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Ethno medicinal value of plants in Tiruchengode area of Namakkal district, Tamil Nadu, India

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Abstract
The present study was undertaken to acquire knowledge about the ethnomedicinal plants of Tiruchengode in Namakkal district of Tamil Nadu for health improvements. The medicinal plants were collected from Tiruchengode and the information of these medicinal herbs has been compiled. The present study emphasizes the need for the knowledge in traditional herbal therapy which is gradually vanishing in the modern era. Hence it is high time to preserve the precious knowledge on phytoremediation. We have identified and reported more than 40 species of medicinally important plants belonging to 27 families.

Keywords: Ethno medicine, active principles, plant parts, medicinal uses

Introduction
India has a rich culture of medicinal herbs and spices, which includes about more than 2000 species and a vast geographical area with high potential abilities for Ayurvedic, Unani and Siddha traditional medicines out of which only a very few have been studied chemically and pharmacologically for their potential medicinal value. Medicinal plants form the “backbone” of traditional medicine, which means more than 3.3 billion people in the less developed countries utilize medicinal plants on a regular basis. Herbal medicines are in great demand in both developed and developing countries as a source of primary health care owing to their attributes having wide biological and medicinal activities, high safety margins and lesser costs. Ethno botany (the study of traditional human uses of plants) is recognized as an effective way to discover future medicines. In 2001, researchers identified 122 compounds used in modern medicine which were derived from "ethno medical" plant sources. The use of herbs to treat disease is almost universal among the ancient societies, and is often more affordable than purchasing expensive modern Allopathic pharmaceuticals. The present study is towards the importance of ethnomedicinal plants and their medicinal uses by the people of Tiruchengode, Namakkal district of Tamilnadu. Communities of this district have a rich knowledge of plant based traditional medicines used in herbal and folk medicines.

2. Study Area
Tiruchengode area is in the district of Namakkal and is located in the Southern part of Tamil Nadu, India. It is extended between the latitude 11° 15’ N and longitude 77° 56’ E. The temperature varies from 21 °C to 27 °C in winter and 23 °C to 39 °C in summer. The average rainfall is 950mm per year. The altitude is about 150–200 meters. As per population, Tiruchengode is the largest city in Namakkal district.
In ancient days, Tiruchengode was known as Thirukodimaadachenkundrur - one of the historic places in Tamil Nadu. This temple is regarded as the 4th of the 7 Tevara Stalams in the Kongu Region of Tamil Nadu. Arthanareeshwara temple is an ancient Hindu temple, located in Tiruchengode, in the southern Indian state of Tamil Nadu. The temple is dedicated to Arthanareeshwara, the unique half-male half-female of Lord Shiva. The sacred hill is about 650 ft. high, and a climb of 1156 steps leads worshippers to the temple at its peak. The hill contains about 350 acres of land, which lies 2000 ft. about sea level. This important place of pilgrimage is mentioned in the Tamil work Silapathikaram as 'Nedulkundru' and is celebrated in the hymns of Saivite saints. The equally famous Chenkottu Velavar Temple, dedicated to Lord Murugan, is situated on the same hill.

Map details of study area- Tiruchengode

3. Materials and Methods

Tamil Nadu is ethno botanically very rich, having a wide variety of medicinal plants. Ethno botany deals with direct, traditional and natural relationship between human society and plants. Ethno medicinal field trips in different tribal's villages of the Tiruchengode, Namakkal district during 2015 was undertaken. The tribal people nearby the study area have been enquired and interviewed to gather the first hand information on the medicinal uses of the plants with vernacular names, method of preparation of drug, mode of administration for each and every medicinal plants collected during the study period. The plants were photographed in the field itself. The vernacular names of the plants, active principles, parts used and medicinal uses have been recorded.

Table 1: Ethno medicinal uses of plants by the rural people of Tiruchengode, Namakkal district of Tamil Nadu, India.

S. No	Botanical Name and Family	Vernacular Name	Active Principle	Parts Used	Medicinal Uses
1	*Abutilon indicum*, Linn. Malvaceae	Hindi: Kanghi Tamil: Thuthi	β- Sitosterol	Leaves, seed, root	Extract of water soaked dried seed is used twice a day as a very good purgative. A paste was prepared to leaves and applied to head orally to relieve head ache.
2	*Acalypha indica*, Linn. Euphorbiaceae	Hindi: Kuppikhokli Tamil: Kuppaimeni	Acalyphine	Whole plant	The leaves are ground along with turmeric and applied externally over ulcers, poisonous bites. The paste of leaves along with lime is externally applied over painful arthritis.
3	*Achyranthus aspera*, Linn. Amaranthaceae	Hindi: Apang Tamil: Nayurivi	Achyranthine	Leaves	Leaf juice extracted and mixed with a glass of water relieves abdominal pain.
4	*Aegle marmelos*, Roxb. Rutaceae	Hindi: Sirphal Tamil: Vilvam	Methanol	Whole plant	Leaves cure diabetes, cough, inflammation and asthma. Roots are used in colitis, diarrhoea, dysentery, intermittent fever and cold
5	*Aerva lanata*, Juss. Amaranthaceae	Hindi: Gorakhbuti Tamil: Sirru-pulay	β- carboline	Leaves Root	The leaf sap is used for eye complaints. Roots are used in headache and also as demulcent.
6	*Agave Americana*, Linn. Agavaceae	Hindi: Gwarpatha Tamil: Anaikathalai	Aloin	Leaves and root.	Infusion of the plant with honey soothes irritation of the eyes. Decoction of leaves is also used as a wash for general eye problems.
7	*Aloe vera*, Linn. Liliaceae	Hindi: Guarpatha Tamil: Sothu kathalai	Aloesin	Leaves	Dried and solidified juice are powdered and mixed with lemon juice minimum 2 tablets for joint pains.
8	*Alternanthera sessilis*, Linn. Amaranthaceae	Hindi: Garundi Tamil: Ponnanganni	Sitosterol	Leaves	Leaf paste is used for stomach disorders, diarrhoea, against fever, dysentery
9	*Andrographis paniculata*, Nees. Acanthaceae	Hindi: Kirayat Tamil**:** Nilavembu	Kaalmagha	Whole plant	Whole plant decoction is used to cure various kinds of fever. Half glass of whole plant decoction cures stomach problems.
10	*Azadirachta indica*, Juss. Meliaceae	Hindi: Neem Tamil**:** vembu	Azadiractin	Leaves bark and flower	Stem bark from old tree is powered and juice is extracted with water and given with sugar to cure leucorrhoea. A spoonful of roasted flower is given twice a day to cure jaundice.
11	*Basella alba*, Linn. Basellaceae	Hindi: Poi Tamil: Basalakkirrai	β- cyanine	Root	Root paste is used for a good herbal remedy for rheumatic pain and swelling.
12	*Bauhinia variegata*, Linn. Ceasalpiniaceae	Hindi: Kachnar Tamil: Mandarai	Quercitroside	Leaves	Leaf juice is extracted and taken twice a day to cure jaundice and liver problems.
13	*Calotropis gigantea*, Linn. Asclepiadaceae	Hindi: Safed aak Tamil: Erukku	Calatropin	Flowers	Flower powder is mixed with gingelly oil and applied on the wounds.
14	*Cardiospermum helicacabum*, Linn. Sapindaceae	Hindi: Kanphata Tamil: Mudakattan	Tannins	Leaves Root	Leaf decoction is used for curing arthritis. Roots are used as diaphoretic and diuretic.
15	*Carica papaya*, Linn. Caricaceae	Hindi: Papita Tamil: pappali	Papain	Root	A decoction formed by boiling the outer part of the roots of the papaya tree is used to cure dyspepsia.
16	*Cassia auriculata*, Linn. Ceasalpiniaceae	Hindi: Tarwar Tamil: Avaram	Rubiadin	Leaves	Leaf paste is applied on the fracture region and bandaged for bone fracture.
17	*Catharanthus roseus*, Don.	Hindi: Sadabahar Tamil:	Vincristine & Vinblastine	Leaves	Leaf paste is applied over the skin for allergic and skin diseases.

	Apocynaceae	Nithyakalyani			
18	*Cissus quadrangularis*, Linn. Vitaceae	Hindi: Hadjod Tamil: Perandai	Ketosterone	Stem	Stem paste is prepared by cutting a pinch of flesh and applied for insect bites.
19	*Clitoria ternatea*, Linn. Fabaceae	Hindi: Aparajita Tamil: Sankupoo	Clitorin	Seeds	Seeds fried in ghee are powdered and given orally with hot water to cure joint pain.
20	*Cocos nucifera*, Linn. Arecaceae	Hindi: Nariyal Tamil: Thenga	Ferricopnin	Oil	The oil is used for culinary purpose and applied on the skin for softness.
21	*Curcuma longa*, Linn. Zingiberaceae	Hindi: Haldi Tamil: Manjal	Cucumin	Rhizome	It relieves the pain caused by arthritis, muscle sprains, swelling, and pain caused by injury or surgical incisions. The powder of rhizome is used as a remedy for poison.
22	*Cynodon dactylon*, Pers. Poaceae	Hindi: Doob Tamil: Arugampul	Cyanodin	Whole plant	Decoction of the entire plant is used as diuretic. Grass paste is applied on sole on feet to cure stress.
23	*Datura metal*, Linn. Solanaceae	Hindi: Dhatura Tamil: Oomathai	Tropine	Leaves	0.3 grams of leaves is extracted with water and juice is used to treat gastric pain.
24	*Euphorbia hirta*, Linn. Euphorbiaceae	Hindi: Badi dudhi Tamil: Amman Paccharisi	Acetazolamine	Whole plant	Leaves are chewed for immediate relief for ulcer. The whole plant is dried and made into a powder; the powder administered 1-2 times for 5-15 days cures asthma.
25	*Ficus religiosa*, Linn. Moraceae	Hindi: Pipal Tamil: Arrayal	Serotonin	Root	Oil made from the root bark can be applied externally to relieve leprosy, eczema and rheumatism.
26	*Hibiscus rosa sinensis*, Linn. Malvaceae	Hindi: Gurhal Tamil: Sembaruthi	Stigmasterol	Flowers	An infusion of the petal is widely used as a refrigerant drink in fever and decoction is given in bronchial catarrh.
27	*Jatropha gossypifolia*, Linn. Euphorbiaceae	Hindi: Ratanjoti Tamil: Amanakku	Jatrophine	Seeds	Powdered seeds are used for preparation of tablets for foul ulcers in Homeopathy.
28	*Leucas aspera*, Spreng. Lamiaceae	Hindi: Chhotahalkusa Tamil: Thumbai	Triterpenoide	Leaves	Leaf juice is used as an external application for psoriasis, chronic skin eruptions and painful swellings.
29	*Mimosa pudica*, Linn. Mimosaceae	Hindi: Chuimui Tamil: Tottalvadi	Mimosine	Whole plant	It is mainly used in herbal preparations for gynoecological disorders.
30	*Moringa oleifera*, Lamk. Moringaceae	Hindi: Sahijan Tamil: Murungai	Moringine	Leaves	Leaves treat fever, bronchitis, eye and ear infections, inflammation of the mucus membrane. The gum is diuretic, astringent, abortifacients
31	*Musa paradisiaca*, Linn. Musaceae	Hindi: Kela Tamil: Vazhai	Hexoses	Leaves and fruit	Juice of sheathing petiole and leaf is given in children suffering from overdose of opium. Ripe fruit is a valuable food in chronic dysentery.
32	*Ocimum sanctum*, Linn. Lamiaceae	Hindi: Tulsi Tamil: Thulasi	Eugenol	Leaves	Leaf juice mixed with borax power dip in cotton and applied on black patches. A hand full of leaf juice is given to men for permanent sterilization.
33	*Ocimum tenuiflorum*, Linn. Lamiaceae	Hindi: Tulsi Tamil: karuthulasi	Eugenol	Whole plant	Leaves and seeds are mixed with black pepper and given to pregnant women suffering from malaria. Alcohol extracts from the plant heal peptic ulcers.
34	*Pergularia daemia*, Chiou. Asclepiadaceae	Hindi: Utaran Tamil: Veliparutti	Anethol	Whole plant	It is used as narcotic, expectorant, antipyretic. Leaf decoction is used as anti- helmenthic.
35	*Phyllanthus amarus*, Schum & Thom. Euphorbiaceae	Hindi: Bhuiamla Tamil: keelanelli	Phyllanthin	Whole plant	The leaves are dried and powdered; two spoons of powder are given daily for a fortnight to cure the anemia. Two spoons of leaf paste are given to patients to cure jaundice.
36	*Piper betel*, Linn. Piperaceae	Hindi: Paan Tamil: vetrilai	Piperine	Leaves	Mustard oil is applied with leaves, warmed and kept on the chest to bring relief from pain.
37	*Plectranthus amboinicus*, Linn.Lamiaceae	Hindi: Patharchur Tamil: Karpuravalli	Carvacrol	Leaves	The leaf juice is mixed with honey, given as an expectorant for cough and asthma. It is also a best remedy for stomach problems.
38	*Solanum nigrum*, Linn. Solanaceae	Hindi: Makoi Tamil: Manathakkali	Solanine	Leaves	Leaf paste is applied externally to cure skin diseases, rabies and ring worms.
39	*Solanum torvum*, Sw. Solanaceae	Hindi: Bhurat Tamil: Sundaikkai	Methyl caffeate	Fruit	Decoction of fruits is used for treating cough, cracks in the feet, liver and spleen enlargement.
40	*Tribulus terrestris*, Linn. Zygophyllaceae	Hindi: Gokhru Tamil: Nerinjil	Diosgenin	Fruit	The fruit powder mixed with honey and sheep's milk used for curing kidney stones.

4. Results and Discussion

The present work comprises of total 40 plant species belonging to 27 families which has been enumerated. Proper scientific evaluation of these plants might leads to the discovery of some interesting and important information. The information detailed about the botanical name of the plants and plant parts medicinal uses were given in the table1. The records were documented from the local and tribal people of

Tamil Nadu. The collected various species of plants were used to treat various diseases such as wound, demulcent, rheumatic pain, jaundice, liver problems, bone fracture, leprosy, eczema, bronchial catarrh, gynecological disorder, abortifacients, narcotic, anti- helminthic, psoriasis in terms of the number of plants collected in Tiruchengode, Namakkal district of Tamilnadu. Ethno-medical practices are preferred largely because medicinal plants are less expensive, readily available and reliable, and they are considered to have fewer side effects than modern medicines.

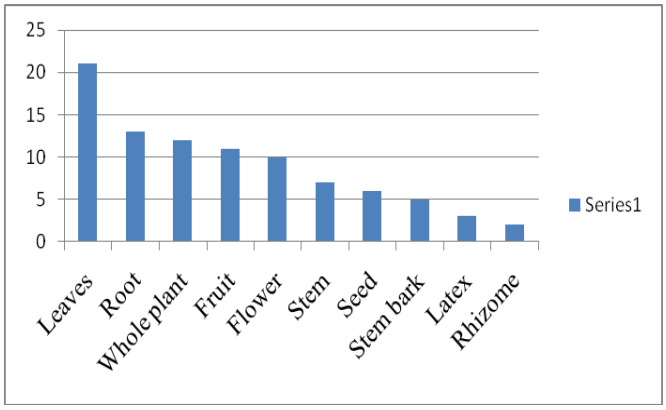

Fig 1

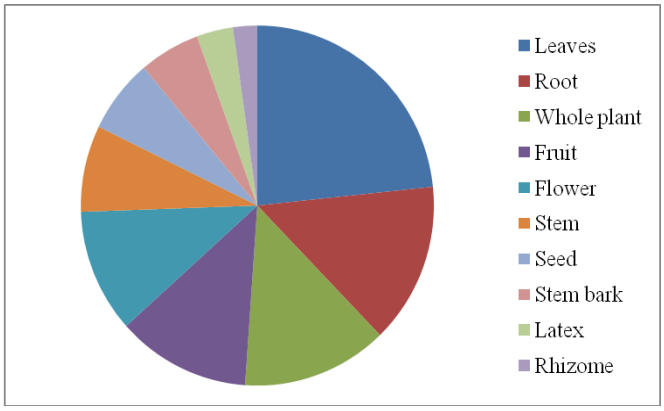

Fig 2

Fig 1& 2: Plant parts used for the preparation of medicine.

5. Conclusion

This survey of traditional knowledge and utility of medicinal plants for the treatment of various ailments among people living in Tiruchengode is still a major part of their life and culture. They use plants, weeds, fruit plants, vegetables, spices and ornamental plants as traditional medicine. The ethnomedicinal plants are very important and very useful in today scenario, because all these consist of highly medicinal properties which are commercially used for its major active compounds present in it. It is further used for its future in the fields of pharmaceuticals and many combinatorial medicines.

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