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## Ethnobotany of medi-flora of Kolli Hills, Tamil Nadu

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### ABSTRACT

The tribes and non-tribes are residing in kolli hills and ever depend on medicinal plants for their healthcare and treating of various diseases. The present study is to identify such distinct medicinal plants utilized by tribes and non tribes in the kolli hills. The ethno-botany, their mode of preparation and application of the medicinal plants have been gathered from the traditional healers, patients and elderly persons in and around the study area, after season wise field visits conducted between January 2009 and November 2009. The present study revealed that, the tribes are regularly using about 58 pants and 32 families and it is belong to diverse families to treat the various diseases. The above the present study, ethno-botany and medicinal knowledge gained from the tribals would be very useful information for the botanists, biochemists, pharmacologists, traditional system of medicine and healthcare sector.

**Key words:** Medicinal plants, traditional healers, tribal's, ethnobotany, kolli hills

### INTRODUCTION

The traditional practical knowledge about medicinal plants is the basis for ethno-botanical uses that have been passed on to another practice and oral communications from generation to generation over the last century. Ethno-botany has been evolved as a promising discipline that highlight the people-plants relationship in a multidisciplinary way such as ecology, economic botany, pharmacology, public-health and other disciplines as needed [2]. Tribals provide considerable information about the use of many plants as medicine. According to the world health organization (WHO) as many as 80% of the world's population depend on traditional medicine for their primary healthcare needs [1]. Considerable economic benefits in the developments of indigenous medicine and use of medicinal plants for the treatment of various diseases were reported earlier [12]; [4]). Traditional medicinal practice is an important role on primary healthcare system in the developing world. Kolli hills alone support about 1500 species of green plants, which is 45% gain medicinal importance. The cultural groups of Kolli hills comprise of Malayalis, Kavundars, Vanniars, Naikans, Chettiyars and other minor groups settled as semi-nomads. Each and every community follows its own culture, tradition, language, costume etc. Traditional kolli hills societies are ideal example of traditional knowledge system where small communities prevent incurable disease through traditional methods, which are derived from their ancestors [5]; [8] and [11], which have been found worth and more faithful in discovery of new medicines without side effects. The present study was focused on the various disease ailments, the mode of preparation and their application of medicinal plants in traditional system of medicine.

### Study area

Kolli hills the ranges of Namakkal district of Tamil Nadu and the state sharing common boundaries with two districts to the south Trichy and Salem in the North. Kolli hills lies between 11<sup>0</sup>10' to 11<sup>0</sup>30'N latitude and 75<sup>0</sup>15' to 75<sup>0</sup>35'E longitude with an area covered with 418 sq km of Namakkal district in Tamil Nadu (Figure 1). Climate of

the district is on the whole dry except during north east monsoon season. Years it may be dividing into 4 seasons; cold season starts from December to February and followed by the hot season March to May. The south west monsoon season follows thereafter and lasts till September, October and November constitute post-monsoon season.

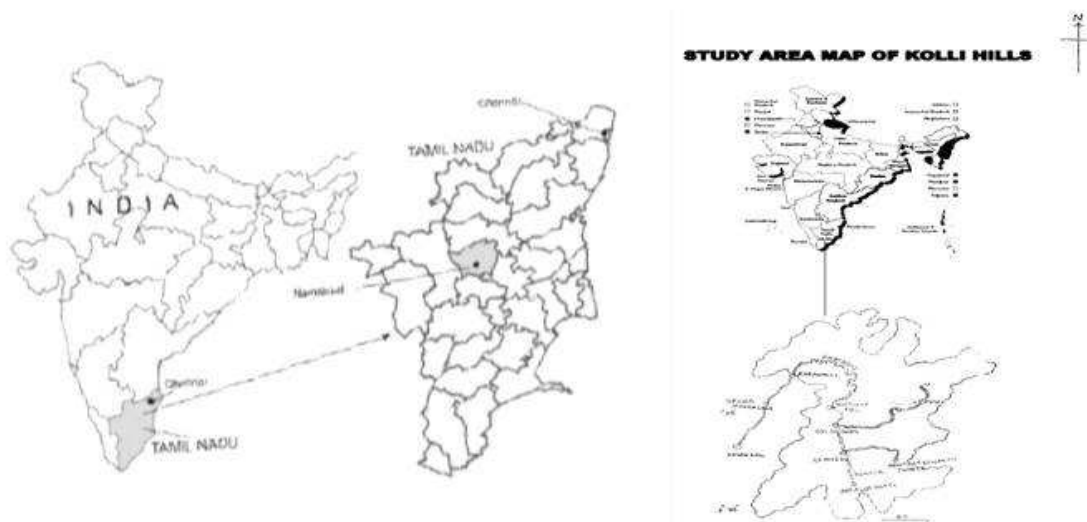


Figure 1 Location of the study area

Annual rainfall in the Kolli hills is 1043mm and the summer season of year with mean daily maximum temperature is 20°C to 30°C. Humidity is above 85% during north east monsoon season. The soil type is loamy and black soil on kolli hills. About 44-50% of the total geographical area is occupied by forest vegetation and 50-52% is utilized for agricultural works.

This ethno-botany survey was carried out during January 2009 to December 2009 and all the information's were gathered from the local traditional healers of Kolli hills and Malayali tribals. In this, information's have been collected in the questionnaire and field note book. The medicinal plants were collected, identified and authentication with the help of herbarium of BSI at Coimbatore.

#### **Collection and authentication of Medicinal plants**

During the study, traditional practitioner such as tribal and non-tribal man was approached them and the specific questionnaire was asked about the medicinal properties and their uses. The above information's were recorded for further studies and cross checked by the traditional practitioner and other professional beneficiaries. The collected plants were identified by their vernacular names through consultations with the local people, photographed and sample specimens were collected for the preparation of herbarium. The Flora of Presidency of Madras [3] and The Flora of Tamil Nadu Carnatic [10] were used to ascertain the nomenclature. The collected plants were identified by Dr.Karuppusami, Department of Botany, Madura College, Madurai, India. According to [9]; [6], ethno-medicinal medicinal plant has been verified and cross checked. The herbarium specimens were deposited in the institute of Kandaswami kandar's College, Namakkal, Tamil Nadu, and India.

### **RESULTS AND DISCUSSION**

Ethno-botanical study on Kolli hills were resulted with 58 species of medicinal plants belonging to 32 families with their medicinal uses (Table 1). Tribal applications of the plants to cure diseases like anticancer, body coolant, cold, diabetes, digestive disorder, dog bite, dysentery, fever, fungal diseases, head ache, jaundice, joint Pain, piles, skin diseases, snake bite, stomach ache, ulcer, urinary diseases, urinary stones and wound, etc. (Figure 2). The plant list has been tabulated with their mode of preparation and administration methods. The most of the traditional medicines are being prepared using water as medium.

Present the study, herbs (29) were found to be the most used plants followed by trees (5), shrubs (16) and climbers (8) in descending order (Figure 3). The major dominant families in the study, were Fabaceae (5), Asteraceae and Lamiaceae (4), Caesalpiniaceae, Malvaceae, and Amaranthaceae (3), Apocynaceae, Aristolochiaceae, Asparagaceae, Euphorbiaceae, Liliaceae, Malvaceae, Mimosaceae, Piperaceae, Rubiaceae and Rutaceae (2), Acanthaceae, Alangiaceae, Apiaceae, Araceae, Asclepiadaceae, Caryophyllaceae, Loganiaceae, Meliaceae, Musaceae, Poaceae, Santalaceae, Sapindaceae, Sapotaceae, Solanaceae, Verbenaceae, and Zygophyllaceae (1) (Table 1).

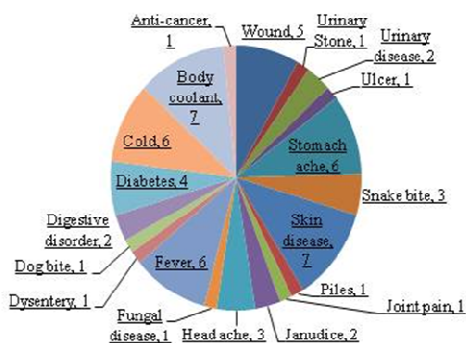


Figure 2 Method of preparation in medicinal plants for various diseases

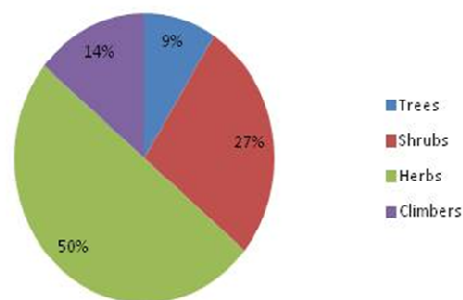


Figure 3 Habit wise classifications of collected medicinal plants in the study area



Figure 4 Number of plants is used for various ailments

Different parts of medicinal plants were used as medicine by the local traditional healers. Among the 58 plants part, the leaves were most frequently used to treatment the diseases followed by whole plant parts, fruit, stem, root, root bark, seed and flower. The mode of preparation (Figure 4) fall into four categories, viz. plant parts applied as a paste (50%), juice extracted from the freshly collected plant parts (17%), and the powder made from fresh plant either dried plant parts (10%), some fresh plant parts alone (4%), and decoction (19%). The external applications (mostly for skin diseases, snake bites and wounds) and internal consumption of the preparations were involved in the treatment of diseases. [7], reported 30 species of medicinally important belonging to 16 families distributed in 27 genera. Our present study, were concluded that, the wealth of traditional ethnomedicinal knowledge of plant may also point to a great promising for in field of research and new discovery for new drugs to treat various disease and their other application.

## CONCLUSION

The present study revealed that, traditional knowledge on the properties of plants and their uses to treat various ailments. These medicinal plants represent a vital source for the traditional system of medicine and pharmaceutical industries in view of their raw material. Present medical facilities are now making a rapid penetration into tribal villages, which may result in the disappearance of the herbal wealth and other uses. It is hoped the remaining 58 plants species that this study will draw the attention for new drugs discovery and used to treat above stated disease such as anticancer, body coolant, cold, diabetes, digestive disorder, dog bite, dysentery, fever, fungal diseases, head ache, jaundice, joint Pain, piles, skin diseases, snake bite, stomach ache, ulcer, urinary diseases, urinary stones and wound.

Table 1 List of ethnomedicinally important medi-flora of kolli hills in Namakkal district, Tamil Nadu, India

Botanical Name	Plant Name Common Name	Vernacular Name (Tamil)	Family	Plant Part Used (Formulation)	Administration and Mode of preparation of medicines	Medicinal Use (Diseases)
<i>Abrus precatorius</i> L.	Crab's Eye	Kundumani	Fabaceae	Root (Paste)	Root bark is ground with water, boiled and taken orally to treat Jaundice.	Jaundice
<i>Abutilon indicum</i> (L.) Sweet.	Country Mallow	Thutthi	Malvaceae	Leaf and fruit (Juice)	Leaf and fruit juice is taken orally twice a day for two weeks to cure piles.	Piles
<i>Acacia leucophloea</i> (Roxb.) Willd.	White Babul	Vellavelan	Mimosaceae	Bark (paste)	Paste of bark is applied topically to treat wounds and skin infections.	Skin diseases
<i>Achranthes aspera</i> (L.) Blume.	Prickly Chaff Flower	Naayuruvi	Amaranthaceae	Leaf and stem (paste)	Leaf and stem paste is applied topically to treat cuts and Wounds.	Wound
<i>Acorus calamus</i> L.	Sweet flag	Vasambu	Araceae	Rhizome (paste)	Paste of rhizome is ground with water, boiled and taken orally to treat Indigestion and Stomach ache.	Stomach ache
<i>Aegle marmelos</i> (L.) Correa ex Roxb.	Bael tree	Vilvam	Rutaceae	Half-ripe fruits (Decoction)	Dried Fruit powder is given in milk daily reduce blood sugar.	Diabetes
<i>Alangium salviifolium</i> L.f.	Sage Leaved Alangium	Alangi	Alangiaceae	Root and bark (Decoction)	Decoction of root and bark powder is taken orally with water/milk to Cure fever.	Fever
<i>Allium cepa</i> L.	Onion	Vengayam	Liliaceae	Under ground Bulb (Paste)	Underground bulb paste is applied topically to treat Head ache.	Head ache
<i>Aloe vera</i> (L.) Burm.f.	Indian Aloe	Sotthukatthalai	Liliaceae	Leaf (Paste)	The succulent leaves are crushed and mixed with turmeric and the paste is applied on the eruptions on the body.	Body coolant
<i>Alternanthera sessilis</i> (L) R.Br.exDc.	Alligator Weed	Ponnonkanni	Amaranthaceae	Stem and Leaf (Juice)	Stem and leaf juice are consumed with normal diet to cure snake bite.	Snake bite
<i>Amaranthus spinosus</i> L.	Prickly Amaranth	Mullukeerai	Amaranthaceae	Leaf (Decoction)	Decoction of leaves is given to reduce the stomach pain.	Stomach ache
<i>Andrographis paniculata</i> (Burm.f.)Wall.	Creast	Nilavembu	Acanthaceae	Whole plant (Powder)	Leaf powder mixed with cow or goat milk and taken orally to treat diabetes.	Diabetes
<i>Aristolochia bracteolata</i> Lam.	Braeteated Birthwort)	Aaduthinna chedi	Aristolochiaceae	Leaf (Paste)	Leaf paste is mixed with coconut oil and applied for Fungal Diseases.	Fungal diseases
<i>Aristolochia tagala</i> Cham.	Birthwort	Keradalam	Aristolochiaceae	Whole plant (Paste)	Whole plant is powdered and mixed with cow milk and taken orally to treat Stomach ache.	Stomach ache
<i>Asparagus racemosus</i> Willd.	Wild Asparagus	Thanneervitankizhangu	Asparagaceae	Tuber (Juice)	The tuber juice mixed with water is given in morning for 15 days to increase the potency and digestion.	Digestion
<i>Azadirachta indica</i> A. Juss.	Neem Tree	Vembu	Meliaceae	Leaf (Paste)	Fresh leaves paste is applied externally for small pox and skin afflictions.	Small pox (Skin diseases) Body coolant
<i>Bambusa arundinacea</i> (Retz.) Willd.	Bamboo	Moongil	Poaceae	Leaf (Paste)	Leaf extracted is taken Internally to keep the body cool.	Body coolant
<i>Cardiospermum halicacabum</i> L.	Balloon Vine	Mudakatthan	Sapindaceae	Leaf and stem (Decoction)	Stem of crushed leaves are inhaled in tetanus, leaf decoction is given internally for joint pains.	Joint pain
<i>Calendula officinalis</i> L.	Calendula	Marikollundhu	Asteraceae	Flower(Juice)	Half teaspoon of flower and fruit juice has effect on body cooling and given as an appetizer and to treat stomach pain.	Stomach ache
<i>Cassia auriculata</i> L.	Tanner's Cassia	Avaaram	Caesalpinaceae	Leaf (Paste)	Leaf paste is applied for body cooling.	Body coolant
<i>Cassia tora</i> L.	Sickle senna	Thagarai	Caesalpinaceae	Seed (Paste)	Seeds paste is applied topically to treat skin diseases and head ache.	Skin disease
<i>Catharanthus roseus</i> (L.) G. Don.	Madagascar Periwinkle	Nithya kalyani	Apocynaceae	Plant (Juice)	The dried plant powder mixed with honey is used as an anticancer Agent.	Anti cancer
<i>Centella asiatica</i> (L.) Urban.	Asiatic Pennywort	Vallarai	Apiaceae	Leaf (Paste)	Leaf paste is applied topically to treat fever and cold.	Fever and cold
<i>Citrus aurantifolia</i> (Christ.) Swingle.	Country Lime	Thurinjippazham	Rutaceae	Ripe skin fruits (Fresh)	Fresh fruit ripe skin paste is applied externally for body cooling.	Body coolant
<i>Citrus limon</i> (L.) Burm. f.	Lemon	Elumichai	Rutaceae	Ripe skin fruits (Fresh)	Fresh fruits skin paste applied externally for Skin diseases.	Skin diseases
<i>Coleus aromaticus</i> Benth.	Indian Borage	Karpuravalli	Lamiaceae	Leaf (Juice)	Leaf Juice is taken orally once a day for one week to get relief from urinary complaints	Urinary diseases
<i>Delonix elata</i> L.	White Gulmohur	Vadanarayan	Caesalpinaceae	Young twig Leaf (Juice)	Juice of young twig is taken orally along with 100 ml of water twice a day to get relief from cold.	Cold
<i>Drymaria cordata</i> L.	Tropical chickweed	Puliarai	Caryophyllaceae	Leaf (Paste)	Fresh leaf paste is applied on fore head for head ache.	Head ache
<i>Euphorbia hirta</i> L.	Euphorbia	Ammanpacharisi	Euphorbiaceae	Whole plant (Paste)	Paste of whole plant is applied twice a day to heal wounds.	Wound
<i>Glycyrrhiza glabra</i> L.	Licorice	Athimathuram	Fabaceae	Root (Decoction)	Decoction of root is taken orally along with milk twice a day for 2 days to get relief from ulcer.	Ulcer
<i>Gymnema sylvestris</i> (Retz) R. Br.	Ipecacuanha	Sirukurinjan	Asclepiadaceae	Leaf and Root (Decoction)	Leaf powder is mixed with cow milk and taken orally to treat Diabetes. The root powder is taken orally and applied on the bitten spot to treat snake bite.	Diabetes and snake bite
<i>Hemidesmus indicus</i> (L.) R.Br.	Indian Sarsaparilla	Nannari	Asclepiadaceae	Root	Juice of root is used to taken orally to reduce body heat and fever.	Fever

<i>Hibiscus abelmoschus</i> L.	Musk Seed	Kasturi vendai	Malvaceae	(Juice)		
<i>Lantana camara</i> L.	Lantana	Unnchedi	Verbenaceae	Flower (Paste)	Paste of flower is used for skin diseases.	Skin disease
<i>Leucas aspera</i> (Willd.) Link.	Common Leucas	Thumbai	Lamiaceae	Leaf (Paste)	Paste of leaves is applied topically to treat wounds.	Wound
<i>Madhuca longifolia</i> (L.) JFMacbr.	South Indian Mahuna	Ellupai	Sapotaceae	Leaf (Paste)	Fresh leaves paste is taken orally cure to headache	Head ache
<i>Mimosa pudica</i> L.	Sensitive- Plant	Thottalsurungi	Mimosaceae	Leaf (Paste)	Leaf paste is applied against skin disease.	Skin disease
<i>Mucuna pruriens</i> (Linn.) DC.	Cowhage	Poonai kali	Fabaceae	Seed (Powder)	Paste of leaves is used to apply on nose and chest to cure cold and cough	Cold
<i>Musa paradisiaca</i> L.	Banana	Valaimaram	Musaceae	Pseudo stem (Juice)	Powder of seed is taken orally once a day for one week to get relief from urinary complaints.	Urinary diseases
<i>Ocimum basilicum</i> L.	Sweet Basil	Tiruneetrupbachilai	Lamiaceae	Whole plant (Decoction)	Juice of stem is taken orally once a day for one week to get relief from urinary tracks Stones.	Urinary stones
<i>Ocimum sanctum</i> L.	Tulsi	Thulasi	Lamiaceae	Leaf (Juice)	Decoction of whole plant or 5 - 10 leaves are eaten raw twice day for cough and cold.	Cold
<i>Phyllanthus amarus</i> Schum. & Thonn.	Stone Breaker	Keezhanelli	Euphorbiaceae	Leaf (Paste)	Juice of leaves is taken orally in empty stomach curing cold.	Cold
<i>Piper longum</i> L.	Long Pepper	Thippili	Piperaceae	Seed (Decoction)	Raw branch lets and leaves are eaten for 7 days for curing jaundice	Jaundice
<i>Piper nigrum</i> L.	Black Pepper	Milaku	Piperaceae	Seed (Paste)	Decoction of seed powder is mixed with freshwater as tonic to cure fever	Fever
<i>Pluchea indica</i> (L.) Less.	Indian Camphorweed	Andhimandari	Asteraceae	Seed and Flower (Paste)	Paste of seed powder is mixed with freshwater and given with honey to treat fever.	Fever
<i>Pterocarpus marsupium</i> Roxb.	Indian Kinotree	Vengaimaram	Fabaceae	Stem bark (Decoction)	Paste of seed and flower extract are given orally for Body cooling.	Body coolant
<i>Rauvolfia serpentina</i> L.	Snake Root	Sarpagandha	Apocynaceae	Root (Paste)	Decoction of stem bark is given to drink with 50 - 100 ml of hot water twice a day for stomach ache.	Stomachache
<i>Rubia cordifolia</i> L.	Indian Madder	Sevalaikodi	Rubiaceae	Stem and Root (Powder)	Paste of root is applied for snake bite and dog bite.	Snake bite and dog bite
<i>Santaium album</i> L.	Sandal Tree	Santhanam	Santalaceae	Stem (Paste)	Stem and Root powder is given with honey to treat diabetes.	Diabetes
<i>Sida cordifolia</i> L.	Country Mallow	Valvaluppaichadi	Malvaceae	Leaf (Paste)	Paste stem is applied topically for body cooling.	Body coolant
<i>Solanum trilobatum</i> L.	Purple Fruited Pea Eggplant	Toothuvilai	Solanaceae	Leaf(Powder)	Leaf juice used for body cooling.	Body coolant
<i>Sonchus oleraces</i> L.	Milk Thistle	Karpooravalli	Asteraceae	Leaf(Paste)	Powder of leaf is taken orally in empty stomach along with 100 ml of milk for 2 - 3 days to cure cold.	Cold
<i>Strychnos nux-vomica</i> L.	Nux Vomica	Etti	Loganiaceae	Fruit (Decoction)	Leaf paste is applied twice a day to heal wounds until cure.	Skin disease
<i>Tephrosia purpurea</i> (L.) Pers.	Purple Tephrosia	Kolingi	Fabaceae	Root (Paste)	Decoction of fruit with coconut oil is applied to heal wounds.	Wound
<i>Terminalia bellirica</i> Roxb.	Belliric	Thanrikkaai	Combretaceae	Seed (Powder)	Paste of root is applied for stomach ache.	Stomach ache
<i>Terminalia chebula</i> Retz.	Chebolic	Kadukkai	Combretaceae	Seed (Decoction)	Powder of seed is taken orally twice day in empty stomach for 3 days to cure dysentery.	Dysentery
<i>Tribulus terrestris</i> L.	Gokshura	Nerunchi	Zygophyllaceae	Whole plant (Powder)	Decoction of seed is taken orally along with 100 ml of milk twice a day for 2 days to get relief from Digestive disorders.	Digestive disorder
<i>Tridax procumbens</i> L.	Tridax	Vettukaya poondu	Asteraceae	Leaf and root (Paste)	Powder of whole plant is applied to cure fever.	Fever
					Paste of leaves and root is applied topically to treat wound.	Wound

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