



Original Research Article

Medicinal Plants Used by Tribal and Non-Tribal People of Dharmapuri District, Tamilnadu, India

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Abstract	Keywords
<p>The tribal and non-tribal people of Dharmapuri district are accustomed to an extensive difference of medicinal plants used in their herbal medicinal usages. In this present study, 60 plant species belonging to 53 genera and 35 families were identified from the research region to be utilized to treat jaundice, diabetes, skin diseases, dog bite, snake bite, scorpion bite, leprosy, rheumatism, headache, asthma, stomachache, cough, antipyretic and cold. Acanthaceae (6 spp.), Asclepiadaceae (5 spp.) and Euphorbiaceae (4 spp.) were found to be the dominant families while leaves were notable as the greatest utilized plant part. The medicinal plants utilized by traditional users of Dharmapuri district are arranged alphabetically followed by Botanical name, family name, local name/vernacular name, utilized plant part(s), mode of administration and medicinal uses are provided. The indigenous potential may help us for research and the discovery of modern medicines. Some important medicinal plants of this district are <i>Acorus calamus</i> L., <i>Andrographis alata</i> Nees., <i>Andrographis lineata</i> Nees., <i>Andrographis paniculata</i> Nees., <i>Gloriosa superba</i> L. and <i>Aristolochia bracteolata</i> Lam.</p>	<p>Dharmapuri Medicinal Plants Non-Tribals Traditional uses Tribals</p>

Introduction

Herbal medicines are also vast need in the developed world for primary health care because of their efficacy, safety and fewer side effects. Plants have been utilized in traditional medicine for thousands of years (Abu-Rabia, 2005). Herbal medicines form an integral part of healing usages by traditional healers. India has luxuriant heritage of using medicinal plants in traditional medicines,

as in the *Siddha*, *Ayurveda*, *Unani*, *Homeopathy* and *Amchi* methods besides folklore practices. A great number of ethnomedicinal communication remained endemic to particular areas or people due to need of information. India is the second greatest country in the world in regard of human population. Over 550 tribal communities are covered under 227 tribal groups residing in about

5000 villages of India in various forests and vegetation categories. The tribal and rustic people of India have preserved a broad range of traditional information of medicinal uses of plants growing around them. This information is handed down to generations through word of mouth and is widely utilized for the treatment of familiar ailments (Mishra et al., 2008).

Herbal drugs are supported to be of excellent significance in the initial health care of individuals and communities in several developing countries. Considering the recent estimate of deforestation with the concurrent deficiency of biodiversity, there is a necessity for correct noted of the information and experience of the traditional herbalists. Tribals and rural communities, in common, depend on resources for several uses, medicines, food, construction of dwellings, making household and agricultural implements, fodder, dyes, insecticides, narcotics, poison, wood, timber, non-timber forest products, etc. (Pushpangadan, 1995). Plants have always the principle of medicines and have many uses to mankind. Several studies accounting indigenous information through ethnobotanical investigations is significant for conservation of biological and cultural diversities as well as helpful in utilization of resources (Subramanian, 1999; Ramya et al., 2008; Sivaperumal et al., 2010; Kadhirvel et al., 2010; Kamaraj et al., 2012; Alagesaboopathi, 2011 and 2014). The different tribal communities of the district are Malayali, Kurumba and Kurichchan.

Dharmapuri district is present in the central to northwest part of Tamilnadu. It lies between 11°47'-12°33' North latitude and between 77°02'-78°40' East longitude. The entire district is surrounded by hills and forests. Wide areas of the forest consist of dry deciduous species and lesser areas of semi-evergreen and riverain forests where ferns and epiphytes are available. The use of plants for curing several human diseases is known to different households. The senior people have vast information of the ethnomedicinal plants found in the nearby forest. They are remarkable identification, utilize, extraction, preparation and useful of plans and herbs in many types of ailments locally occur in the region. The utilize traditional knowledge in health care mode where herbs, plants and roots of some wild trees and plants locally available are utilized for curing the

human disorders. They have indigenous method of manage for many types of illness with the assist of regional herbal remedies.

They provided data namely scientific name of the species, vernacular name/ local name (Tamil), family, part(s) used and uses. They noted that the most of the plant species are actually efficient treatment of several diseases namely, jaundice, fever, asthma, snake bite, scorpion bite, diabetes, skin disorders, cuts, wounds, leprosy, stomachache, urinary problems and even dengue fever. The present report give an account of the native medicinal plants utilized by non-tribal people and Kurumba, Malayali and Kurichchan tribals in Dharmapuri district, Tamilnadu.

Materials and methods

Periodic field trips of ethnobotanical investigation were undertaken in rustic and forest areas of the research area inhabited by Kurumba tribals, Malayali tribals, Kurichchan tribals and non-tribal peoples during August 2011 to December 2012. The data were collected from the village herbalists, medicine men, village dwellers, women, village headmen and the aged and knowledged people the herbal medicine practitioners, vaidyas and their traditional healers following the methodology of Jain (1964), Jain (1995) and Sinha (1996). Data were collected through questionnaires, bilateral discussion and open ended interviews on plants utilized by Kurumba, Kurichchan, Malayali and non-tribal people.

A total of 120 informants have been interviewed on random support. Out of which 90 informers are men and 30 are women whose age group ranges between 40 and 72 years. Information about the family, scientific name, vernacular name/local name, plant parts used, plant crude drug preparation, methods of application, dosage and duration were documented (Parinitha et al., 2005). The collected plant specimens were identified with the assist of renowned floras (Gamble, 1936; Matthew, 1983; Henry, 1987; Henry, 1989). The voucher specimens were deposited in the Herbarium at Department of Botany, Government Arts College (Autonomous), Salem, Tamilnadu (India) for future reference, and through previous works (Kingston et al., 2009; Venkataswamy et

al., 2010; Poongodi et al., 2011; Alagesaboopathi, 2012; Alagesaboopathi, 2013). It was found that several of the present information was not so for been available in the literature.

Results

The information on Botanical names, vernacular names (Tamil), families, plant parts used and medicinal uses are presented in Table 1. In this investigation 60 plant species belonging to 35 families distributed in 53 genera have been recorded. For each species Botanical name, family, vernacular name (Tamil name), parts used and medicinal uses are provided. The families which provided with species included as traditional medications were: Acanthaceae (6 spp.), Asclepiadaceae (5 spp.) and Euphorbiaceae (4 spp.); Solanaceae, Lamiaceae, Asteraceae and Fabaceae (3 spp. each), Cleomaceae, Moraceae, Amaranthaceae, Aristolochiaceae and Liliaceae (2 spp. each), while the remaining 23 families are each represented by one species (Fig. 1).

Among the most familiarly utilized medicinal plants, *Adhatoda zeylanica* Medicus, *Acorus calamus* L., *Eclipta prostrata* L., *Aristolochia indica* L., *Aloe barbedensis* Mill. *Solanum trilobatum* L., *Phyllanthus amarus* Schult. & Thorn., *Ocimum sanctum* L., *Vitex negundo* L. and *Andrographis paniculata* Nees. played noteworthy role in the essential healthcare method of tribal people in the study area, Kurumba, Malayalis and Kurichchan.

The present research well-known that people of both tribal and non-tribal is highest medicines utilized for curing the ailments in the studied district were: jaundice, asthma, skin diseases, diabetes, snake bite, scorpion bite, headache, cough and antipyretic. The medicinal plants are utilized as entire or their parts in their form of decoction, juice, paste, powder, latex and extract (Fig. 2). The medicinal utilizes and qualities with descriptions such as the part(s) utilized singly, fusion with other ingredients or mixed with other plants, procedure of preparation and mode of administration were noted in the field.

For curing disorders, the use of aerial plant parts was greatest (85%) than the underground parts (15%). Among the 60 medicinal plants collected, dicots are represented by 55 species of 48 genera and 31 families while monocots are represented by 5 species of 5 genera and 4 families. Leaves were well-known as the greatest popular plant part followed by others, such as roots, fruits, whole plant, seed, rhizome, latex, tuber, bulb, flower, stem and stem bark.

The percentage of plants parts utilized is as follows: leaves 54% followed by root 10%, whole plant 8%, fruit 8%, stem 6%, seed 5%, rhizome 3%, latex 3%, flower 1%, bulb 1% and tuber 1% (Fig. 3). Maximum utilization of leaves as medicine reveals either these plants are conveniently available or they may have effective medicinal properties.

Fig.1 Family-wise (number) distribution of ethnomedicines

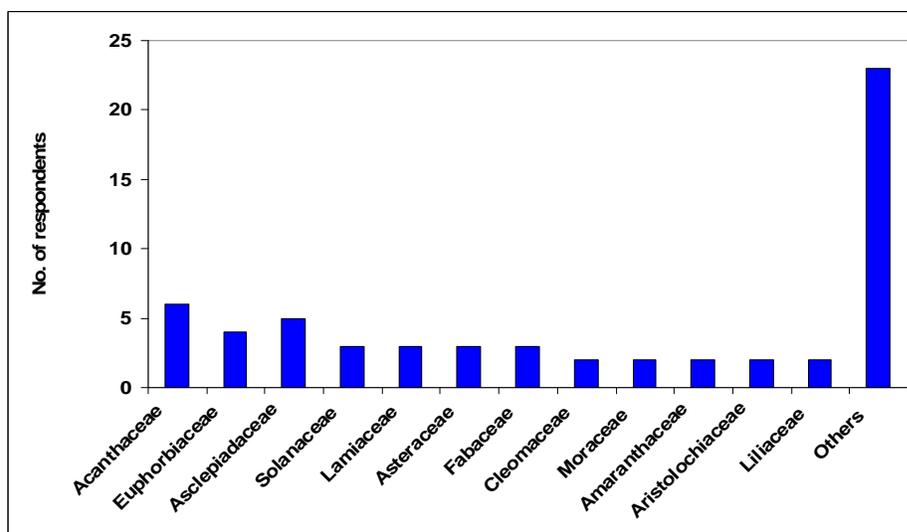


Fig.2 Plant parts used for drug preparations

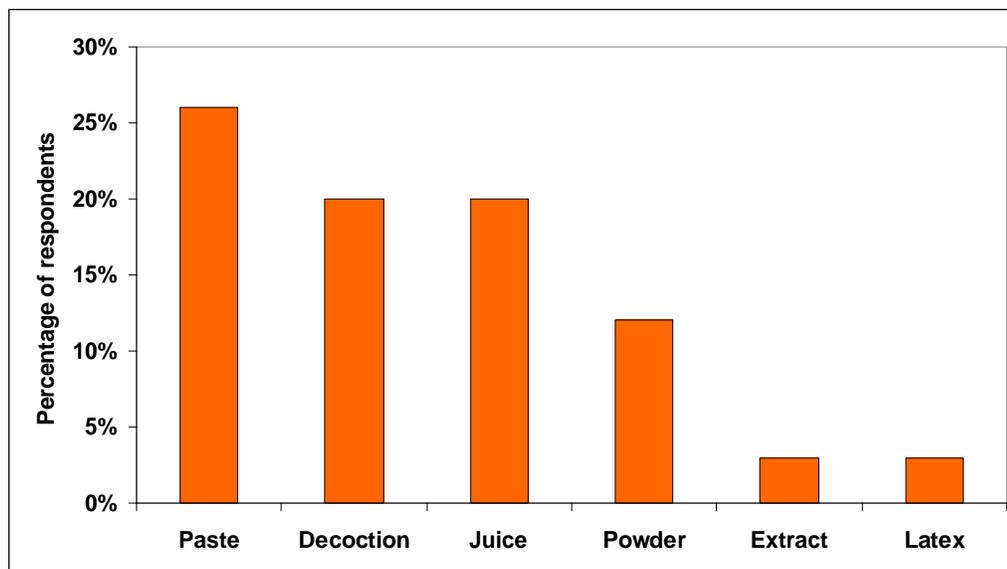
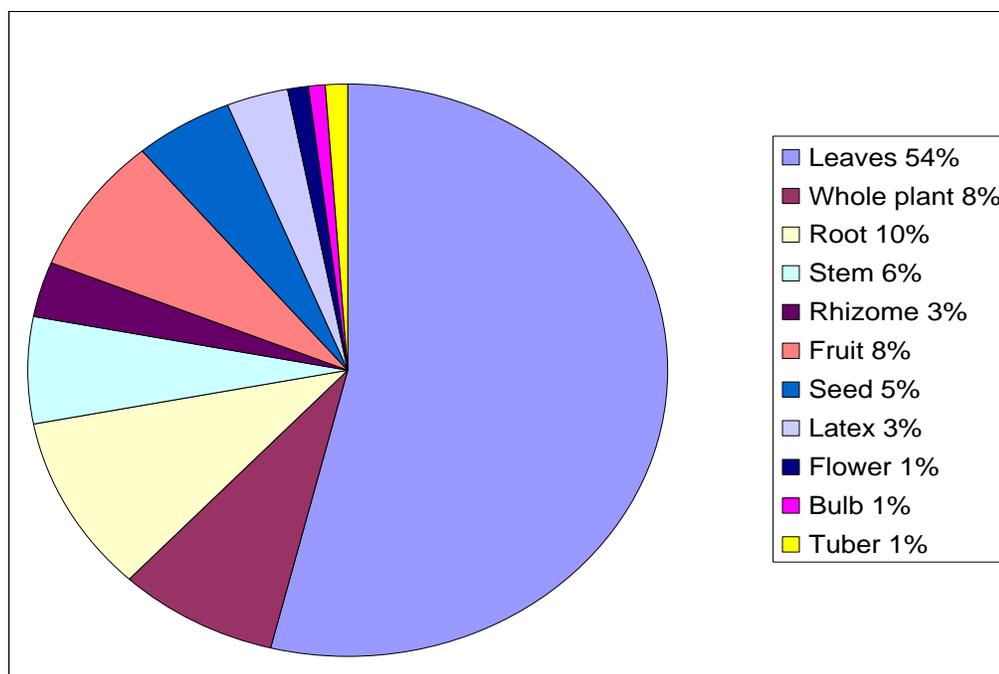


Fig.3 Analysis of various plant parts of medicinal plants in the study



Based on Table 1, highest numbers of medicinal plant species were utilized for the curing of snake bite (17%), skin diseases (12%) and diabetes (8%). Popular medicinal plants namely *Abrus precatorius* L., *Andrographis alata* Nees., *Andrographis lineata* Nees., *Andrographis paniculata* Nees., *Aristolochia indica* L., *Calotropis procera* R.Br., *Rhinacanthus nasutus*

Kurz. and *Aristolochia bracteolata* Lam. were utilized for snake bite. Species such as *Acorus calamus* L., *Ageratum conyzoides* L., *Acalypha indica* L., *Cassia auriculata* L. and *Santalum album* L. are used to cure skin diseases. Plants such as *Argemone mexicana*, *Aristolochia indica*, *Azadirachta indica* and *Asparagus racemosus* are used to control leprosy.

The most judgement plants and their utilization accounted during this research are as follows: the leaf powder, paste and fruit of *Gymnema sylvestre* R.Br. ex. Schulters, *Andrographis alata*, *Andrographis paniculata*, *Coccinia indica* Wight and Arn., *Syzygium cumini* and *Embllica officinalis* Gaertn is managed to cure diabetes, the leaf juice of *Phyllanthus amarus*, *Justicia tranquebariensis* and *Eclipta prostrata* are used to treat jaundice. Several plants are appreciably useful in curing eye diseases, rheumatism, cough, asthma, stomachache, brain tonic, cold, headache, toothache, constipation, bone fracture, dysentery,

urinary disorders and blood pressure. *Hybanthus enneaspermus*, *Hemidesmus indicus*, *Aegle marmelos* and *Alangium salvifolium* are utilized for many categories of diseases. It was noteworthy that 74% among men and 26% among women were knowledgeable tribals and non-tribals about plants. It was noticed that elder people had more knowledge about the traditional utilization of medicinal plants than younger. The tribal and non-tribal inhabitants utilize 60 species of plants for treating many ailments. Among which, many species had multiple utilization.

Table.1 List of medicinally important plants used by tribal and non-tribal people of Dharmapuri district of Tamilnadu, India

Name of the plant species	Family Name	Vernacular name (Tamil name)	Plant part(s) used	Mode of preparation and Medicinal Uses
<i>Abrus precatorius</i> L.	Fabaceae	Kundumani	Root and seed	Root paste is applied externally to treat snake bite and poisonous bite. The seed decoction is taken orally with hot water for the treatment of stomach pain.
<i>Acalypha indica</i> L.	Euphorbiaceae	Kuppaimeni	Leaves	Leaf paste is applied externally to manage skin problems.
<i>Achyranthes aspera</i> L.	Amaranthaceae	Nayuruvi	Leaves	Leaf paste is applied externally for dog bite. The root powder mixed with sugar and taken internally to treat poisonous bite.
<i>Acorus calamus</i> L.	Araceae	Vasambu	Rhizome	Dried rhizome extract is mixed with hot water three times a day for two days to treat throat infection. Rhizome paste is used in the treatment of skin diseases.
<i>Adhatoda zeylanica</i> Medicus	Acanthaceae	Adathodai	Leaves	Decoction of leaves taken orally to cure cough and asthma.
<i>Aegle marmelos</i> (L.) Corr. Serr.	Rutaceae	Vilvam	Leaves and fruits	The leaf juice is mixed with cow's milk and internally to treat fever and diarrhoea. Decoction of the fruit is mixed with hot water are given in dyspepsia.
<i>Aerva lanata</i> (L.) Juss, ex Schult.	Amaranthaceae	Poolai	Whole plant	Whole plant juice is taken internally for 5 days to treat stomachache.
<i>Ageratum conyzoides</i> L.	Asteraceae	Sethupunthalai	Leaves	Leaf juice is applied externally to treat itches and skin diseases.
<i>Alangium salvifolium</i> L.	Alangiaceae	Alinji	Fruit	Two drops of fruit juice are poured in the eyes to treat eye diseases.

Name of the plant species	Family Name	Vernacular name (Tamil name)	Plant part(s) used	Mode of preparation and Medicinal Uses
<i>Allium cepa</i> L.	Liliaceae	Venkayam	Bulb	Bulb decoction is given for the treatment of raised blood pressure.
<i>Aloe barbedensis</i> Mill.	Liliaceae	Kathalai	Leaves	Leaf juice is used to cure piles and rheumatism.
<i>Andrographis alata</i> Nees.	Acanthaceae	Periyanangai	Leaves and root	Leaf and root paste is applied externally to cure snake bite. Powder of leaf is mixed with cow's milk and drink to treat diabetes.
<i>Andrographis lineata</i> Nees.	Acanthaceae	Siriyangai	Leaves and root	Leaf and root paste applied externally for snake bite and scorpion bite.
<i>Andrographis paniculata</i> Nees.	Acanthaceae	Nilavembu	Leaves	Decoction of leaves is taken to treat Dengue fever and Stomachache. Leaf paste mixed with cow's milk taken internally for snake bite and diabetes.
<i>Argemone mexicana</i> L.	Papaveraceae	Pirammathandu	Leaves	Leaf decoction is taken internally to cure ulcers and leprosy.
<i>Aristolochia bracteolata</i> Lam.	Aristolochiaceae	Aadutinnapai	Whole plant	Whole plant paste is applied externally for snake bite.
<i>Aristolochia indica</i> L.	Aristolochiaceae	Eswaramooligai	Leaves and root	The leaf powder mixed with black pepper and pinch of common salt is given orally to treat snake bite and scorpion bite. Paste of leaf is applied externally to treat skin diseases and leprosy.
<i>Asparagus racemosus</i> Willd.	Asparagaceae	Thaneervitan Kizhangu	Root	Root powder mixed with goat's milk and taken orally for uterine ailments.
<i>Azadiracta indica</i> A.Juss.	Meliaceae	Vappamaram	Leaves and stem bark	Stem bark decoction is taken internally for 2 weeks to cure rheumatism. Young leaf juice taken internally for stomach pain and leprosy.
<i>Calotropis procera</i> R.Br.	Asclepiadaceae	Erukku	Latex	Stem or leaf latex is applied on the bitten area to treat dog, snake and scorpion bites.
<i>Cardiospermum helicacabum</i> L.	Sapindaceae	Moodakkathan	Leaves	Fresh leaf juice is mixed with sugar to treat rheumatism.
<i>Carica papaya</i> L.	Caricaceae	Pappali	Fruits	Fruits are consumed once to treat constipation.
<i>Cassia auriculata</i> L.	Caesalpiniaceae	Avvarai	Leaves and flowers	Leaf paste is applied externally to treat skin diseases. Flowers decoction mixed with cow's milk is given internally for the prevention of white discharge in women.

Name of the plant species	Family Name	Vernacular name (Tamil name)	Plant part(s) used	Mode of preparation and Medicinal Uses
<i>Centella asiatica</i> (L.) Urban.	Apiaceae	Vallarai	Leaves	Leaves juice are taken internally to act as a brain tonic.
<i>Cissus quadrangularis</i> L.	Vitaceae	Pirantai	Stem and leaves	Stem and leaf paste is applied externally to treat bone fracture.
<i>Cleome gyanandra</i> L.	Cleomaceae	Nallavelai	Fruits	Paste of fruit is applied externally to treat on forehead during deep headache.
<i>Cleome viscosa</i> L.	Cleomaceae	Naaivelai	Leaves	Leaf paste is applied externally to manage headache.
<i>Clitoria ternatea</i> L.	Fabaceae	Sangupoo	Leaves	Decoction of leaf is taken orally to treat dysentery.
<i>Coccinia indica</i> Wight and Arn.	Cucurbitaceae	Kovai	Fruits	Fruit is taken orally to manage diabetes.
<i>Cynodon dactylon</i> , (L.) Pers.	Poaceae	Arugampullu	Whole plant	50 ml of whole plant juice is given orally for the treat blood purification.
<i>Eclipta prostrata</i> L.	Asteraceae	Karisalanganni	Leaves	Leaf paste is mixed with coconut oil is applied on head for blackening gray hair. Leaf juice is mixed with cow's milk is given two times a day for 7 days for jaundice.
<i>Emblica officinalis</i> Gaertn.	Euphorbiaceae	Nelli	Leaves and fruits	Leaves and fruits are used for diabetes.
<i>Ficus bengalensis</i> L.	Moraceae	Aalamaram	Latex	Plant latex is applied externally to cure rheumatic problems.
<i>Ficus religiosa</i> L.	Moraceae	Arasamaram	Stem bark	Decoction of stem bark is applied externally to treat rheumatism.
<i>Gloriosa superba</i> L.	Colchicaceae	Kanvalipoo (or) Kalappai kkilangu	Tuber	50 ml of tuber juice is mixed with hot water is given internally for abortion.
<i>Gymnema sylvestre</i> (Retz) R.Br. ex Schulters	Asclepiadaceae	Sakkaraikolli	Leaves	Leaf powder is mixed with cow's milk is taken orally to treat sugar problems.
<i>Hemidesmus indicus</i> R.Br	Asclepiadaceae	Nannari	Root	Powdered root is mixed with water and taken orally to treat fever and to keep the body cool.
<i>Hybanthus enneaspermus</i> (L.) F.Muell.	Violaceae	Orilaitthamarai	Whole plant	The whole plant juice is used in the treatment of aphrodisiac and antipyretic.
<i>Justicia tranquebariensis</i> L.	Acanthaceae	Thavasi murungai	Leaves	Leaf decoction is taken orally to manage jaundice and leaf paste is applied externally to cure skin infection.
<i>Lawsonia inermis</i> L.	Lythraceae	Maruthani	Leaves	Paste of leaf is applied externally as hair tonic.
<i>Leucas aspera</i> (Willd.) Link	Lamiaceae	Thumbai	Leaves	Leaf paste is applied externally to cure headache.
<i>Mimosa pudica</i> L.	Mimosaceae	Thottalsurngi	Whole plant	Whole plant juice is taken orally to prevent abundant menstrual bleeding.

Name of the plant species	Family Name	Vernacular name (Tamil name)	Plant part(s) used	Mode of preparation and Medicinal Uses
<i>Ocimum sanctum</i> , L.	Lamiaceae	Tulasi	Leaves	Decoction of leaves is given orally to get relief from cold and cough.
<i>Pergularia daemia</i> (Forssk) Chior.	Asclepiadaceae	Veliparuthi	Leaves	Paste of leaves is applied on headache.
<i>Phyllanthus amarus</i> Schult & Thorn	Euphorbiaceae	Keelaanelli	Whole plant	50 ml of plant juice is mixed with cow's milk and taken orally once a day for one week to cure jaundice.
<i>Piper nigrum</i> L.	Piperaceae	Milagu	Seeds	Seed powder is mixed with hot water is given orally to treat dry cough and throat infection.
<i>Plectranthus barbatus</i> Andr.	Lamiaceae	Oomavalli	Leaves	Leaf juice mixed with black pepper is taken orally to cure cough and cold.
<i>Rhinacanthus nasutus</i> Kurz.	Acanthaceae	Nagamalli	Leaves	Leaf paste is applied externally to treat for snake bite.
<i>Ricinus communis</i> L.	Euphorbiaceae	Amanakku	Leaves	50 ml of leaf decoction is given internally thrice a day for two days to treat abdominal pain.
<i>Santalum album</i> L.	Santalaceae	Sandanam	Stem	Paste made from the stem is used to treat skin diseases and pimples.
<i>Sesbania grandiflora</i> Pers.	Fabaceae	Agathi	Leaves	50 ml of leaf juice is given orally to treat stomachache and dysentery.
<i>Solanum nigrum</i> L.	Solanaceae	Manathakkali	Leaves	Juice obtained from leaves is taken orally to treat stomach ulcer.
<i>Solanum surattense</i> Burm.f.	Solanaceae	Kandankathiri	Fruit	Fruit are useful to cure toothache.
<i>Solanum trilobatum</i> L.	Solanaceae	Thoodhuvalai	Leaves	Juice of leaves is taken internally to cure fever, asthma and cold.
<i>Syzygium cumini</i> L.	Myrtaceae	Navalpalam	Seeds	Seeds powdered mixed with cow's milk and given orally in empty stomach to cure diabetes.
<i>Tribulus terrestris</i> L.	Zygophyllaceae	Nerungii	Fruits and leaves	Leaf juice is used in the treatment of jaundice. Fruit juice is taken internally to treat urinary disorders.
<i>Tridax procumbens</i> L.	Asteraceae	Vettukaya poondu	Leaves	Leaf paste is applied on wounds and cuts.
<i>Tylophora indica</i> (Burm.f.) Merr.	Asclepiadaceae	Asthmakodi	Leaves	50 ml of fresh leaf juice is taken with cow's milk to cure stomach troubles and asthma.
<i>Vitex negundo</i> L.	Verbenaceae	Nochi	Leaves	Leaves are boiled with water and the steam is inhaled thrice a day for 2 days to treat cold.
<i>Zingiber officinale</i> Roscoe	Zingiberaceae	Inji	Rhizome	Rhizome extract mixed with honey is taken orally to cure cough and throat pain.

Discussion

Traditional medicine is assured and reduced expensive therefore, the tribal and non-tribal of this district still usage the traditional ailments. The enumeration has been compared with important published literature and it was found that formerly (Chopra, 1956; Jain, 1991). Alike achievement on medicinal plants in resemblance to their used and conservation has been conducted in many parts of India (Sharma and Laxminarsimhan, 1986; Desale et al., 2013; Bisht et al., 2013).

The people of the study district still have a effective assurance in ability and prosperity of herbal remedy. *Phyllanthus amarus* is used to cure jaundice in the research region and the same utilize was also declared by Poongodi et al. (2011). *Andrographis lineata* plant paste is given for snake bite and scorpion bite. But the same plant powder has been reported for diabetes (Arunachalam and Parimelazhagan, 2011).

Tribal and non-tribal people of the district have influential confidence in their mode of curing and record genuine results of their administrations (Perez and Byron, 1999). The original vegetation of the region is under alarming biotic force and man is the main reason in removing the vegetation for medicine, fuel, food, construction of dwellings, making household implements, agricultural implements, fodder, dyes, insecticides, narcotics, poison, wood, timber, non-timber, forest products etc. may regulate to decline of these species from the region, due to more tribal and non-tribal villagers have been induced for conservation and propagation of these plant species.

The present research communicated that medicinal plants still presentation a vital role in the main healthcare of the people. Conclusively, to determine, this research paper will concern the attention of pharmacologists, pharmaceutical industrists, herbalists and phytochemists for further significant research of medicinal plants present in the Dharmapuri district of Tamilnadu, India.

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