



ETHNOBOTANY OF GINGEE HILLS, VILLUPURAM DISTRICT, TAMIL NADU, INDIA

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ABSTRACT

The study has been carried out on the ethnobotany of Gingee Hills, Villupuram District, Tamil Nadu, India with the assistance of tribes and non-tribal communities in and around the study area. Totally 75 plant species belonging to 38 families, were identified and these plants were used to cure 40 types of problems like allergies, asthma, body pain, body cooling, body strength imbalance, bone fracture, cancer, cough, diabetes, diarrhea, dry cough, dysentery, earache, eye problems, fever, gastro intestinal problems, hair fall, headache, infertility, insect bite, joint pains, kidney stone, liver problems, menstrual problems, mucus, nerves disorders, obesity, over bleeding, piles, poisonous bite, sinus, skin diseases, snake bite, sprain, stomach ache, syphilis, toothache, ulcer and wounds. Mostly Trees species are utilized and Leaves are the most useful part for medicine.

KEYWORDS: Medicinal plants, Irula tribes, Ethno medicines.

INTRODUCTION

There exists a wide variety of life forms in the world and every one interacts with other in the biosphere. Ethnobotany deals with, how the different ethnic groups of humans are dependent on plants and their knowledge on medicinal property of plants which has been using from the time unknown to cure various diseases without any side effects which is common in synthetic drugs of today. The plants are useful in many ways to the mankind as it provides food, drugs, commercial products, numerous industrial benefits etc.¹⁻⁷. The traditional knowledge of people on medicinal property of plants is still being used by the tribes and urban people. This traditional knowledge reveals how the economically backward local and tribal people were getting treatment for various diseases^{8,9}. According to World Health Organization (WHO), more than 80% population of the world, are using traditional medicine, for primary health care needs¹⁰. Traditional systems of medicine have been popularized over past few years, due to the side effects of modern medicine systems caused by some chemical drugs. The ancient Indian literature, Rig-veda and Materia Medica have also highlighted with the documentation of numerous medicinal plants. But the ethnomedicinal knowledge of tribes has been passing from generation to generation through oral communication and there is no documentation in any form. The state, Tamil Nadu has 1.05% tribal population who belongs to 36 sub groups and they are well adapted to survive in the forests and adjoining areas¹¹. Dr. Janaki Ammal (1956) has initiated the work on importance of ethnobotanical studies, followed by Jain (1963) extended using novel methods in these studies¹².

MATERIALS AND METHODS

Gingee hills is one of the archeologically important places and also the natural bioresource of north-east of Tamil Nadu, India. The study area lies in a complicated region located between Lat. 12° 10'N and Long. 79° 17'E in the Villupuram District of Tamil Nadu, India (Figure 1). The study area is found to be with rockier outer surface and receives maximum rain fall during North-east monsoon. It is located at a distance of 170 Kms South-west of Chennai city; 90 Kms North-west of Pondichery (Union-Territory) and 35 Kms east of Thiruvannamalai town. Frequent field trips were made to 17 villages namely Sethavarai (Citra-

varai), Naraayanapuram, Nallanpillaipetral, Rathaapuram, Pakkam, Jaganadhapuram, Podhupalyam, Sokuppam, Dhavadhanampatai, Kanakkankupam, Gangavaram, Udho-kuttai, Malaiyarankupam, Pazhavalam, Pothuvaai, Ramarajanpatai, and Thadagam. The Sethavarai (Citra-varai), village is an Archeologically important place as it has the paintings drawn on the rocks of natural cavern of Ayyanar hill which is 3500 year old. These ancient paintings depict the pictures like Fire, Fish, Deer, and buffalo etc., especially a Deer and a Fish are seen in big size (Figure 2)¹³⁻¹⁴.

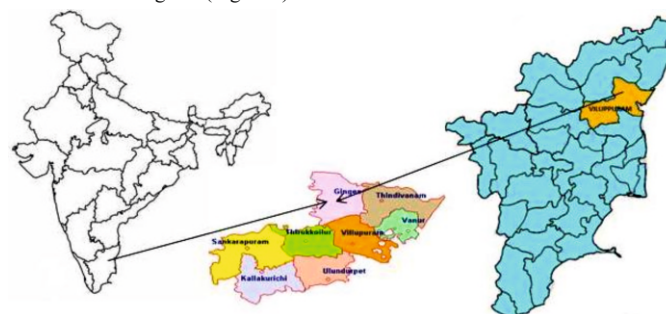


Figure 1 Location for Study area of Gingee Hills, Villupuram District, Tamil Nadu



Figure 2. Archeological rock painting of Sethavarai (Citra-varai), village

Table 1: Ethnomedicinal plants, Family, Vernacular name, Method of administration and uses in Gingee hills in Villupuram District of Tamil Nadu

Botanical name	Family	Vernacular name	H	Utilized parts	Formation	Method of administration	Disease
<i>Abutilon indicum</i> (Link) Sweet.	Malvaceae	Periyathuthi	Sh	Flower	Paste	Flowers are ground with water and taken in empty stomach for one week.	Menstrual problems
<i>Acacia arabica</i> Wild.	Mimociaceae	Karuvelam	Tr	Gum	Paste	The Gum is mixed with hot water and taken orally three times a day.	Dysentery
<i>Acacia chundra</i> (Roxb.exRottl) Willd.	Mimosaceae	Karungali	Tr	Wood	Powder	Dried wood powder mixed with honey is taken in empty stomach monthly four times.	Body strength
<i>Acalypha fruticosa</i> Forssk.	Euphorbiaceae	Soothanthazhi	Sh	Leaves	Paste	Fresh leaves are made into paste with water and taken in empty stomach weekly once.	Skin diseases

<i>Achyranthes aspera</i> L.	Amaranthaceae	Naaiyuruvie	Hr	Stem	Paste	Fresh stem is made into paste and applied on the teeth surface.	Toothache
<i>Aegle marmelos</i> (L.) Correa	Rutaceae	Vilvam	Tr	Fruit	Paste	Fruit paste is mixed with ghee and taken in empty stomach.	Stomach ache
<i>Aerva lanata</i> (L.)Juss.ExSchult.	Amaranthaceae	Siru Peelai	Hr	Leaves	Powder	Shade dried leaves powder is mixed with goat milk and taken orally monthly once.	Kidney stone
<i>Albizia amara</i> (Roxb.) Boiv.	Mimosaceae	Thruingee	Tr	Leaves	Powder	Shaded dried leaves powder mixed with clay and water and applied on head bath.	Hair fall
<i>Anisomeles malabarica</i> (L.) R.Br.exims	Lamiaceae	Nettaperamettai	Sh	Leaves	Decoction	Fresh leaves are boiled in water and the vapour is inhaled.	Headache
<i>Aristolochia indica</i> L.	Aristolochiaceae	Perumarundhu	Cl	Root	Powder	Shade dried root powder mixed water is taken for 48 days.	Skin diseases
<i>Azadirachta indica</i> A.Juss.	Mealiaceae	Veapan	Tr	Flower	Decoction	Shade dried flowers are boiled and the decoction is ta'ken monthly twice.	Stomach ache
<i>Barleria prionitis</i> L.	Acanthaceae	Kaatu-kanagambaram	Hr	Flower	Paste	Fresh flower paste is applied on fore head.	Headache
<i>Calotropis gigantia</i> (L.)W.T.Aiton	Aasclepiadaceae	Erukku	Sh	Latex	Paste	Latex mixed with clay is applied on sprains.	Sprains
<i>Canthium parviflorum</i> Lam.	Rubiaceae	Kala chedi	Sh	Flower	Extract	Two drops of filtered clear flower extract is applied on the eyes.	Eye problems
<i>Capparis horrida</i> Linn.	Capparaceae	Adhandan	Li	Unripe fruit	Paste	The unripe fruit is ground with butter milk and taken in empty stomach.	Sinus
<i>Cardiospermum helicacabum</i> L.	Sapindaceae	Mudakathan	Cl	Leaves	Decoction	Fresh leaves decoction is taken weekly once.	Join pains
<i>Chloroxylon swietenia</i> (Roxb.) Dc.	Rutaceaea	Porusumaram	Tr	Bark	Paste	Fresh bark paste is applied on skin.	Skin diseases
<i>Cissus quadrangularis</i> L.	Vitaceae	Perandai	Cl	Stem	Pickle	Tender stems mixed with spices are pickled and taken with food.	Piles
<i>Clausena dentata</i> (Willd.) M.Roem.	Rutaceae	Konjee	Sh	Leaves	Paste	Half teaspoon leaves paste is taken in empty stomach.	Mucus
<i>Commiphora caudata</i> (Wight & Arn.) Engl.	Burseraceae	Kiluvaimaram	Tr	Bark	Extract	Fresh bark extract is taken orally.	Poisons bite
<i>Corallocarpus epigaeus</i> (Rottler) C.B.Clarke	Cucurbitaceae	Karudankizhing u	Cl	Tuber	Powder	Shade dried tuber powder is mixed with honey and taken orally.	Poisons bite
<i>Crataeve magna</i> (Lour.)Dc	Capparaceae	Mavalingam	Tr	Bark	Paste	The bark paste is consumed with water.	Skin diseases
<i>Cynodon dactylon</i> (L.) Pers.	Poaceae	Arugampullu	Hr	Leaves	Decoction	Leaves decoction is taken in empty stomach.	Diabetes
<i>Delonix elata</i> (L.)Gamble	Caesalpinaceae	Vathanaaryanan	Tr	Leaves	Decoction	Leaves decoction mixed with spices is taken orally after food.	Join pains
<i>Desmostchya bipinnata</i> (L.)Stapf	Poaceae	Dharpai pull	Hr	Leaves	Decoction	Leaves decoction is taken orally.	Body cooling
<i>Dichrostachys cinerea</i> Wight et Arn.	Mimosaceae	Vedutharam	Tr	Gum	Paste	The Gum paste mixed with honey is taken orally.	Dysentery
<i>Diospyros ferrea</i> (Willd.) Bakh.	Ebenaceae	Erubuli	Tr	Leaves	Powder	Dried leaves powder mixed with water is applied on insect bite area and taken orally.	Insect bite.
<i>Enicostemma littorala</i> Blume.	Gentianaceae	Vellarugu	Hr	Leaves	Paste	Leaves paste with water is taken orally.	Snake bite
<i>Evolvulus alsinoides</i> (L.)L.	Convolvulaceae	Vishnukarinthai	Hr	Whole plant	Decoction	Plant decoction is consumed twice a day.	Fever
<i>Ficus recemosa</i> L.	Moraceae	Aththi	Tr	Unripe fruit	Paste	The unripe fruit paste is taken with curd.	Diarrhoea
<i>Ficus virens</i> L.	Moraceae	Kallarasu	Tr	Latex	Paste	Stem latex with clay is applied on the sprains.	Sprains
<i>Glinu slotoides</i> L.	Mollugiaceae	Serucerupadi	Hr	Leaves	Paste	Leaves paste mixed with cow milk is taken orally and applied on wounds.	Syphilis
<i>Gmelina asiatica</i> L.	Verbanaceae	Kumlankaai	Sh	Unripe fruit	Paste	Unripe fruit paste is applied on head bath.	Hair fall
<i>Grewia orientalis</i> L.	Sterculiaceae	Valachal	Sh	Fruit	Paste	Fruit paste mixed with curd is taken orally.	Body strength
<i>Hildegardia populifolia</i> (Roxb.) Schott & Endl. Conservation	Malvaceae	Mala poovarasu	Tr	Bark	Decoction	The bark decoction is consumed for two days.	Fever
<i>Indgofera aspalathoides</i> Vahl.	Fabacee	Sivanar vembu	Hr	Whole plant	Paste	The Plant paste half teaspoon mixed with water is taken orally weekly once.	Cancer
<i>Jasminum sambac</i> (L.)Aiton	Oleaceae	Malli poo	Hr	Flower	Paste	Fresh flower paste is applied on face.	Sinus
<i>Justicia adhatoda</i> L.	Acanthaceae	Adathodai	Sh	Leaves	Decoction	50ml of Leaves decoction is consumed twice a day for 3 days.	Cough
<i>Kedrositis foetidissima</i> (Jacq.)Cogn.	Cucurbitaceae	Appakovi	Cl	Leaves	Extract	Fresh leaves mixed with <i>Mukia maderaspatna</i> leaves are oil fried and 5 ml filtered oil is given to baby orally twice a day.	Mucus
<i>Leucas aspera</i> (Willd.) Link.	Lamiaceae	Thumbai	Hr	Leaves	Juice	Plant juice is taken orally.	

<i>Limonia acidissima</i> L.	Rutaceae	Velaamaram	Tr	Fruit	Paste	Fruit paste with butter milk is taken in empty stomach weekly once.	Body strength
<i>Madhuca longifolia</i> (J.Koing) J.F.Macbr.	Sapotaceae	Iluppai	Tr	Leaves	Paste	Leaves paste is applied on skin allergies.	Allergies
<i>Marsilea quadrifolia</i> L.	Marsileaceae	Araakeeri	Hr	Leaves	Juice	Leaves juice with ghee is taken orally.	Body strength
<i>Melia azedarach</i> L.	Meliaceae	Malaivembu	Tr	Leaves	Juice	Leaves juice is consumed orally after Menstruation.	Menstrual problems
<i>Memecylon umbellatum</i> Burm.f.	Melastomaceae	Kachan	Tr	Leaves	Paste	Fresh leaves paste with water is taken orally.	Body pain
<i>Mimosa pudica</i> L.	Mimosaceae	Thotta surungi	Hr	Leaves	Juice	100 ml Leaves juice with hot water is consumed twice a day.	Allergies
<i>Mimusops elengi</i> L.	Sapotaceae	Magazha maram	Tr	Flower	Powder	Shade dried flower powder mixed with hair oil is applied on head.	Hair fall
<i>Moringa oleifera</i> Lam.	Moringaceae	Murungai	Tr	Seed	Powder	Dried seeds powder mixed with ghee is taken in empty stomach once a day for a month.	Nerves disorder
<i>Mucuna pruriens</i> (L.)Dc.	Fabaceae	Punaikalai	Cl	Seed	Powder	Seeds powder mixed with honey is taken orally for 48 days.	Infertility
<i>Mukia maderaspatna</i> (L.) M.Roem.	Cucurbitaceae	Musumusukai	Cl	Leaves	Extract	Fresh leaves mixed with the leaves of <i>Kedrositis foetidissima</i> are oil fried. 5 ml of the filtered oil is given to baby twice a day.	Mucus
<i>Mussaenda tomentosa</i> Wight ex Hook.f.	Rubiaceae	Sanjeevi	Sh	Leaves	Juice	Leaves juice mixed with ghee is taken orally.	Body strength
<i>Oldenlandia umbellata</i> L.	Rubiaceae	Inburan	Hr	Whole plant	Paste	Plant paste is taken with hot water.	Dry Cough
<i>Ormocarpum cochinchinens</i> (Lour.) Merr.	Fabaceae	Elumbotti	Sh	Leaves	Powder	Shade dried leaves powder with cow milk is taken for 15 days.	Bone fracture
<i>Pavetta indica</i> L.	Rubiaceae	Pavattan	Sh	Bark	Powder	Barks powder mixed with cow milk is taken for ten days.	Body pain reduce
<i>Phoenix loureiroi</i> Kunth.	Arecaceae	Eecha maram	Tr	Young shoot	Decoction	Young shoot decoction is consumed in empty stomach.	Diarrhoea
<i>Physalis angulata</i> L.	Solanaceae	Panbuthkkalai	Hr	Fruit	Juice	10 fruits with 15 leaves of <i>Solanum nigrum</i> were made into juice and consumed in empty stomach for 3 days.	Ulcer
<i>Plecosperrum spinosum</i> Trec.	Moraceae	Achankrunai	Li	Wood	Powder	Dried wood powder mixed with coconut oil is applied on wound.	Wound
<i>Polyalthia longifolia</i> (Sonn.) L.	Annonaceae	Nettilingam	Tr	Bark	Decoction	200 ml of Bark decoction is consumed in empty stomach before menstruation.	Infertility
<i>Premna tomentosa</i> Willd.	Verbenaceae	Pudangainari	Sh	Leaves	Decoction	Fresh leaves decoction mixed with cow urine is consumed for 10 days.	Obesity
<i>Prosopis spicigera</i> L.	Mimosaceae	Vannimaram	Tr	Bark	Decoction	Bark decoction is consumed once a day.	Asthma
<i>Psidium guajava</i> L.	Myrtaceae	Koiyah	Tr	Young shoot	Juice	Young shoot Juice with cow milk is consumed in empty stomach.	Piles
<i>Pterolobium hexapetalum</i> (Roth) Santapau&Wagh	Caesalpiniaceae	Pill thanakkan mull	Sh	Flower	Paste	Flower paste is applied on fore head.	Headache
<i>Sansevieria roxburghiana</i> Schult.f.	Asparagaceae	Marul	Hr	Leaves	Juice	1ml fresh leaves extract is dropped in ear.	Earache
<i>Sapindus emarginata</i> Vahl.	Sapindaceae	Kottapungan	Tr	Fruits	Paste	Seed removed fruits paste is applied on hair before head bath.	Hair fall
<i>Senna auriculata</i> (L.) Roxb.	Caesalpiniaceae	Aavarai	Sh	Flower	Powder	Shade dried flowers powder with goat milk is taken twice a day.	Diabetes
<i>Sesbania grandiflora</i> (L.) Poiret	Fabaceae	Agathi	Tr	Leaves	Decoction	Leaves decoction is consumed for 3 days.	Ulcer
<i>Sida acuta</i> Burm.f.	Malvaceae	Aruvamanai poondu	Hr	Leaves	Paste	Leaves paste is applied on wounds.	Wound
<i>Sida humilis</i> Cav.	Malvaceae	Pazhampasi	Hr	Leaves	Powder	Shade dried leaves powder mixed with water is taken orally.	Body strength
<i>Solanum nigrum</i> L.	Solanaceae	Manathakkali	Hr	Leaves	Paste	15 fresh leaves and fruits are made into paste and taken in empty stomach.	Ulcer
<i>Syzygium cumini</i> (L.) Skeels.	Myrtaceae	Naval	Tr	Bark	Decoction	500 ml bark decoction is consumed orally.	Over bleeding
<i>Tinospora cordifolia</i> (Thunb.) Miers.	Menispermaceae	Seendil	Cl	Leaves	Paste	Fresh leaves paste is taken orally for 2 days.	Mucus
<i>Toddalia asiatica</i> (L.) Lam.	Rutaceae	Milagaranai	Sh	Leaves	Powder	Dried leaves powder with water is taken once a day for a week.	Gas problem
<i>Tridax procumbens</i> L.	Asteraceae	Mookuthi poondu	Hr	Leaves	Paste	Fresh leaves paste is applied on wound.	Wound
<i>Vitex negundo</i> L.	Lamiaceae	Kattu notch	Sh	Leaves	Decoction	Fresh leaves are boiled in water and vapour is inhaled.	Headache
<i>Ziziphusjuba</i> Mill.	Rhamnaceae	Ilanthai	Tr	Leaves	Paste	Leaves paste with water is taken for 15 days in empty stomach.	Liver problems

Abbreviation: H-Habit; Hr-Herb; Sh-Shrub; Ci-Climber; Tr-Tree.

Ethnobotanical survey

Ethnobotanical investigations are conducted randomly around the study area, in which, totally 30 informants of Irula tribes and non tribal people between the ages of 22 to 81 have been consulted. 'Irula' tribes have been recognized as a major group of tribes by the Government of Tamil Nadu and they speak tamil dialect. They are sound skilled in handling snakes, catching rat, and in agriculture, honey gathering, etc. Early in the 20th century, anthropological literature classified the *Irular* under the Negrito ethnic group, and few *irula* were also found in Western Ghats¹⁵⁻¹⁶. They migrated to various parts of the state for economic purposes. As they are frequently changing their places of living for various reasons their children were largely illiterates. Few *Irulas* are trained on folk and traditional medicine and are treating others. The medicinal knowledge of them has been recorded in field note and cross checked with the vernacular names said by local people. The collected plants specimens were enumerated in alphabetical order by their botanical names followed by families, vernacular names, habit, parts used, etc. The collected plant specimens were identified using *The Flora of Presidency*¹⁷ and *The Flora of Tamil Nadu Carnatic*¹⁸. The plant specimens are preserved as Herbarium and deposited in the PG and Research Department of Plant Biology and Plant Biotechnology, Presidency College, Chennai, Tamil Nadu, India.

RESULTS & DISCUSSION

Totally 75 plant species belonging to 38 families, were identified and these species were grouped into the following three groups viz. Dicot, Monocot and Pteridophyte. These plants were used to cure 40 type of problems like allergies, asthma, body pain, body cooling, body pain reduce, body strength, bone fracture, cancer, cough, diabetes, diarrhea, dry cough, dysentery, earache, eye problems, fever, gas problem, hair fall, headache, infertility, insect bite, joint pains, kidney stone, liver problems, menstrual problems, mucus, nerves disorder, obesity, over bleeding, piles, poisons bite, sinus, skin diseases, snake bite, sprains, stomach ache, syphilis, toothache, ulcer and wound. Mostly Trees species are utilized and Leaves are the most useful part for medicine. Some disease are cured by using drugs with different combination of plants like *Kedrositis foetidissima* and *Mukia maderaspatna*, used for Mucus, and *Physalis angulata* and *Solanum nigrum* used for Ulcer. The leaves of *Mussaenda tomentosa* has been recommended as a substitute for water loss in human. The plant products were given along with butter milk, cow milk, cow urine, curd, ghee, goat milk, oil, honey, spices and water. The plants species are arranged alphabetically with their family name, vernacular name (Tamil), parts used, plant habit, Method of administration, and remedy for disease are tabulated in the Table 1.

CONCLUSION

The main objective of this study is to document the ethno medicinal diversity and ethno medical knowledge from the resource persons. Some plants were exploited by human activity for their economical prosperous. The awareness to conserve these plant species is the need of the hour, otherwise we may not find many valuable plants hereafter which are significant in life saving. The ethno knowledge of Irula tribes and non tribal people may have high potential for research for the discovery of new drugs and new source of food with novel uses. This study indicates the importance of herbal plants and how the urban people have been depending on forest medicinal sources, rather than modern chemical medicines.

Acknowledgement

The authors are grateful to the resource persons of the study area, for revealing their traditional and folk knowledge. The corresponding author gratefully acknowledges Dr. R. Dhamotharan Head, Department of Plant Biology and Plant Biotechnology, Presidency College, Chennai for his help in identification of plant species and suggestions on crafting the article.

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