

ETHNOBOTANICAL SURVEY OF MEDICINAL PLANTS USED BY PULAYA TRIBES OF THIRUMOORTHY HILLS, UDUMALPET TALUK, TIRUPPUR DISTRICT, TAMIL NADU, INDIA

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ABSTRACT

The present work initiated to explore medicinal plants in Thirumoorthy hills from Pulaya tribes and a total of 54 plant species included in 31 families were found. The Ethnobotanical survey on Medicinal Plants was conducted between January to March 2022. More information about the traditional knowledge was collected randomly from the pulaya tribes of the thirumoorthy hills. The field visit was also done to collect information from the people regarding traditional and indigenous knowledge. A few tribal people were interviewed in this survey. Traditional medicines were still used by the peoples of pulaya tribes from the traditional medicinal experience of practicing individuals in the thirumoorthy hills. They use these plants for the treatment of various diseases listed in the table. Those plants are arranged with their botanical name, vernacular name, family, habit, parts used, preparation, used as and medicinal uses.

KEY WORDS: Ethnobotanical Survey, medicinal plants, medicinal uses, pulaya tribes

1. INTRODUCTION

India is one the most popular countries for its vegetation. It's about 3000 to 3500 of medicinal plants are found in India. Medicinal plant parts like fruits, flowers, roots, runners, leaves, nuts, stem, tubers and rhizomes. This leads to the establishment of various systems of medicines like Homeopathy, Ayurvedic, Siddha and Unani. These medicines are followed throughout India still now (Ganesh *et al.*, 2016). And a maximum number of the world population depends on plants for the treatment of different diseases. According to WHO (World Health Organization), more than 80% of worldwide people are using plants as medicines. They also consume fruits for their medicinal purposes. And there are 2000 types of fruits available worldwide. The fruit plays an important role in medicinal properties rather than dietary purposes (Sathyavathi and Janaradhanan 2014). It contains lots of nutrients like minerals (iron, calcium, zinc and potassium) vitamins (A, B1, B3, B6, B9, B12, C, E and K), fiber, proteins and carbohydrates (Ajesh 2012). Tuber and rhizome acts as a storage organ and these also have some medicinal properties. Roots and flowers are used as medicines for

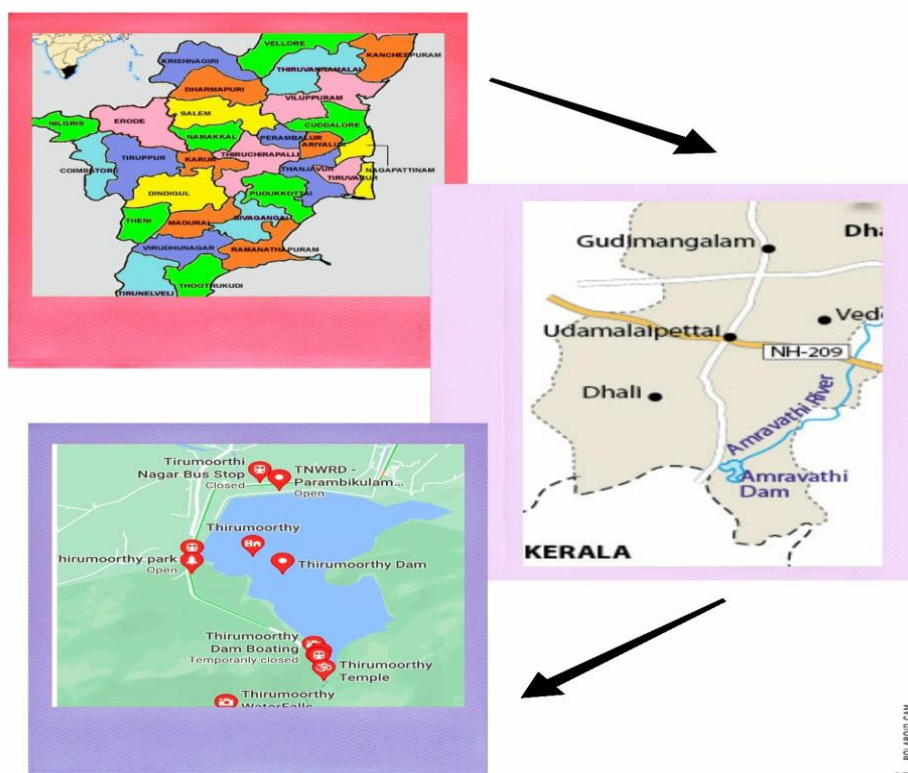
various genetic and chronic diseases. Nowadays people consume plants as medicines directly or indirectly according to their needs (Sanjeet *et al.*, 2017).

In India, the scheduled tribes range upto 705 ethnic groups. In central India the scheduled tribes are called Adivasis which means Indigenous people. There are 36 tribal and sub-tribal groups of which the population rate is 27.9%. In this maximum number of tribes belonging to Tamil Nadu were doing agricultural works, cultivators and they were dependent on forest for their life growth. In the total population the tribal population is 1 % which leads to backseat in political sensitivity.

The case study deals with medicinal plants used by Pulaya tribes of Thirumoorthy hills. Among all the tribal communities these were inferior in status. Their communication, transportation and their location gives an interest to gain knowledge. Maximum only in the hilly region can we see the tribal settlement. These pulaya tribes houses are made up of four sided walls covered with bamboo stick roofs and thatched roofs. Some houses are made up of mud and the roofs are covered with steel sheets and asbestos sheets. The dresses worn by the women are called Mudaku and men are called Koduvu. There are approximately 200 families per village The floral diversity of these places were high, so the present work is to conduct an ethnobotanical survey on medicinal plants used by pulaya tribes of Thirumoorthy hills ,Udumalpet taluk Tiruppur district, Tamil Nadu. This study helps for the medicinal plants conservation and preservation purposes.

2. MATERIALS AND METHODS

PLATE 1 : STUDY AREA



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STUDY AREA

The study area is in India, Tamil Nadu, Tiruppur district, Udumalpet taluk, Thirumoorthy Hills lie in the Latitude of N 10°34'34.0212" and the Longitude of E 77°14'26.322" (PLATE 1). The altitude of the study area is 375 meters above sea level. The annual temperature in the summer season ranges upto 25 to 30°C and in winter it is 20 to 25°C. The humidity level is 52% and the annual rainfall will be 1550mm. Some tribal peoples like pulayas were living in the thirumoorthy hills and these peoples make use of the plants, fruits, tubers and vegetables for their basic needs like domestic, medicines and dietary purposes. There is a dam in thirumoorthy hills it is commonly called as thirumoorthy dam and it is 60 feet in height and 2 km in length from this dam various villages and towns get water for their domestic purposes. There is a waterfall called Panchalinga falls. The water falls from a height of about 5 meters. The Latitude and Longitude of the fall lies as 10°27'22.4"N and 77°09'41.2"E. Its waterfall has a continuous flow all over the year.

DATA COLLECTION

The field study conducted an extensive field survey with the Pulaya tribes of Thirumoorthy Hills (PLATE 2). First hand information was gathered through interactions with tribal and rural peoples. The ethno-botanical data (Vernacular name, Family, Habit, Parts Used, Preparation, Used as and medicinal uses) were collected through the tribal peoples in and around the study area. The collected plant species were identified taxonomically using the Gambell volumes and Botanical Survey of India (BSI), Coimbatore. The plants are arranged by botanical names, family, local name, useful part and ethno-botanical uses for different diseases.

PLATE 2 (PULAYA TRIBE OF THIRUMOORTHY HILLS)



3. RESULT AND DISCUSSION

Pulaya tribal people were interviewed in this survey. Traditional medicines were still used by the peoples of pulaya tribes from the traditional medicinal experience of practicing individuals in the thirumoorthy hills. They use these plants for the treatment of various diseases listed in the table 1. Those plants are arranged with their botanical name, vernacular name, family, habit, parts used, preparation, used as and medicinal uses. A total of 54 plant species belonging to 31 families (Table1) were commonly used ethnomedicinal plants by the Pulaya tribe in the Thirumoorthy Hills, Udumalpet taluk Tiruppur district, Tamil Nadu. The Pulaya tribes used the plants for various diseases like diabetes, respiratory disorders, skin diseases, ulcers, fever, cardiac diseases, arthritis, blood pressure, menstrual cramps, rheumatism and stomach disorders. And these plants have some properties like antibacterial, anti cancerous, anti inflammatory, anti diabetes, antioxidant and antimicrobial. The families includes Cucurbitaceae(2), Fabaceae(3), Apocynaceae(5), Lamiaceae(4), Myteraceae(3), Colchicaceae(1), Solanaceae(3), Meliaceae(1), Combretaceae(1), Poaceae(1), Acanthaceae(2), Moraceae(2), Asphodelaceae(1), Zingiberaceae(2), Pteridaceae(1), Aspleniaceae(1), Nyctaginaceae(1), Iridaceae(1), Orchidaceae(1), Passifloraceae(1), Rutaceae(4), Moringaceae(1), Euphorbiaceae(3), Rhamnaceae(1), Amaryllidaceae(2), Convolvulaceae(1), Annonaceae(1), Lythraceae(1), Caricaceae(1), Musaceae(1) and Anacardiaceae(1) (Table 3). The dominant family plants used by the pulaya tribes are Apocynaceae (5), Lamiaceae (4) and Rutaceae (4). The maximum plant habit used by the pulaya tribe is tree followed by herb, shrub, Bushy and fern, climber, creeper, vine and epiphytes (Table 2:Chart 1). The maximum plant parts used in medicinal preparation were leaves followed by fruits, roots, whole plant, flower, seed, stem, tuber, rhizome and bulb (Table 4 and Chart 3).

Similar types of research work was documented and given results by many researchers. A total of 56 plant species belonging to 31 families have been found to be used for medicinal purposes by Kurumba tribes. According to medicinal preparation of plant parts used, leaves are the most preferable part to prepare medicine (39%) followed by the whole plant (21%), root (13%), seeds and fruits with 10%, stem (5%) and bark and flowers with (1%) Sardha *et al.*, (2017). Senthilkumar *et al.*, (2006) highlighted some medicinal plants used by Irular the tribal people of Marudhamali hills, Coimbatore. This study documented 75 plant species belonging to 43 families. These are used for several diseases like scabies, skin allergies, diabetes, headache, jaundice, scorpion bite, diarrhoea, leucoderma, rheumatism, ear ache, wounds, leprosy, asthma and dysentery. The most common part of plants used for medicinal purposes is leaves. Majority of medicinal purposes are used in traditional systems of medicines like Ayurveda, Siddha, Unani and Homeopathy. Jennymol and Suganthi (2017) reported the ethnobotanical survey on medicinal plants used by tribal people in Attappady, Kerala, total of 51 medicinal plants belonging to 28 families includes herb (24), shrubs (11), climber (8) and trees (7) and various parts like root, bark, stem, leaf, seed, fruit, tuber, dried stem and whole plant.

4. CONCLUSION

The Pulaya tribes of Thirumoorthy hills have been using different medicinal plants for therapeutic purposes since times immemorial. The pulaya tribes uses these medicinal plants for the treatment of various diseases like Diabetes, respiratory disorders, skin diseases, ulcers, fever, cardiac diseases, arthritis, blood pressure, menstrual cramps, rheumatism and stomach disorders. And these plants have some properties like antibacterial, anti cancerous, anti inflammatory, anti diabetes, antioxidant and antimicrobial. These plants have various medicinal values so it is in need of preservation and conserve for future purposes and further research work.

Table 1: MEDICINAL PLANTS WITH ITS USES

.NO	BOTANICAL NAME	VERNACULAR NAME	FAMILY	HABIT	PARTS USED	PREPARATION	USED AS	USES
1	<i>Kedrostis foetidissima</i> (Jacq.) Cogn.	Appakovai	Cucurbitaceae	Creeper	Leaves	Leaf juices, leaf decoration	Cooked	Preventing kidney inflammation
2	<i>Senna auriculata</i> (L.) Roxb.	Avaram	Fabaceae	Evergreen shrub	Whole plant	Decorations of leaves, stem, flower and root	Cooked	Treat diabetes, eye problems and skin diseases
3	<i>Gymnema Sylvestre</i> (R.Br.)	Chakkarakolli	Apocynaceae	Perennial woody vine	Leaves, flowers and fruits	Decorations	Cooked and raw	Controls blood glucose level
4	<i>Coleus amboinicus</i> (Lour.)	Karpuravalli	Lamiaceae	Semi-succulent perennial herb	Leaves	Decorations or crushed juice	Raw	Migrate cold and hack, nasal blockage.

5	<i>Eucalyptus obliqua</i> L'Her.	Eucalyptus	Myrtaceae	Tree	Leaves	Oil	Raw	Treat fungal infection and pain relief
6	<i>Gloriosa superba</i> L.	Senganthal	Colchicaceae	Herbaceous climber	Tubers, leaves and flowers	Decorations	Raw or cooked	Ulcers, piles, inflammations, abdominal pains
7	<i>Solanum xanthocarpum</i> Sch & Wendl.	Kandankathiri	Solanaceae	Herb	Roots, seed and fruits	Decorations	Cooked	Bronchial asthma, treatment of diabetes, cardiac diseases
8	<i>Calotropis gigantea</i> R.Br.	Erukkam poo	Apocynaceae	Large shrub	Leaf, latex and bark	Extract	Raw	Bacterial infection, asthma
9	<i>Calotropis procera</i> R.Br.	White erukkam poo	Apocynaceae	Evergreen perennial shrub	Latex, leaves and flower bud	Extract	Raw	Antitumor and antidotal activity
10	<i>Solanum torvum</i> Sw.	Malai sundakkai	Solanaceae	Bushy and spiny	Fruits	Food	Cooked	Diabetes mellitus and cardiovascular diseases

				perennial plant				
11	<i>Psidium guajava</i> L.	Guava	Myrtaceae	Small tree	Fruits and leaf	Decorations and extract	Raw or cooked	Stomach cramps and relieves uterine cramps
12	<i>Ocimum tenuiflorum</i> L.	Tulasi	Lamiaceae	Sub-shrub	Leaves	Decorations and extract	Raw or cooked	Oral infections, anti-aging and treats kidney stones

13	<i>Datura metel</i> L.	Karumomathai	Solanaceae	Annual shrub	Leaves, seed, root and fruit	Extract	Raw	Menstrual pain and urinary infection
14	<i>Azadirachta indica</i> A.Juss.,	Neem	Meliaceae	Tree	Leaf, stem, flower, fruit and seed	Oil, extract and decorations	Raw	Leprosy, eye problems, intestinal wounds, skin ulcers
15	<i>Terminalia chebula</i> Retz.	Kadukkai	Combretaceae	Large deciduous tree	Fruits	Decorations	Raw	Treating kidney stones, for improving digestion, treating cough
	<i>Cynodon dactylon</i> (L.)	Arukampul	Poaceae	Herb	Leaves	Decorations	Raw	Treat various ailments such

16	Pers.					tions		as anasarca, cancer, convulsions
17	<i>Andrographis paniculata</i> Nees.	Nilavembu	Acanthaceae	Annual herb	Leaves	Decorations	Cooked	Manage blood sugar levels, arthritis, liver diseases and cancer
18	<i>Ficus carica</i> L.	Athipalam	Moraceae	Small tree or large shrub	Fruits, leaves and root	Fresh fruits or dried	Raw	Diarrhea, controls blood sugar level
19	<i>Aloe vera</i> (L.) Burm.f.	Kathalai	Asphodelaceae	Evergreen perennial herb	Leaves	Gel and juices	Raw	Cures stomach ailments, irritable bowel syndrome
20	<i>Curcuma longa</i> L.	Manjal	Zingiberaceae	Perennial herb	Rhizome	Powder	Raw or cooked	Chicken pox, smallpox and measles
21	<i>Justicia adhatoda</i> L.	Adhatoda	Acanthaceae	Shrub	Leaves	Powder, decorations and	Raw	Cure asthma, tuberculosis, malaria

						juices		
22	<i>Actiniopteris radiata</i> (J.Koenig ex Sw.) Link.	Nanmugha pullu	Pteridaceae	Small fern	Whole plant	Decorations	Raw	Treatment of prolonged malarial fevers and to arrest haemorrhage
23	<i>Salvia argentea</i> L.	Paraipodi	Lamiaceae	Perennial herb	Leaves	Powder and tea	Raw	Cure eye infections and respiratory diseases
24	<i>Asplenium trichomanes</i> L.	Udharanam	Aspleniaceae	Small fern	Leaves	Tea and powder	Cooked	Treatment of chest complaints and to promote menstruation and anthelmintic
25	<i>Boerhavia diffusa</i> L..	Mukaratisarai	Nyctaginaceae	Herb	Leaves and roots	Decorations	Raw	Cirrhosis of the liver and chronic peritonitis
26	<i>Eleutherine bulbosa</i> (Mill.) Urb.	Sivappu onion	Iridaceae	Perennial herb	Bulbs and root	Full bulb	Raw and cooked	Anaemia, headache and photopsia
	<i>Catharanthus roseus</i> (L.) G.Don.	Nithyakalyani	Apocynaceae	Herb	Parts used: flower, leaves and root	Decorations and powder	Raw or cooked	Blood-purification, edema, tonsillitis, chest pain, high blood pressure.
28	<i>Vanda coerulea</i> Griff. Ex Lindl.	Vanda	Orchidaceae	Epiphytes	Flower	Flower juices	Raw	Eye drops against glaucoma, cataract and

								blindness
29	<i>Momordica dioica</i> Roxb. ex Willd.	Mezhuku-pakal or pazhu-pakal.	Cucurbitaceae	Perennial climber or creeper	Fruit, leaves and roots	Curry	Cooked	Treatment of diabetes mellitus, very good anti-diabetic activity
30	<i>Passiflora foetida</i> L.	Serupunaikali or kattukodi thodai	Passifloraceae	Evergreen climber with tendrils	Whole plant	Decorations and juices	Cooked or raw	Treatment of tuberculosis, worms, and for coughs and colds
31	<i>Hyptis suaveolens</i> Jacq, Poit.	Kana thulasi	Lamiaceae	Annual or perennial herb	Leaves	Decoration, oil and juices	Raw	Treat as an appetizer, emmenagogic, and rheumatism
32	<i>Aegle marmelos</i> (L.) Correa.	Vilvum	Rutaceae	Tree	Leaves	Juice and decorations	Raw	Treat tuberculosis, helps in insulin secretion
33	<i>Tephrosia purpurea</i> (L.) Pers.	Kolinchi	Fabaceae	Annual or perennial	Leaves, fruit and root	Decorations	Raw	Treatment against dyspepsia, colic, and chronic diarrhea

				al herb				
34	<i>Citrus hystrix</i> Dc.	Kolumusai pallam	Rutaceae	Spiny evergre en tree	Fruit	Oil, decorat ions and juices	Raw	Treating the feet to kill land leeches
35	<i>Moringa oleifera</i> Lam.	Murungai	Moringacea e	Tree	Whole plant	Decora tions, juices, tea and curry	Cooke d and raw	Treating diseases of liver, spleen, paralysis etc.
36	<i>Citrus limon</i> (L.) Osbeck.	Lemon	Rutaceae	Small evergre en tree	Fruit	Juices and tea	Raw	Used for high blood pressure, obesity and morning sickness
37	<i>Ricinus communis</i> (L.)	Amanaku	Euphorbiac eae	Soft wooden small tree or shrub	Seed	Oil	Raw	Used for abdominal disorders, arthritis, backache, muscle aches, bilharziasis
38	<i>Ziziphus mauritiana</i> Lam.	Elantha palam	Rhamnacea e	Evergre en shrub	Fruit	Fruit	Raw	Treatment of stomach problems, skin disorders

				or small tree				
39	<i>Citrus x sinensis</i> (L.) Osbeck.	Orange	Rutaceae	Tree	Fruit	Fruit and juices	Raw	Reduces body heat and increases water content to the body
40	<i>Zingiber officinale</i> Rosc.	Inji	Zingiberace ae	Perenni al herb	Rhizome	Powder , tea and food	Raw or cooke d	Weight loss, reduces vomiting sensations and helps in menstruation cramps
41	<i>Allium sativum</i> L.	Pundu	Amaryllidac eae	Perenni al herb	Bulb	Food	Raw and cooke d	Treat heart diseases, cholesterol, stomach upsets
42	<i>Allium cepa</i> L.	Vengayam	Amaryllidac eae	Annual herb	Bulb	Food	Raw and cooke d	Treating digestive problems, cure skin problems.
43	<i>Manihot esculenta</i> Crantz.	Maravalli kilangu	Euphorbiac eae	Perenni al shrub or small	Tuber	Food	Cooke d	Controls diabetics, heart diseases

				tree				
44	<i>Ipomoea batatas</i> (L.) Lam.	Sakkaravalli kilangu	Convolvulaceae	Herbaceous perennial vine	Tuber	Food	Cooked	Improves immunity, weight gain
45	<i>Annona squamosa</i> L.	Custard apple	Annonaceae	Tree	Fruit	Fruit	Raw	Helps in weight loss, treatment of diarrhea and dysentery.
46	<i>Phyllanthus emblica</i> L.	Nellikai	Euphorbiaceae	Tree	Fruit	Powder, juices and fruit	Raw or cooked	Reduce cough, tuberculosis, throat infections and flu.
47	<i>Syzygium cumini</i> (L.) Skeels.	Naval palam	Myrtaceae	Evergreen tree	Bark, seed, leaves and fruit	Decorations, juices and fruit	Raw	Mouth ulcers and wounds, diabetics, diaherria
48	<i>Punica granatum</i> L.	Mathulam palam	Lythraceae	Deciduous shrub	Fruits	Juices and fruit	Raw	Reduces hypertension, high blood pressure
	<i>Carica papaya</i> L.	Pappali	Caricaceae	Small	Seed, leaves	Juices,	Raw	Reduce diabetics, improves

49				tree	and fruits	decorations and fruit		digestion and treats heart diseases
50	<i>Pithecellobium dulce</i> (Roxb.) Benth.	Kodikai	Fabaceae	Tree	Fruits and bark	Fruit	Raw	Diabetics, skin and hair care
51	<i>Musa x paradisiaca</i> L.	Valaipalam	Musaceae	Large herb	Whole plant	Food	Raw and cooked	Hypokalemia, constipation, and diarrhea
52	<i>Artocarpus heterophyllus</i> Lam.	Palla pallam	Moraceae	Tree	Fruit	Fruit	Raw	Heart diseases, cancer, eye problem
53	<i>Mangifera indica</i> L.	Mankai	Anacardiaceae	Evergreen tree	Whole parts	Juices, powder and food	Raw	Reduction of hair loss, reduces diarrhea, prevents diabetics
54	<i>Decalepis hamiltonii</i> Wight & Arn.	Magali kizhangu	Apocynaceae	Climbing shrub	Tuber	Food	Cooked	Treatment of dysentery, skin diseases, chronic rheumatism, anemia

TABLE:2 HABITS AND NUMBER OF MEDICINAL PLANTS CONSUMED BY PULAYA TRIBES

HABITS	NO OF PLANTS
TREE	17
SHRUB	11
HERB	16
CLIMBER	2
CREEPER	2
BUSHY, FERN	3
VINE	2
EPIPHYTES	1

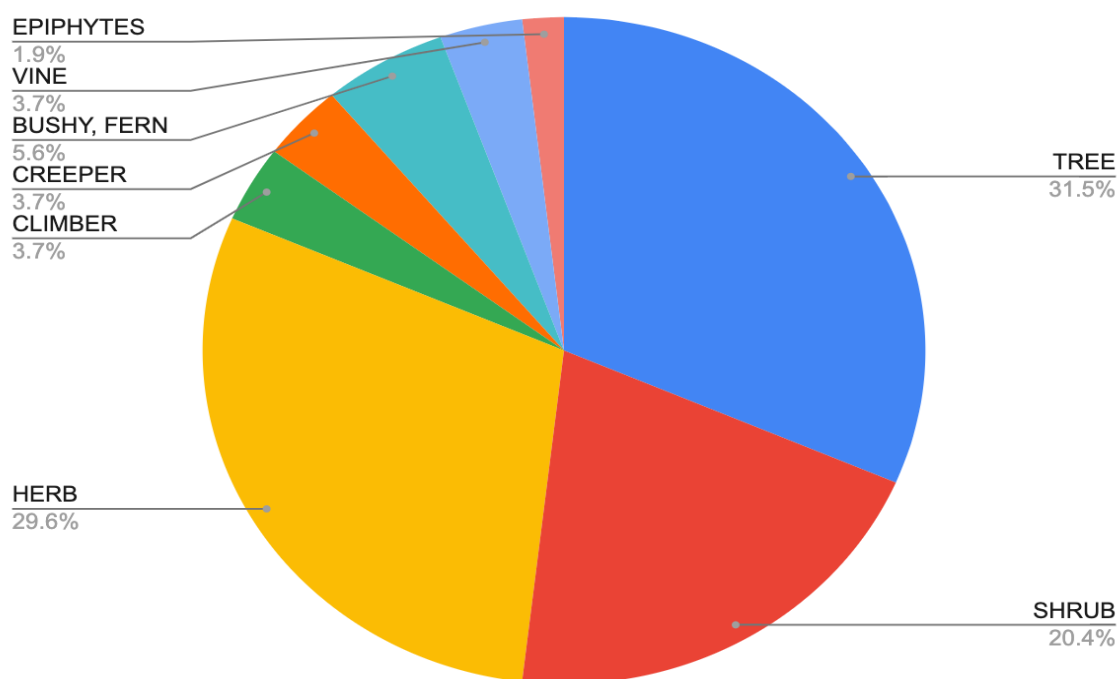
CHART: 1 REPRESENTATION OF HABITS AND NUMBER OF MEDICINAL PLANTS

TABLE: 3 REPRESENTATION OF FAMILY AND NUMBER OF MEDICINAL PLANTS USED BY THE PULYA TRIBES

S.NO	FAMILY	NO. OF PLANTS
1	Cucurbitaceae	2
2	Fabaceae	3
3	Apocynaceae	5
4	Lamiaceae	4
5	Myrtaceae	3
6	Colchicaceae	1
7	Solanaceae	3
8	Meliaceae	1
9	Combretaceae	1
10	Poaceae	1
11	Acanthaceae	2
12	Moraceae	2
13	Asphodelaceae	1
14	Zingiberaceae	2
15	Pteridaceae	1
16	Aspleniaceae	1
17	Nyctaginaceae	1
18	Iridaceae	1
19	Orchidaceae	1
20	Passifloraceae	1
21	Rutaceae	4
22	Moringaceae	1
23	Euphorbiaceae	3
24	Rhamnaceae	1
25	Amaryllidaceae	2
26	Convolvulaceae	1
27	Annonaceae	1

28	Lythraceae	1
29	Caricaceae	1
30	Musaceae	1
31	Anacardiaceae	1

CHART :2 REPRESENTATION OF FAMILY AND NUMBER OF MEDICINAL PLANTS USED BY PULAYA TRIBES

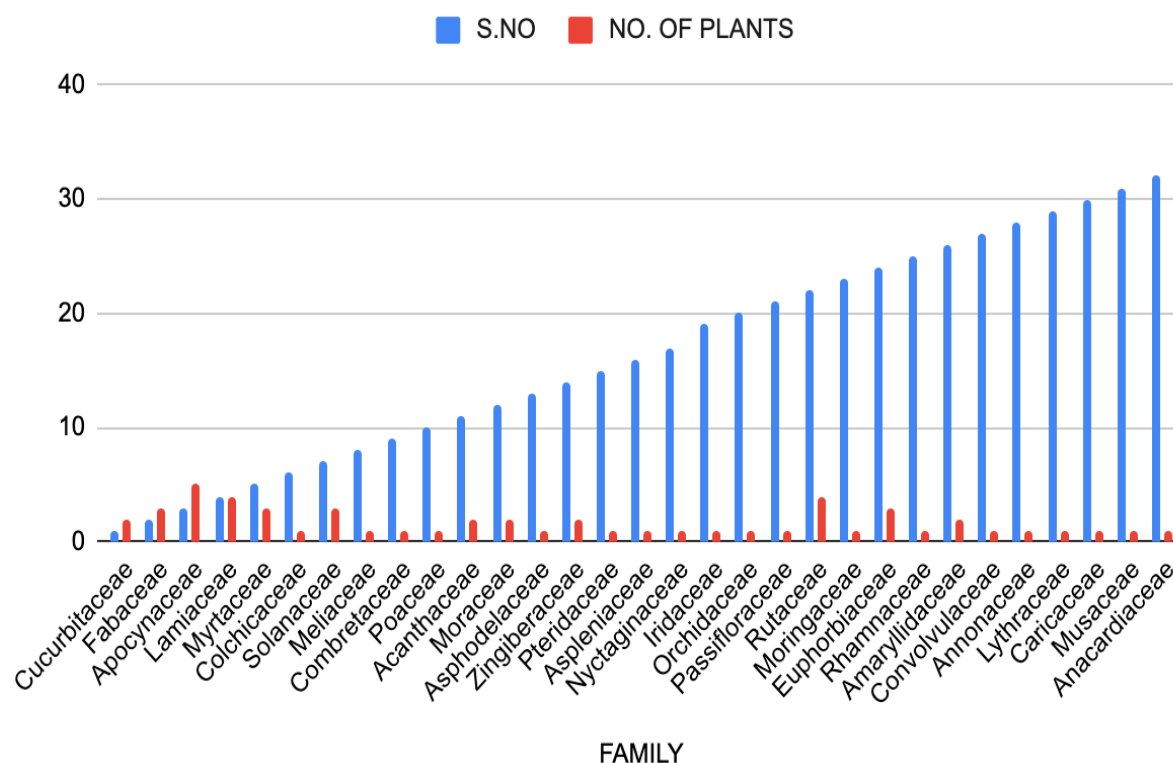


TABLE: 4 REPRESENTATION OF PLANT PARTS AND NUMBER OF MEDICINAL PLANTS USED BY THE PULAYA TRIBES

S.NO	PLANT PARTS USED	NO OF PLANTS
1	ROOT	7
2	STEM	4
3	LEAVES	25
4	FLOWER	5

5	FRUIT	15
6	SEED	5
7	RHIZOME	2
8	TUBER	3
9	BULB	2
10	WHOLE PLANT	7

CHART: 3 REPRESENTATION OF PLANT PARTS AND NUMBER OF MEDICINAL PLANTS USED BY THE PULAYA TRIBES

NO OF PLANTS

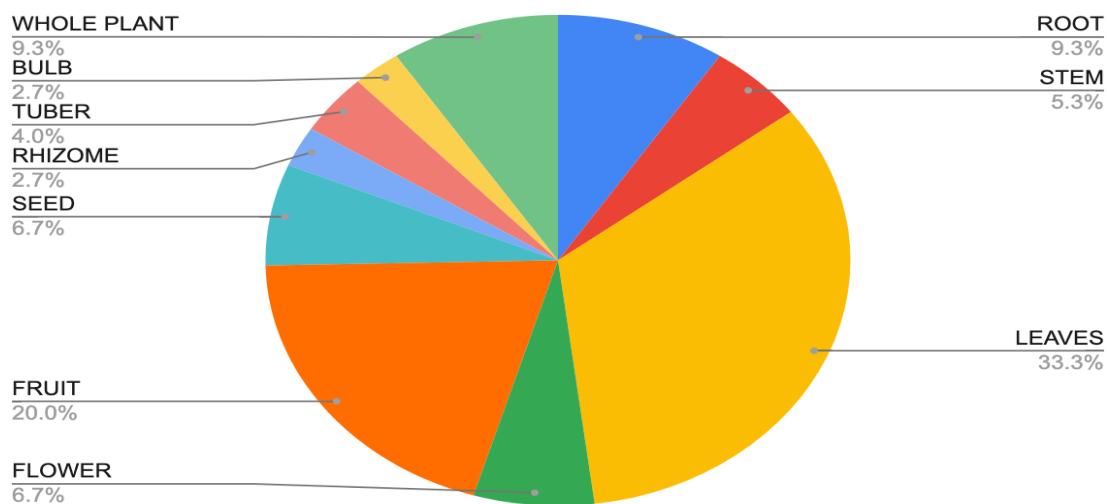


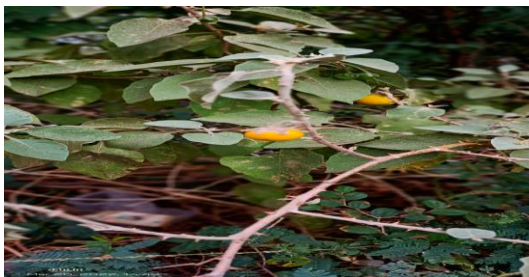
PLATE 3



Kedrostis foetidissima (Jacq.) Cogn.



Eucalyptus obliqua L'Her.



Solanum xanthocarpum Sch & Wendl.



Ficus carica L.



Vanda coerulea Griff. Ex Lindl.



Momordica dioica Roxb. ex Willd.



Passiflora foetida L.

Link.



Actiniopteris radiata (J.Koenig ex Sw.)



Salvia argentea L.



Asplenium trichomanes L.

*Eleutherine bulbosa* (Mill.) Urb*Gymnema sylvestre* (R.Br)

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