



Contents lists available at ScienceDirect

## Asian Pacific Journal of Tropical Biomedicine

journal homepage: [www.elsevier.com/locate/apjtb](http://www.elsevier.com/locate/apjtb)

Document heading doi:10.1016/S2221-1691(13)60188-4 © 2013 by the Asian Pacific Journal of Tropical Biomedicine. All rights reserved.

## A study on traditional medicinal plants of Uthapuram, Madurai District, Tamilnadu, South India

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## PEER REVIEW

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The present investigation is very important because the herbal drugs are free from toxicity and side effects. The herbal drugs are also used as house hold remedy for common diseases since time immemorial. The present study mainly focuses the importance, uses and conservation of the medicinal plants used by the people of Uthapuram village.

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## ABSTRACT

**Objective:** To record the medicinal plants of Uthapuram Village, Madurai district, Tamilnadu, South India for the first time and the usage of these medicinal plants to remediate the diseases among the peoples.

**Methods:** Explorative field trips were made to the village for about twelve months from April 2012 to May 2013 to survey the medicinal plants and collect the information from the villagers.

**Results:** From this study 52 species of valuable medicinal plants belonging to 36 families were recorded and their ethnomedicinal values were collected from the village peoples.

**Conclusion:** This study focuses the importance, utilization and conservation of the medicinal plants among the people.

## KEYWORDS

Traditional medicine, Medicinal plants, Uthapuram, Madurai District

### 1. Introduction

Biodiversity brings enormous benefits to mankind from direct harvesting of plants and animals for food, medicine, fuel construction material, and other uses to aesthetic, cultural, recreational and research values. Benefits of ecosystem include climate and water regulation; the creation and protection of soils, helping to reduce floods and soil erosion, shoreline protection, providing natural controls of agricultural pests and promote creative evolution. People have been using medicinal plants from time immemorial for the treatment of various types of

disease traditionally. Traditional medicinal plants use in India is about 4000 years old. Herbs had been used by all cultures throughout history. It was an integral part of the development. About 80% of the people in developing countries use traditional medicines for their health care<sup>[1]</sup>. In less developed/developing countries 80% of the people still rely only on traditional medicine obtained from local plants and 85% of traditional medicine involve the use of plant extracts<sup>[2]</sup>. Since adequate hospital facilities and allopathic doctors are absent in much of the tropics, any destruction of tropical forests would concomitantly destroy the primary healthcare network involving local plants and

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Foundation Project: Supported by University Grands Commission under UGC Research fellowship in Science for Meritorious students (BSR) Grant No: F.4–1/2008.

Article history:

Received 5 Sep 2013

Received in revised form 14 Sep, 2nd revised form 20 Sep, 3rd revised form 5 Oct 2013

Accepted 20 Nov 2013

Available online 28 Dec 2013

traditional 'doctor'[3]. About 90% of medicinal plants used in industries are collected from the wild. Over 70% of the plant collection involves destructive harvesting because of the use of the parts like roots, bark, wood, stem and the whole plant in case of herbs. The assessments done so far for the prioritized native medicinal species have resulted in the assignment of threatened status to nearly 200 plant species[4]. In view of the tremendously growing world population, increasing anthropogenic activities, rapidly eroding natural ecosystem, etc. The natural habitat for a great number of herbs and trees are dwindling. Many of them are facing extinction. According to the Red list of threatened species 44 plant species are critically endangered, 113 endangered and 87 vulnerable in India alone[5].

The period since the emergence of human, has displayed an ongoing biodiversity reduction named as Holocene extinction. Ecologists prefers the acronym HIPPO standing for habitat destruction, invasive species, pollution, human over population and over harvesting are the major reasons for biodiversity reduction. Though India has rich biodiversity and one among the twelve major diversity centers, the growing demand is putting a heavy train on the existing resources warning a number of species to be either threatened or endangered category. Southern India includes the two major bio-geographic zones the Western Ghats and Eastern Ghats. The Western Ghats region is known for the wealth of its biodiversity and is known as one of the 18 hot spots of biodiversity recognized assess the globe. It is estimated to harbor approximately 2000 known medicinal species. Of the nearly 1800 species of higher plants listed in the Red data book 171 are know from Tamil Nadu[6]. Most if these species are restricted to southern peninsula. Several workers were reported the utility of plants for the treatment

of various diseases by the different tribal and rural people inhabiting in various regions of Tamil Nadu[7–13].

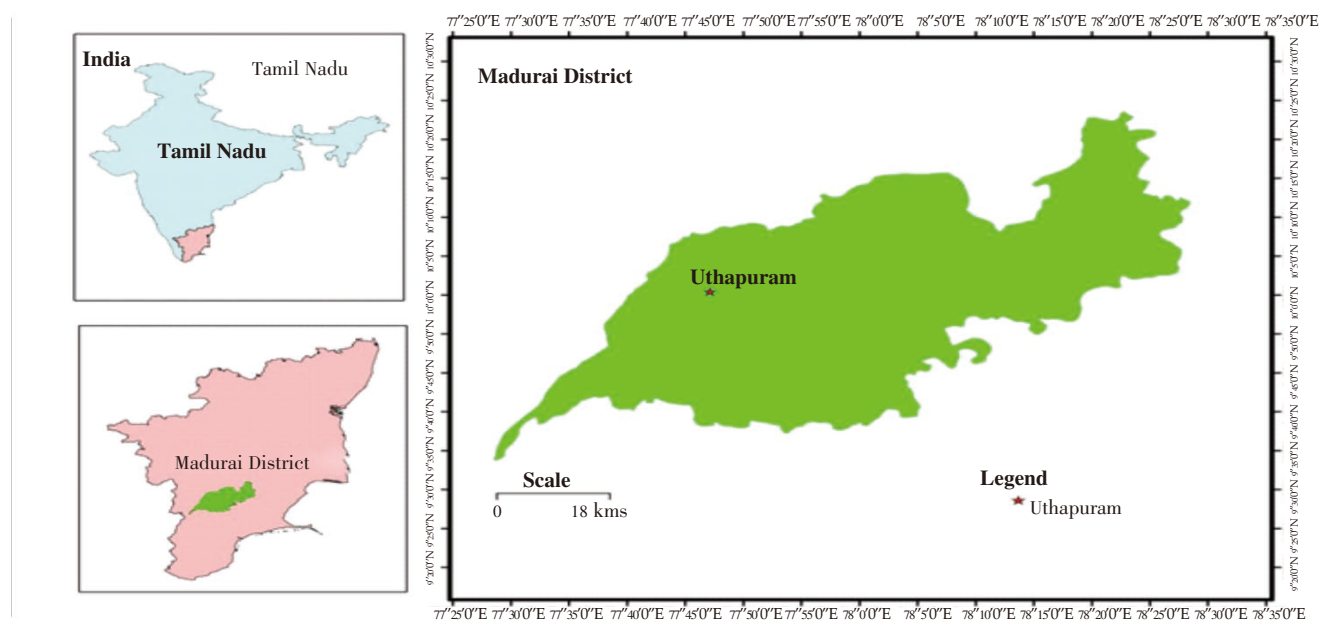
## 2. Materials and methods

### 2.1. Description of the study area

For the survey and documentation of medicinal plants, intensive exploration trips were conducted for twelve months from April 2012 to May 2013 to the ephemerals in Uthapuram Madurai district, Tamilnadu, South India (Figure 1). Geographically, the entire area of Uthapuram village is lies between 9°51'58.22" N and 9°52'35.54" N latitude and 77°42'36.61" E and 77°43'18.06" E longitude. The altitude of the study area is about 209.4 m (687 feet) above mean sea level. The village is spread over an area of about 4189 sq km and is bounded on the North and Northeast by Tadayampatti village, on the Southeast and South by E. Kottaippatti village, on the Southwest by Elumalai town and on the West by Vadakkupatti. Temperature scarcely fluctuates in the year, with the mean monthly minimum and maximum temperatures of 30 °C and 36 °C respectively and annual rainfall reaches 600–850 mm.

### 2.2. Collection of plants

The plants were collected both in flowering and fruiting condition. In case of no flowering and fruiting conditions during collection, the plant twig with few leaves were collected for proper identification. The collected plant twigs were tagged properly with proper accession number and herbarium were prepared.



**Figure 1.** Location of the area studied in Madurai District, Tamilnadu, South India.

### 2.3. Field observation and records

For the medicinal plants, which were used by the healers and households, their vernacular names in Tamil were recorded. All the plants collected were tagged and the data regarding details of the plants were recorded properly and all the specimens collected from the field work were identified with Flora of Presidency of Madras and the Flora of Palani Hills were used to ascertain the nomenclature finally deposited as herbarium in Department

of Biology, Gandhigram Rural Institute–Deemed University, Gandhigram, Tamilnadu, South India<sup>[14–22]</sup>.

## 3. Results

### 3.1. Medicinally important plants

In the present study there are 52 medicinally important plant species belonging to 36 families were collected from

**Table 1**

The list of traditionally important medicinal plants in Uthapuram with their common/Botanical/Family names, morphology and their medicinal uses.

Common name	Botanical name	Morphology of parts used	Family	Medicinal Use
Amanaku	<i>Ricinus communis</i> (L.)	Leaves	Euphorbiaceae	It cures the eye related issues
Arukampul	<i>Cynodon dactylon</i> (L.) Pers.	Leaves	Poaceae	To increase memory power
Yerukku	<i>Calotropis procera</i> (L.) R. Br.	Flower	Asclepiadaceae	It helps to maintain youth hood in our body
Elumichi maram	<i>Citrus lemon</i> (L.)	Fruit	Rutaceae	It helps to maintain body temperature moderately
Itchi mara pattai	<i>Ficus glomerata</i> (L.)	bark	Moraceae	To control tooth sensitive
Kaatu nochchi	<i>Vitex negundo</i> (L.)	Leaves	Verbenaceae	To cure headache
Kandankathiri	<i>Solanum surattense</i> (Burm.f.)	Unripped fruit	Solanaceae	To control tooth sensitive
Kari vepilai	<i>Murraya koenigii</i> (L.) Spreng.	Leaves	Rutaceae	For strong and natural hair
Keela nelli	<i>Phyllanthus amarus</i> (Schum. Thonn.)	Leaves	Euphorbiaceae	To cure jaundice
Kovamapalam	<i>Coccinia grandis</i> (L.) Voigt	Fruit	Cucurbitaceae	It helps to purify the blood
Kuppameni	<i>Acalypha indica</i> (L.)	Leaves	Euphorbiaceae	It cures skin allergy and itch
Latchakattakeerai	<i>Pisonia grandis</i> R. Br.	Leaves	Nyctaginaceae	Heart health
Manjanathi maram	<i>Morinda pubescens</i> (J.E. Smith)	Leaves	Rubiaceae	It helps to improve our nervous power
Manjakilangu	<i>Curcuma zedoaria</i> (Christm.) Roscoe	Stem	Zingiberaceae	It is used as germ` fighter and also helps to skin treatment
Maruthani	<i>Lausonia inermis</i> (L.)	Leaves	Lythraceae	It used to make our body cool
Milagu thakkali	<i>Physalis angulate</i> (L.)	Leaves	Solanaceae	It helps to control haemorrhage
Mookuthi	<i>Veronia cinerea</i> Less.	Leaves	Asteraceae	To control eye irritation
Murunkai	<i>Moringa oleifera</i> (L.)	Leaves	Moringaceae	To increase fertility in man, cure stomach pain
Nandhiya vattai	<i>Ervatamia divaricata</i> (L.) Burkill	Flowers	Aboceae	It changes the skin color as brighter as possible
Naayurivi	<i>Achyranthes aspera</i> (L.)	Leaves	Amaranthaceae	It helps to cure left injuries
Oomathai	<i>Datura metal</i> (L.)	Leaves	Solanaceae	Cure cold
Paalattam chedi	<i>Euphorbia hirta</i> (L.)	Leaves	Euphorbiaceae	It keeps our body temperature as cool
Paavakkaai	<i>Momordica charantia</i> (L.)	Unripped fruit	Cucurbitaceae	It controls the sugar levels and fight with germs
Pappali	<i>Carica papaya</i> (L.)	Leaves and fruits	Caricaceae	It cures dengue fever
Pasalikeerai	<i>Portula caoleracea</i> (L.)	Leaves	Portulacaceae	It used to control nerves weakness
Thulasi	<i>Ocimum basilium</i> (L.)	Leaves	Lamiaceae	To cure nasal related troubles
Pirandai	<i>Cissus quadrangularis</i> (L.)	Stems	Vitaceae	It is used to control sugar
Periyamookuthi	<i>Parthenium hysterophorus</i> (L.)	Leaves	Orchidaceae	To control eye irritation
Puthina	<i>Mentha piperata</i> (L.)	Leaves	Lamiaceae	It mind helps to keep our tooth
Rose	<i>Rosa indica</i> (L.)	Flowers	Rosaceae	Whitening and refreshing
Thuthithi	<i>Abutilon indicum</i> (Link) Sweet	Leaves	Malvaceae	Relieve legpain and curepiles
Sembaruthi	<i>Hibiscus rosasinensis</i> (L.)	Flowers	Malvaceae	To purify blood
Siruthumbai	<i>Leucus aspera</i> (Willd.) Link	Flowers & leaves	Lamiaceae	It helps to reduce cold effect
Chotthu kthalai	<i>Aloe Vera</i> (Mill.)	Leaves	Aloaceae	Keep our body cool and hair conditioning also
Suraikai	<i>Lagenaria siceraria</i> (Mol.) Standley	Unripped fruit	Cucurbitaceae	It helps to reduce swelling in hands and legs
Sakkaravalli kilangu	<i>Ipomoea batatas</i> (L.) Lam.	Tuber	Convolvulaceae	It helps to control diabetes and general weakness.
Thandankeerai	<i>Amaranthus spinosus</i> (L.)	Leaves	Amaranthaceae	It keeps our industine very clean
Thatha poo chedi	<i>Tridax procumbens</i> (L.)	Leaves	Trapaceae	It is used to cure the wounds
Thenga puttu ilai	<i>Commelina benghalensis</i> (L.)	Leaves	Commelinaceae	It gives mother liquos vitamin
Thaiva ilai	<i>Gynandropsis pentaphylla</i> DC.	Leaves	Capparaceae	It is used to prevent ear problem
Thulasi	<i>Ocimum tenuiflorum</i> L.	Leaves	Lamiaceae	It cures cough and cold
Vazhai thandu	<i>Musa paradisiaca</i> L.	Stem	Musaceae	It helps to avoid stomach and kidney stones
Vazhai poo	<i>Musa paradisiaca</i> L.	flowers	Musaceae	It helps to avoid stomach and kidney stones
Agathi	<i>Sesbania grandiflora</i> (L.) Poirret	Leaves	Fabaceae	It cures strange in the knees
Vepa maram	<i>Azadirachta indica</i> A. Juss.	Leaves	Meliaceae	It is used as germ` fighter
Vethalai	<i>Piper betle</i> (L.)	Leaves	Piperaceae	It is used to digestion
Vivela maram	<i>Aegle marmelos</i> (L.) Corr. Serr.	Fruits	Rutaceae	It used to youth hood
Vinni ilai	<i>Ruellia elegans</i> Poirret	Leaves	Acanthaceae	It cures headache
Vengayam	<i>Allium cepa</i> (L.)	Stem	Liliaceae	It is used to purify blood
Aavaram poo	<i>Cassia auriculata</i> (L.)	Flower	Caesalpiniaceae	Reduce the abdomen heat
Veliparuthi	<i>Pergularia daemia</i> (Forssk.) Chiov.	Leaves	Asclepiadoideae	Relieve headache
Mudakathan	<i>Cardiospermum halicacabum</i> (L.)	Leaves	Sapindaceae	Knee Joint pain relief, remove gas trouble

the Uthapuram at all season and their botanical name, family name, Common or vernacular name, morphology of the parts used and their medicinal properties were given in Table 1. Euphorbiaceae and Lamiaceae is represented by the highest number of species (4 species) followed by Cucurbitaceae, Solanaceae, Rutaceae (3 species), four families were represented by 2 species and 27 families represented by a single species.

### 3.2. Diseases cured by medicinal plants

The villagers used various medicinal plants to remediate variety of diseases and ailments like diarrhea, diabetes, asthma, fever, jaundice, rheumatism, wounds, cuts, stomach pain, cough, cold, poisonous bites, body heat, body pain, bowl complaint, bronchitis, dysentery, ear-ache, eczema, eye troubles, hair growth, intestinal worms, jaundice, leprosy, menstrual trouble, piles, pimples, ulcer, tooth-ache, urinary troubles, vomit, *etc.*, the villagers used these medicinal plants in the form of juice, paste, powder, extract, decoction, cooked or raw forms.

### 3.3. Parts of medicinal plants used

The villagers used diverse parts of the medicinal plants based on their ability to cure disease such parts includes leaf, roots, bark, seed, fruit, flower, stem, *etc.* Leaves are highly used by the village peoples, it accounts for 67.30% of all parts, next predominantly used parts are fruits which includes ripened and unripened fruits it contributes 13.46% followed by flowers 13.42%, stem 7.69% and bark 1.92%.

## 4. Discussion

The survey of medicinal plants was done at Uthapuram Madurai district, Tamilnadu, India, and 52 important medicinal plants were observed and listed in this study. This is the first survey on medicinal plants in Uthapuram village. The plants were reported with its common/ vernacular name, morphology of parts used, family and its medicinal /commercial properties. The people of Uthapuram using different morphological useful parts such as leaves, flowers bark, fruit, stem for their health care. These collected medicinal plants are used for the treatment of several diseases like dengue fever, skin diseases, knee pain, kidney stones, digestive problem, hemorrhage *etc.*

The major resource of medicines arising from plants and their phytochemical constituents. The phytochemical constituents and medicinal properties of most of the medicinal plants were recorded in the last few decades by a number of workers<sup>[23,24]</sup>. These medicinal plants are

subjected to various processes and are then administrated to the patients. The survey and documentation of medicinal and aromatic plants in each and every place is mandatory for easy identification of local traditional healers, conservation and sustainable utilization. The most important utilization of these plants is through medicines. However, plants and their parts and the pattern of administration vary from person to person. Thus, there is enormous scope for tribal medicines based on plant products which are yet to be studied, analyzed and documented.

The issues of medicinal plant conservation have been the focus of many formal and informal discussions at national and international forums, seminars, workshops, conferences and congresses in the last 10 years. Various conservation methods were mentioned in the past by many authors are being repeated at present. These methods include protection of wild species in-situ, cultivation in botanical gardens and collection of germplasm for establishment of germplasm banks, public information campaigns and others.

### Conflict of interest statement

We declare that we have no conflict of interest.

### Acknowledgements

The authors are cordially grateful to the people inhabiting in Uthapuram, Madurai district because of their kind support and co-operation during the field trips and also thankful to the Department of Biology, Gandhigram Rural Institute– Deemed University, Gandhigram. This research was funded by University Grands Commission under UGC Research fellowship in Science for Meritorious students (BSR) Grant No: F.4–1/2008

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### Comments

#### Background

India is one of the treasure houses of medicinal plants in the world. These medicinal plants were used to treat various diseases and ailments. The survey of medicinal plants in particular area is important to conserve the traditionally important plants of such landscape. This paper revealed that the medicinal plants of Uthapuram and their importance.

#### Research frontiers

Survey and field visit are being carried out to record the

medicinal plants and their importance were recorded. In this study 52 plants were recorded.

### Related reports

Medicinal plants of various regions in the world can be recorded by many researchers so far, but this is the first attempt to record medicinal plants in Uthapuram.

### Innovations and breakthroughs

This appears to be the first paper to report the traditional medicinal plants of Uthapuram, Madurai district, Tamilnadu, India.

### Applications

There are plenty of possible applications of this work both for use in the treatment of various diseases among the rural people. The village people are using these plants from several thousands of years till today to treat many infectious and non-infectious diseases. Besides this another important application of this study is to create awareness among the rural people on traditional medicinal plants.

### Peer review

The present investigation is very important because the herbal drugs are free from toxicity and side effects. The herbal drugs are also used as house hold remedy for common diseases since time immemorial. The present study mainly focuses the importance, uses and conservation of the medicinal plants used by the people of Uthapuram village.

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