves	The fresh juice extracted from the leaves is given to treat cough and itching.
Tamarindus indica L.	Leguminosae	Puliamaram	Tamarind	February - June	Leaves	Paste obtained from the leaves is used to treat swellings.
Tectona grandis L. f.	Verbenaceae	Thekku	Teak	July - December	Leaves	Paste obtained from the leaves is chewed to cure toothache.
Thespesia populnea (L.) Sol. ex. Correa	Malvaceae	Poovarasu	Wild Indigo	Throughout the year	Leaves and flower	Paste obtained from the leaves, flower and the fruit is applied on skin to cure skin disease.
Tribulus terrestris L.	Zygophyllaceae	Nerungil	Puncture vine	Throughout the Year	Leaves	Juice extracted from the leaves is used to treat Stomach ache.
Tridax procumbens L.	Asteraceae	Muriyan pachalai	Tridax daisy	Throughout the year	Leaves	Crushed leaves of this plant are used to stop bleeding from cuts and cure wounds.
Vitex negundo L.	Verbenaceae	Notchi	Chaste tree	Throughout the year	Leaves	Leaf juice is drunk to cure headache, fever, cough and cold. The paste obtained from the leaves is applied on the leg to cure rheumatism.
Ziziphus jujuba Mill.	Rhamnaceae	Illanthai	Jackal Jujube	November-July	Roots	Decoction prepared from the roots is used to cure stomach disorders.

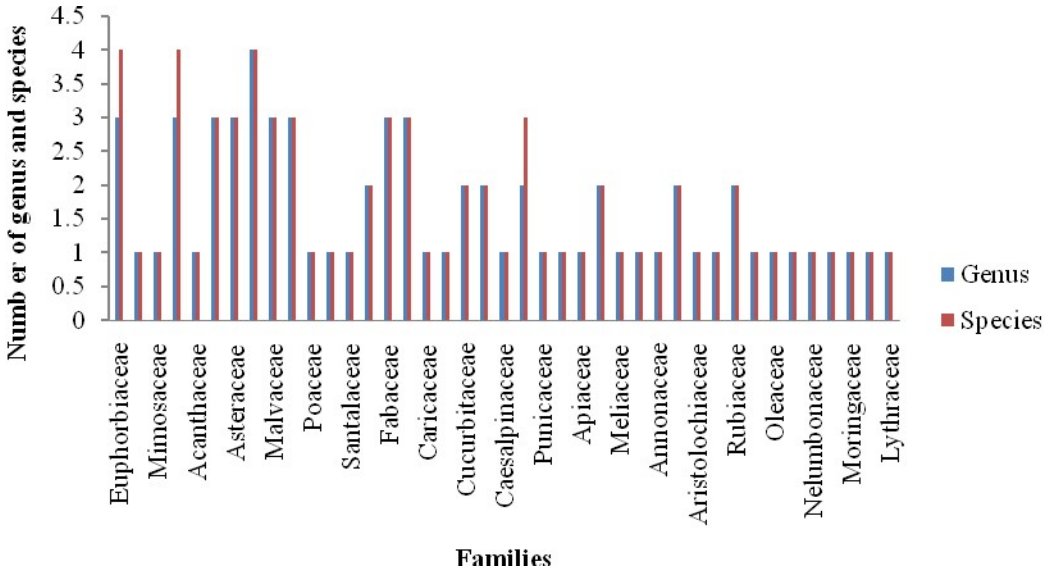

Figure 2: Dominant families reported from the study

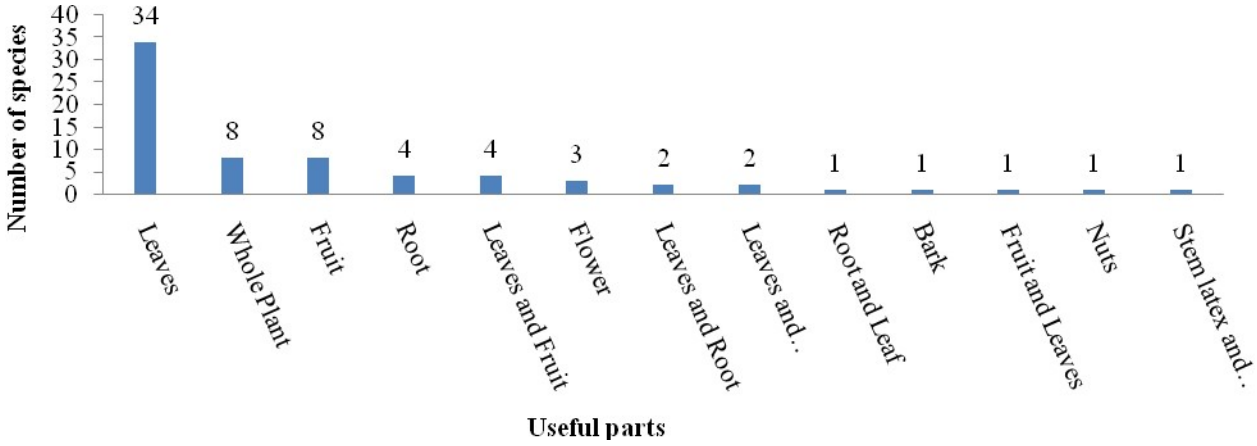

Figure 3: Plant parts used for medicinal purposes

4. CONCLUSION

Findings of the present investigation revealed that, Thickanamcode has a very rich diversity of medicinal plants. The crude drug is obtained from medicinal plants. Due to the influence of modern medicine, the usage of traditional medicine becomes decreased day by day. When the people need a small part of the plant they pullout the plant itself. So the wealth of medicinal plants decreases, so we have to conserve the medicinal plants and utilize the crude drugs obtained from medicinal plants. The community should also play a major role to conserve medicinal plants. Today, given the growing demands on the plants and the shrinking of forests,

there is no option but to deliberately cultivate medicinal plants and consume of herbal wealth of the study area is need of the hour indeed.

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