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Some important medicinal plants used in Gingee Taluk of Villupuram District of Tamil Nadu, India

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ABSTRACT

The present study highlights some important medicinal plants used in Gingee Taluk of Villupuram district, Tamil Nadu, India. Medicinal plants have been continuously used to cure various ailments both for human beings and veterinary uses in the study area. Extensive field surveys are conducted in 8 villages among the traditional users, herbal practitioners, elders, farmers and women. The information on medicinal plants are collected using a standard questionnaire. Information on medicinal plants with their local names, parts used, mode of preparation and mode of administration are carefully recorded. A total number of 15 informants are selected and interviewed based on their knowledge of medicinal plants and practice of herbal medicine either for self-medication or for treating others. The present study shows that the informants in Gingee Taluk have very good knowledge on the medicinal plants used for various ailments.

Keywords: medicinal plants, herbal practitioners, veterinary, Gingee.

INTRODUCTION

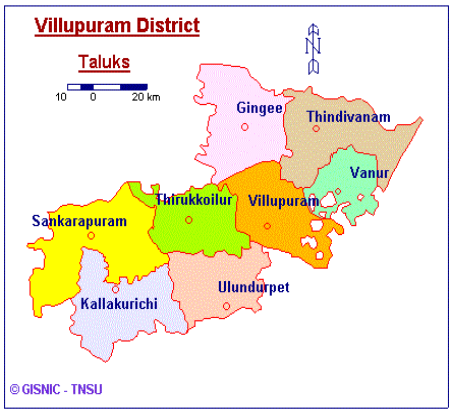
Plants, endowed with unlimited kindness and benevolence, offer human beings the products of their life activities in many ways. Apart from the commercial, industrial and domestic uses of plants, the most significant use of them, which cannot be ignored, is their curative nature. The use of plants for treating diseases is as old as the human civilization. According to World Health Organization (WHO), more than 80% of the world's population relies on plant products for their primary health care needs **[1].** In the last few decades there has been an exponential growth in the field of herbal medicine. It is getting popularized in developing and developed countries owing to its natural origin and lesser side effects **[2, 3].**

Plants used for traditional medicine contain a wide range of substances that can be used to treat chronic as well as infectious diseases. A vast knowledge of how to use the plants against different illnesses may be expected to have accumulated in areas where the use of plants is still of great importance [**4**].WHO has recently defined traditional medicine (including herbal drugs) as comprising therapeutic practices that have been in existence, often for hundreds of years, before the development and spread of modern medicine and are still in use today [**5**]. However, ethnomedicine is specifically referred to as the study of traditional medical practice which is concerned with the cultural interpretation of health, diseases and illness and also addresses the healthcare seeking process and healing practices of people [**6].**

Currently the Government of India, realizing the value of the country's vast range of medicinal plants, has embarked on a mission of documenting the traditional knowledge about plants and herbs. The World Health Organization has also recognized the importance of traditional medicine and has created strategies, guidelines and standards for botanical medicines. Proven agro-industrial technologies need to be applied to the cultivation and processing of

medicinal plants and the manufacture of herbal medicines. Over the past decade, there has been a resurgence of interest in the investigation of natural materials as a source of potential drug substance. Therefore, with a deep concern and reverence for the vast plant diversity that our country enjoys, and with sense of realization about the invaluable therapeutic properties of this phytodiversity, the current research is undertaken. This work concentrates on traditional knowledge of medicinal plants along with their therapeutic uses of some important medicinal plants used by the villagers in GingeeTaluk of Villupuram district, Tamil Nadu, India.

STUDY AREA



(http://en.wikipedia.org/wiki/Image:Viluppuram.gif) [15]

Gingee is a heritage town bounded by low altitude hillocks. Gingee forms part of Villupuram district and is the Taluk headquarters. It is located at a distance of 38kms north of Villupuram, 27kms west of Tindivanam and 38kms east of Thiruvannamalai. The town is well linked on all directions on the road ways. Shankarabarani River is flowing in the eastern side of the town boundary. Other boundaries are Singavaram Village in the western side, Nellakalvai in the northern direction and Appamputur in the Southern side of the town **[7].** The town falls under the geographical coordinates of 12°.15'N and 79°.25'E., above the Mean Sea Level of 30.45m. The town comprises of a number of small and large hills, rocky outcrops are found here and there inside the town area. The town has undulating terrain with hard rocky surface. Gingee has a mild slope from the west to eastern part of the town towards the Shankarabarani River. The town has hot, dry climate almost throughout the year. The maximum temperature and the minimum temperature of the town are 36 to 30 C respectively. The town receives rain mainly during the months of October, November through the North East monsoon. On an average the town receives 700mm of rainfall [**8**].

MATERIALS AND METHODS

Review of Literature in Study Area

Some medicinal plants from Pakkamalai Gingee hills used for topical application include skin diseases such as eczema, scabies, sores, boils, foot crack, corn and many other skin infections without distinct symptoms **[9].** They also reported ethnomedicinal plants used against gastrointestinal problems such as stomach ache, indigestion, constipation, dysentery, piles and diarrhea **[10].** A survey in the remote villages in and around in the Villupuram District and recorded some commonly occurring medicinal plants such as *Cassia auriculata , Allium cepa, Capsicum annum, Trigonella foenum, Cuminum ciminum, Moringa oleifera, Tamarindus indica, Cocos nucifera, Solanum nigrum* are used in daily life by the inhabitants. While *Piper betle, Coriandrum sativam , Sesamum indicum, Eucalyptus globules, Zingiber officinale, Musa paradisica, Mentha arvensis, Piper nigrum. Arachis hypogeae* are commonly cultivated by them and also used for the treatment of various illnesses **[11].** *Moringa oleifera*, the most commonly used medicinal plant in the study area for nutrition and is extensively studied by all the scholars for its phytochemical and pharmalogical properties.

All necessary information regarding its phytochemical investigations, pharmacological actions and medicinal properties like anemia, anxiety, asthma, blackheads, blood impurities, bronchitis, catarrh, chest congestion, cholera, conjunctivitis, cough, diarrhoea, eye and ear infections, fever, abnormal blood pressure, pain in joints, scurvy, semen deficiency, headaches and tuberculosis **[12].** 55 ethnomedicinal plants commonly used by herbal practitioners and local inhabitants in this district to treat various common illnesses **[13].**

Survey

A standard methodology is necessary to study and collect the ethnomedicinal data from the informants [**14].** A standard questionnaire (Form 1) is used to obtain information on medicinal plants with their local names, parts used,

mode of preparation and mode of administration. A special attempt is made as part of the field survey to gain information on medicinal plants and medicinal practices from the *Irular* tribe settled in some villages of Gingee. Since these aboriginal people are illiterate, a structural questionnaire approach is not possible to get the information about the medicinal plants and ethnomedicinal practices, but rather informal conversation is done. All the informants are selected based on their knowledge of medicinal plants and practices of herbal medicine either for self-medication or for treating others.

A total number of 15 informants are interviewed comprising 10 males (2 *Irular*) and 5 females. An extensive field survey is conducted in nine villages, Thandavasamuthiram, Kanakkankuppam, Mulainellimali, Nadunellimalai, Genagvaram, Gingee, Kalleri, Padipallam, Devathanam Pattai of Gingee Taluk, Villupuram District twice in a year between 2012 - 2013, which includes two major rainy seasons, June-August and October-November respectively. About 40 useful days have been spent in these areas to collect information on medicinal plants among the local inhabitants, herbal practitioners, farmers and *Irular* tribes of the respective places. Most of the herbal plant collections are directly collected from the agricultural fields, foothills and rocky places. Sufficient care is taken not to destroy the habitats of these medicinal plants. Documentations of the medicinal plants are carefully recorded along with photographs of such plants. Direct plant observations are done with the help of local healers. Information on medicinal plants, local names, plant parts used and mode of administration for curing diseases has been recorded.

Views of the People

The information collected during the field survey is based on the firsthand information given by the local inhabitants on medicinal plants; their utilization and mode of administration of medicinal plant species for specific diseases. The information about the medicinally important plants and their local names, parts of plant used for preparation of drug and administration are documented. The information gathered from them is again crosschecked with the other residents of same community.

Categorization of Medicinal Plants

Traditionally important medicinal plants which are cultivated, as well as grown in the wild are classified into different types of habits and forms such as trees, herbs, shrubs, climbers. Depending upon the number, the plant species are then divided into four arbitrary groups namely, rare, common, fairly common and abundant.

Identification of Medicinal Plants

The medicinal plant species mentioned by the informants are taxonomically identified in The Rapinat Herbarium & Centre for Molecular Systematics, St. Joseph's College (*Autonomous*) Tiruchirappalli under the guidance of Dr. S. John Britto.

Form 1: Traditional Ethnomedicine Survey project, Rapinat Herbarium & Centre for Molecular Systematics, St. Joseph's College (*Autonomous*) Tiruchirappalli, India

(One form should be completed for each plant)

1. Name:_____
2. Sex:_____
3. Age:_____
4. Address:_____
5. Occupation:_____
6. Date:_____
7. Collection No:_____
8. Taxon:_____
9. Vernacular name:_____
10. Botanical name:_____
11. Family:_____
12. Locality(specific):_____
13. Habit: Tree_____Herb_____Shrub:_____Climber_____
14. Height:_____Diameter:_____
15. Bark characteristics:_____
16. Smell:_____
17. Latex:Present_____Absent:_____Colour:_____
18. Tree parts used in medicine:

Root: _____Stem:_____Flower_____Fruit_____Seed_____

19. How a plant is used: Fresh: _____ Dried:_____ Boiled: _____
20. Other plant or tree ingredient added to it _____
21. Method (s) of preparation for use: Powdered:_____ Extracted with cold water:_____

With hot water: ____ Boiled: ____

22. Mode of administration:_____
23. Dosage:_____
24. Source of collection of species:_____
25. Any other comment_____

RESULTS AND DISCUSSION

The present study reveals that the local inhabitants of Gingee Taluk of Villupuram district, Tamil Nadu, India are using 36 species of medicinally important plants belonging to 29 families. The most medicinally important plants species are observed in Euphorbiaceae (5), Amaranthaceae (2) Solanaceae (2) and Lamiaceae (2) family (Chart 1). A plant each is recorded from the other families. The results reveal that these following medicinally important plants such as *Abrus precatorius* L. *Acalypha indica* L, *Azadirachta indica* A. Juss, *Aristolochia bracteolata* Lam., *Achyranthes aspera* L, *Calotropis gigantea* L, *Cardiospermum halicacabum* L., *Hemidsmus indicus* (L.) R. Br., *Hibiscus rosa-sinensis* L, *Ipomea staphylina* Roem. & Schultes, *Leucas aspera* Spreng, *Moringa oleifera* Lam, *Musa paradisica* L, *Ocimum sanctum* L, *Phyllanthus amarus* Schurn &Thomn and *Scoparia dulcis* are commonly present in all villages in the study area. Medicinal plant species like *Aristolochia indica, Bulbophyllum kaitense, Cleistanthus collinus, Drynaria quercifolia, Helicter esisora, Ormocarpum sennoides, Phyllathus nudiflora, Schefflera stellata, Strychnos nux-vomica* are less common in the study area. From the result, it is observed that there is a wide range of distribution of the medicinally plants in this Taluk. It is noteworthy to mention here that plant species such as *Ormocarpum sennoides, Strychnos nux-vomica* and *Cleistanthus collinus* are almost at the verge of extinction due to over grazing by cattle and man-made by felling off species considered to cause human death.

Fresh leaves of 29 medicinal plants, seeds of 6 medicinal plants, 4 each of roots and fruits and entire plants of 3 medicinal plant species, 2 each of stem bark, stem, flower and latex of medicinal plants (Chart 2) have been used in preparing the herbal medicines to cure various diseases such as cold, cough, dysentery, skin diseases, toothache, indigestion, worm infestations, jaundice, liver diseases, sexual problems, snakebites, stomach ulcers, antidote for poison, wound healing and abortion.

The medicinal plants such as *Abrus precatorius* L., *Leucas aspera* Spreng, *Ocimum sanctum* L and *Solanum trilobatum* L are commonly used for cold and cough; *Abrus precatorius* L, *Acalypha indica* L, *Azadirachta indica* A. Juss, *Calotropis gigantea* L , *Hemidsmus indicus* (L.) R. Br. and *Croton bonplandianus* are used for skin related diseases; *Achyranthes aspera* L, *Calotropis gigantean* L and *Ormocarpum sennoides* are used for bone related problems; *Aristolochia bracteolata* Lam., *Musa paradisica* L are used specifically for snakebites and *Acalypha indica* L, *Azadirachta indica* A. Juss and *Phyllanthus nudiflora*, are used for veterinary purposes; *Cleistanthus collinus* and *Strychnos nux-vomica* are primarily known as plants causing human death. *Carica papaya* L and *Sesamum orientale* are known to many people as anti-fertility medicinal plants. Medicinal plants such as *Abrusprecatorius*L, *Acalypha indica L, Azadirachta indica* A. Juss and *Ocimum sanctum L* are found to be used more than one disease. These are taken internally or externally in form of paste (13), decoction (6), powder (5) and leaf extract (5) (Chart 3). Mostly the herbal practitioners administer the medicine in empty stomach early in the morning. The dosage is taken only once in a day and mostly orally.

Enumeration of ethnomedicinal plants from the study

Botanical Name	Family	Vernacular Name	Parts used, mode of administration, medicinal uses
Abrus precatorius L	Fabaceae	Kundumani	Roots are made into paste and taken for cough and cold. Fresh leaf is eaten for rheumatism and seeds are ground and mixed with water and applied on the affected parts of the body to cure hair diseases, ulcer and skin diseases.
Acalypha indica L	Euphorbiaceae	Kuppaimeni	The fresh leave extraction is applied on the whole body to cure itching and skin disorder for human and cattle.
Aristolochia indica L	Cucurbitaceae	KarudanKizhangu	The tuber is to be made paste and leaf paste of *Carmona retusa* (Vahl) is to be mixed and taken together orally with honey in empty stomach for snake bite and also for diabetes.
Azadirachta indica A.Juss	Meliaceae	Vembu	The whole is used medicinally to cure various illness, mainly for anti-microbial such as small-pox, anti-tote, to kill stomach worms, stem is used tooth brush and paste of the stem is used as tooth paste, neem oil used for control the lice problem both human and cattle.
Aristolochia bracteolata L	Aristolochiaceae	Aduthendapalai	Fresh leaves are boiled in sesame oil cooled for a while and is applied on the body for itching.
Achyranthes aspera L	Amaranthaceae	Naayuruvi	Fresh leaf extract is applied on the affected part of the bone to relieve bone pain and the root part is made into paste and kept on the aching part of the teeth for a while to cure tooth-ache.
Bulbophyllum kaitense	Orchidaceae	Kalkai	Leaf and fruit is eaten along with jaggery to promote good health and also to cure stomach ulcers.
Calotropis gigantean L	Asclepiadaceae	Erukku	The leaves are tied around wound made by thorns. Latex is used for joints pain with swelling. A pinch of dried powdered flowers with honey is recommended for a month

			and used for mental disorder. Root powder is sprayed locally in leprosy and luecoderma.
Carica papaya L.	Caricaceae	Pappali	Some matured seeds from the fruit is dried and made into powered and drank with water early in the morning to promote abortion. It is very effective first two month.
Cardiospermum halicacabum L.	Sapindaceae	Mudakathan	Leaf juice mixed with lime taken in empty stomach for Dysentery
Croton bonplandianum Baill.	Euporbiaceae	Railpondu	Leaves are squashed and the paste is applied on the wound, scabies and burns for healing.
Cleome viscose L	Capparidaceae	Navalai	Seeds are ground and the paste form is orally taken to increase hunger and appetite.
Cleistanthus collinus	Euporbiaceae	OttanThazai	Fresh leaf is eaten to cause death of a person. Seeds are very effective promoting immediate death of a person.
Drynaria quercifolia	Pteridophyte	MudaAttukkal	Root is ground with garlic and turmeric and orally taken for nerve related problem.
Helicteris isora L	Sterculiaceae	Vadampuri edampuri	The whole plant is tied at the doorsteps of the houses to chase out bad omens entering the family.
Hemidsmus indicus (L.) R. Br.	Periplocaceae	Nannari	Leaves made into paste and mix with neem oil to cure scabies.
Hibiscus rosa-sinensis L	Malvaceae	Semparuthi	The soaked petal along with coconut oil is externally applied for alopecia. The leaves and flowers are observed to be promoters of hair growth and it aids in healing of ulcers.
Ipomea staphylina Roem. & Schultes	Convolvulaceae	Oonankodi	Leaf latex is used to cure foot crack
Leucas aspera Spreng	Lamiaceae	Thumbai	The fresh leaves boiled, get decoction, inhalation of steams to relieve of cold and cough.
Moringa oleifera Lam	Moringaceae	Murungai	All the parts are used to cure rheumatism, body strengthens, synthesis of sexual hormones, solve excretory problems.
Musa paradisica L	Musaceae	Vazhai	The shoot extracts drink to continue the kidney stone remove from body. Fruit used for excretion, digestion problems. A plant extract is given for snake bite and also for burns.
Nerium oleander L	Apocynaceae	Arali	Juice prepared from the stem bark is boiled with gingerly oil and two drops are poured into ear to treat ear pain.
Ocimum sanctum L	Lamiaceae	Tulasi	The fresh leaves boiled and decoction is taken to relief the cough, dizziness, of boiled steams inhaled to relieve the headache.
Ormocarpum sennoides	Papilionoideae	Elumpotithazhai	The leaves are dried and made powder. It is to taken orally with honey in empty stomach in the morning to cure bone related problems..
Phyllanthus amarus Schurn&Thomn	Amaranthaceae	Keelanelli	Leave juice is used to cure jaundice disease.
Phyllanthus reticulates Poir.	Euphorbiaceae	Palukuchithazai	Leaf is made into paste and given 2 times a day for Dysentery.
Phyllanthus madearaspensis L	Euphorbiaceae	Pasukilanelli	Leaf is to be ground in powered form and mixed with cow milk and given orally to children to stop vomiting.
Phyla nodiflora (L.) Greeme	Verbenaceae	PudathalaPachilai	Fresh leaves are ground with garlic, ginger, tamarind and its paste is given to the cows to promote good conception.
Piper betle L	Piperaceae	Vettrilai	Leaves are used for chewing and are credited with many medicinal properties such as digestive, simulative, carminative and aphrodisiac.
Ruellia tuberosa	Acanthaceae	Pattasuthazhai	The leaves to be made paste and to taken orally with milk to stop white fluids flowing from vagina during intercourse.
Sesamum orientale	Pedaliaceae	Ellu	The leaf paste is orally taken in the morning in empty stomach for three days to promote anti-fertility.
Scoparia dulcis L	Scrophulariaceae	Sakkaraivembu	The leaves to be made paste and consumed with buttermilk to relieve body heat.
Schefflera stellata	Analiaceae	Paiveratti	Leaves are made into paste form and applied on the injured area part of the body to promote healing of injury.
Strychnos nux-vomica L	Loganiaceae	Ettimaram	Three or four seeds are consumed for 45 days as anti-poison to keep health from any poison. If taken more, it could lead to death of the person.
Solanum trilobatum L	Solanaceae	Thuthuvalai	Leaves are used to cure throat infection, cold, cough, with the mixing of Tulasi and other spices also.
Solanum nigrum L	Solanaceae	Manathakkali	The juice taken from fresh leaves are used to treat for stomach ulcer.

Chart 1: Distribution of Medicinal Plants

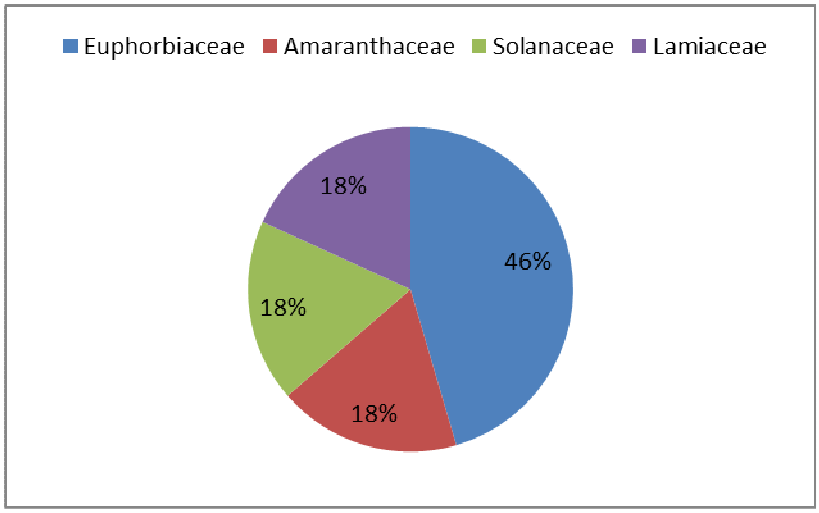


Chart 2: Plant Parts Used

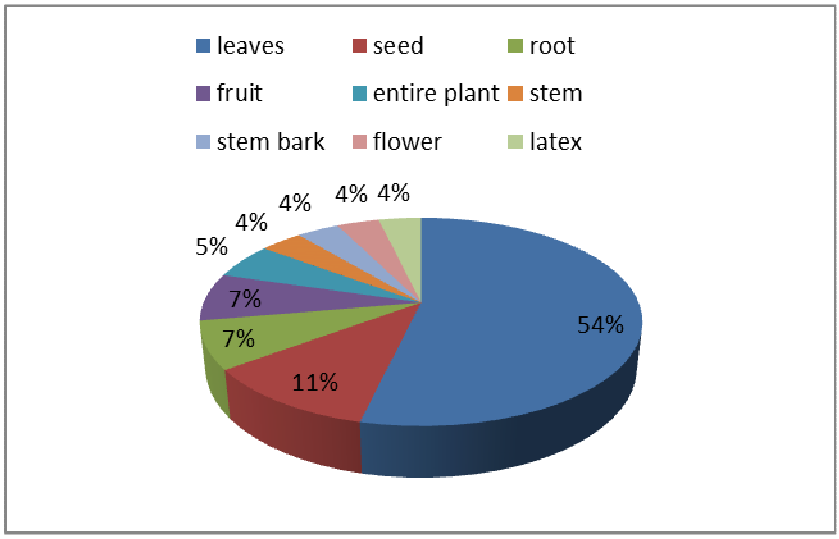
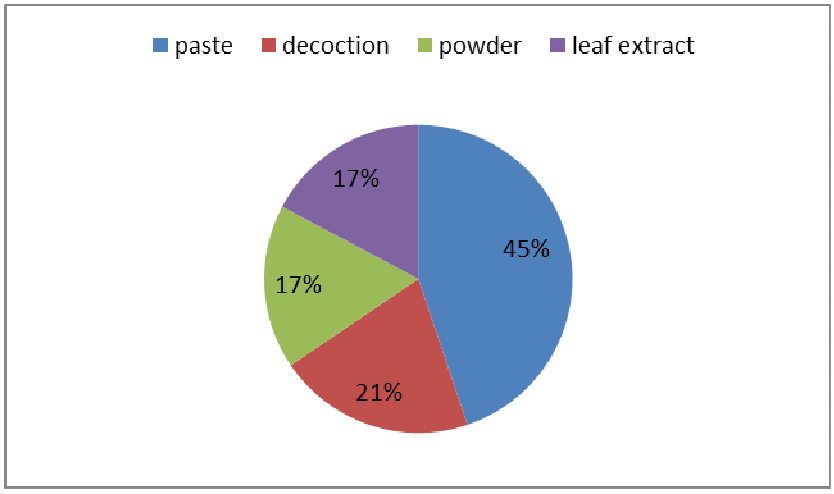


Chart 3: Mode of Preparation of Medicine



CONCLUSION

GingeeTaluk of Villupuram District of Tamil Nadu, India is blessed with innumerable number of medicinal plants. The traditional healers are the main source of knowledge on medicinal plants. Many local people are going for agriculture and sustainable harvesting of plants with medicinal value which helps not only in conservation of these traditional medicinally important plants but also in marketing of these plants and their products for economic growth of the people. Some properties of medicinal plants and their uses have been recorded by some research scholars in the past but a large number of medicinal plants remain unrecorded. There are a good number of herbal practitioners in this district who practice herbal medicine for their livelihood and are willing to share their rich knowledge of herbal medicine with the research scholars for the benefit of the good health of the society.

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