Traditional Herbal Medicines for Primary Healthcare among Indigenous People in Tamil Nadu, India

Muniappan Ayyanar*

Department of Botany and Microbiology, AVVM Sri Pushpam College, Poondi – 613503, Thanjavur, Tamil Nadu, India

Abstract

Nature has been a source of medicinal agents for thousands of years, and an impressive number of modern drugs have been isolated from natural sources, many based on their use in traditional medicine. More than hundred publications are available in the literature with ethnomedical claims among different tribal communities of Tamil Nadu mainly focuses on plant species used by the tribal people of Tamil Nadu for their primary healthcare needs. Nowadays the farmers in Tamil Nadu are also interested in cultivating medicinal plants such as Gloriosa superba, Coleus amboinicus, Senna angustifolia Andrographis paniculata, Aloe vera, etc for their significance in trade. This review summarizes the traditional uses of commonly used medicinal plants among the tribal communities in Tamil Nadu, India. Extensive literature survey was undertaken from ethnobotany and related journals and other publications to document the medicinal plants commonly used by the different ethnic people for their primary healthcare. Western and Eastern Ghats are the main resources for the ethnic people who inhabited in the foot hills and deep forests. These forests hold thousands of medicinal plants which are used by the tribal people for primary healthcare needs. The scientific and vernacular names of plants commonly used by them, family, medicinal properties, part of the plant used and ailments treated are presented along with their major chemical constituents. There is still much we can learn from investigating herals available abundantly in the forests particularly those which are less well known. This type of research must be promoted as a means for developing countries to understand the potential use of their plant resources, as well as a means to better promote basic healthcare.

Keywords: Ethnomedicine; Healthcare; Medicinal plants; Tamil Nadu

Introduction

According to the World Health Organization (WHO), about 65-80% of the world’s population in developing countries, due to the poverty and lack of access to modern medicine, depend essentially on plants for their primary healthcare [1]. In recent years, use of ethnobotanical information in medicinal plant research has gained considerable attention in segments of the scientific community [2]. Historically, all medicinal preparations were derived from plants, whether in the simple form of plant parts or in the more complex form of crude extracts, mixtures, etc. The vast majority of people on this planet still rely on their traditional materia medica for their everyday healthcare needs. The primary benefits of using plant derived medicines are that they are relatively safer than synthetic alternatives, offering profound therapeutic benefits and more affordable treatment [3].

The roots of the Indian traditional systems of medicine can be traced back to approximately 5000 BC [4]. During the last few decades there has been an increasing interest in the study of medicinal plants and their traditional use in different parts of India. There are many reports on the use of plants in traditional healing by either tribal people or indigenous communities of India. In India, medicinal plants are widely used by all sections of the population and it has been estimated that over 7500 species of plants are used by several ethnic communities [5]. Even today, tribal and certain local communities in India practice herbal medicine to cure a variety of diseases and disorders [6].

Tamil Nadu: Geographical information

Tamil Nadu has a great tradition of preserving its forest wealth and concern for environment, which has taught us to respect nature and understand the complex inter-relationship between living and non-living things. The ancient Tamil poets have emphasized the importance of dense forests, clean water and fertile soil in providing ecological security to mankind. The forest eco-system of the state consists of a variety of flora and fauna representing remarkable biodiversity essential for the environmental stability and water conservation thereby creating food security for survival of present and the future generations. The total forest cover of Tamil Nadu is 21482 km² (16.52%) which includes 12,499 km² dense forests (9.61%) and 8,963 km² open forests (9.19%). Dense forests are found in southern Western Ghats (Nilgiris, Anamalais, Palnis and Tirunelveli-Travancore hill complex) and in parts of Eastern Ghats. In Tamil Nadu, the Western Ghats comprise the Nilgiris, Anamalais, Cardamom hills, Palni hills and Tirunelveli hills; the Eastern Ghats comprise Javadi, Shevaroys, Pachamalais and Kolli hills and the eastern coastal plains provide various habitats and niches suitable for a variety of flora and fauna.

Tribal communities in Tamil Nadu

India possesses more than 500 tribal communities and tribal people constitute 8.2% (8.43 crore) of the country’s total population. It is estimated that, tribal people of Tamil Nadu occupy 1.05% of the total state population and 0.77% of the total tribal population of the country with 36 types of tribal communities (Adiyans, Aranadan, Eravallan, Irular, Kadar, Kammara, Kanikaran, Kattunayakan, Kochuvelan, Kondakapos, Kondareddis, Kora, Kota, Kudiya, Melakudi, Kudiya, Melakudi, Kurichchans, Kurumbas, Mahamalas, Malaipandaram, Malaiyedan, Malakkuravans, Malas, Malayalis, Malayekandys, Mann, Mudur, Muthuvan, Paliyar, Paniyans, Sholaga, Toda and Uralys).

*Corresponding author: Muniappan Ayyanar, Assistant Professor, Department of Botany and Microbiology, AVVM Sri Pushpam College, Poondi – 613503, Thanjavur, Tamil Nadu, India. Tel: +91 99403 76005; E-mail: asmayanaran@yahoo.com

Received October 18, 2013; Accepted November 23, 2013; Published November 28, 2013


Copyright: © 2013 Ayyanar M. This is an open-access article distributed under the terms of the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited.
Nearly a hundred papers have been published and several unpublished reports are also available with ethnomedical claims among different tribal communities of Tamil Nadu. Rajan et al. [7], Hosagoudar and Henry [8], Subramanian et al. [9], Rajendran and Henry [10], Arivathan et al. [11], Muthukumarasamy et al. [12], Rajendran et al. [13], Nagendra Prasad et al. [14], Viswanathan et al. [15] Ayyanar and Ignacimuthu [16-25] have done some important ethnobotanical studies among the various tribal communities in Tamil Nadu. The present review mainly focuses on plant species used by the tribal people of Tamil Nadu for their primary healthcare needs.

Methodology

Ethnomedicinal uses of the commonly used plants were elucidated with the previously published literature from the ethnobotanical surveys among different tribal communities in Tamil Nadu. The periodicals searched for the collection of ethnomedicinal information in the ethno/economic botany relevant journals like Ethnobotany, Journal of Economic and Taxonomic Botany, Indian Journal of Traditional Knowledge, Journal of Ethnobiology and Ethnomedicine, Journal of Herbs, Spices and Medicinal Plants, Current Science, Pharmaceutical Biology, Journal of Ethnopharmacology, Phytotherapy Research, and some unpublished reports, etc. Medicinal properties and major chemical constituents of each plant were extracted from the literature of Nadkarni [26], Rastogi and Mehrotra [27], Khare [28], Ayyanar and Ignacimuthu [16-25].

Results and Discussion

The list of plants provided in Table I gives the botanical name with authentication, family, common name, local name (Tamil), medicinal properties and major phytochemical constituents of the plants frequently used by the tribal people of Tamil Nadu for their primary healthcare. In addition, the table provides the diseases cured with these plants and the part of the plant used to treat diseases with appropriate references. Most of the tribal people have a general knowledge of medicinal plants for their primary healthcare needs. The common medicinal plants used by them for first aid remedies to treat cough, cold, fever, headache, poisonous bites, wounds, dental problems, hair growth, stomach problems, to strengthen the body and skin diseases [16-25]. Especially the indigenous people, who are residing in the deep forest areas, are still dependent on medicinal plants for their primary healthcare. Many plant remedies are known by some local people, especially by the elder who is not necessarily a traditional healer.

Healers in Tamil Nadu commonly begin their training as children or teenagers working as assistants to their mothers, fathers and to other relatives who are recognized healers. After having trained for a number of years, the apprentice will be ceremonially granted the authority to use a given treatment. This individual will be recognized by others in their culture as having mystical power to heal, as well as having the power to train others in the use of medicinal plants. Most of the tribals have a general knowledge of medicinal plants that are used for first aid remedies, to treat cough, cold, fever, headache, poisonous bites and some other simple ailments [18].

Of the reported plants Aloe vera, Allium cepa, Azadirachta indica, Cassia auriculata, Coccinia indica, Ficus bengalensis, Gymnema sylvestre, Hibiscus rosa-sinensis, Mangifera indica, Murraya koenigii, Phyllanthus amarus and Syzygium cumini have proved as potential anti-diabetic plants [29] in traditional medicine as well as by clinical studies. Costa-Lotufo et al. [30] reported that the plants such as Phyllanthus emblica, Hemidesmus indicus and Moringa oleifera are a source of anticancer compounds. Bambusa arundinacea is one of the significant anti-inflammatory and antiulcer agent [31] and it possesses antiinflammatory, immunosuppressive, wound healing and antibacterial activity. The plants such as Abutilon indicum, Hemidesmus indicus and Vitex negundo [32], Acalypha indica, Achyranthes aspera, Cassia auriculata and Centella asiatica [33,34] are reported as potential antimicrobial agents.

Leaf gel prepared from the leaf of Aloe vera is reported to inhibit the growth of 17 types of microorganisms and it is also a potential antibacterial and antifungal agent [35]. Plants such as Acalypha indica, Achyranthes aspera, Adesirachta indica, Centella asiatica, Hibiscus rosa-sinensis, Piper betle, Syzygium cumini and Terminalia chebula are reported as natural contraceptive agents [36]. Abutilon indicum, Aloe vera, Clitoria ternatea, Euphorbia hirta, Lawsonia inermis, Phyllanthus amarus and Vitex negundo are reported for the presence of potential central analgesic properties [37]. Tinospora cordifolia, Ocimum sanctum, Azadirachta indica, Calotropis procera, Withania somnifera, Curcuma longa, Commiphora mukul, Piper longum, Andrographis paniculata, Peganum harmala, Vernonia cinerea and Boswellia serrata are mentioned in ancient texts of Ayurveda as agents of natural sources in the vascular endothelial growth factor mediated pathological angiogenesis [38].

Azadirachta indica, Centella asiatica, Hemidesmus indicus and Phyllanthus emblica are clinically reported as antiulcer agents [39]. Centella asiatica and Clitoria ternatea are used in traditional medicine for a long period to improve memory and cognitive function [40]. In Nigeria the plants such as, Achyranthes aspera and Euphorbia hirta are used to treat mental disorders [41]. Dafni et al. [42] revealed that, this plant has been used in the treatment of a number of ailments such as inflammation, liver problems, blood purification, lung problems, skin diseases, stomach problems etc. Of the 46 plant species reported by Kani tribals in Tamil Nadu for wound healing, Acalypha indica, Anacardium occidentale, Areca catechu, Calotropis gigantea, Cassampeles pareira, Cleome viscosa, Ephatorium odoratum, Euphorbia hirta, Ficus racemosa, Isxora coccina, Morinda pubescens, Opuntia dillenii, Pongamia pinnata, Scoparia dulcis and Vitex altissima were investigated experimentally by various researchers in wounded animals [21].

Research in bioactive products is still in early stages in many countries. There is much information on the chemical constituents of medicinal plants in the literature, where structural determination has been an end in itself and the activity of compounds isolated have not been assessed [43]. In the last 2000 years of the history of medicine, we can see that for most of this period, mankind had no other source of medicine than plants, either fresh or dried. Several diverse lines of evidence indicate that medicinal plants represent the oldest and most widespread form of medication. Traditional medical knowledge is important not only for its potential contribution to drug development and market values, but also for the people's healthcare [44]. The world market for plant derived chemicals, pharmaceuticals, fragrances, flavours, and colour ingredients, alone exceeds several billion dollars per year. Classic examples of phytochemicals in biology and medicine include taxol, vincristine, vinblastine, colchicines as well as the Chinese antimalarial, artemisinin and the Indian ayurvedic drug, forkolin [45].

There are hundreds of significant drugs and biologically active compounds developed from the traditional medicinal plants, a few of which are mentioned here; the antispasmodic agent vasicin from Adhatoda vasican, anticancer agents such as vincristine, vinblastine and D- Tubocurarine from Catharanthus roseus [46], anticancer agents from Andrographis paniculata, Phyllanthus amarus, Piper longum, Semecarpus anacardium, Withania somnifera, Moringa oleifera, Aloe
<table>
<thead>
<tr>
<th>Botanical Name and Family</th>
<th>Common Name</th>
<th>Local Name</th>
<th>Medicinal Properties*</th>
<th>Parts used and Diseases treated</th>
<th>Major phytochemical constituents*</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>Abutilon indicum</em></td>
<td>G. Don. (Malvaceae)</td>
<td>Country Mallow</td>
<td>Thuthi</td>
<td>Diuretic, astringent, demulcent, expectorant, laxative, aphrodisiac, pulmonary and sedative</td>
<td>Leaf - jaundice [51], piles [52,53], wounds [54], piles and skin diseases [55], venereal diseases [23]</td>
</tr>
<tr>
<td><em>Acalypha indica</em> L.</td>
<td>(Euphorbiaceae)</td>
<td>Kuppaimeni</td>
<td>Expectorant, antihelminthic, emetic, hypotonic, and cathartic</td>
<td>Stem - wounds [56], Leaf - joint pain [57], scabies [11], skin diseases [22,59,60], wounds [21,23], asthma and cough [61]</td>
<td>Alkaloids acalypha and acalyphine, cyanogenetic glucoside and triacelantine</td>
</tr>
<tr>
<td><em>Achyranthes aspera</em> L. (Amaranthaceae)</td>
<td>Rough chaff tree</td>
<td>Naayurvi</td>
<td>Alternative, antiperiodic, astringent, diuretic, and purgative</td>
<td>Root - muscle pain [8], eye pain [15], toothache [61]; Whole plant - scorpion bite [58], leprosy [13], Leaf - Piles [62], wounds [60] and toothache [23]</td>
<td>Achyranthine, betaine, cysteine, oleanolic acid, saponins, tannins and glycosides</td>
</tr>
<tr>
<td><em>Adhatoda vasica</em> Medicus (Acanthaceae)</td>
<td>Malabar Nut, Vasaka</td>
<td>Adathodai</td>
<td>Alternative, antispasmodic, diuretic, expectorant and febrifuge</td>
<td>Whole plant - venereal diseases [83]; Leaf - poison bite and headache [34], cold and cough [54,55], asthma and cold [23,64]</td>
<td>Vasicine, Vasicinone, adhatodatic acid and 1-p-egemine,</td>
</tr>
<tr>
<td><em>Allium cepa</em> L.</td>
<td>(Aipiceae)</td>
<td>Onion</td>
<td>Chinna vengayam</td>
<td>Antiseptic, aphrodisiac, diuretic, demulcent, emmenagogue, expectorant, rubefacient and stimulant</td>
<td>Bulb - wounds [65,66], fever and coolant [67], rheumatism and headache [25,60], cold [15] and rheumatism [88]</td>
</tr>
<tr>
<td><em>Aloe vera</em> (L.) Burm. f. (Liliaceae)</td>
<td>Barbados Aloe</td>
<td>Sothu Kaththalu</td>
<td>Anthelmintic, antiseptic, cathartic, emmenagogue, purgative, refrigerant, stomachic and tonic</td>
<td>Leaf - swellings [89,70], wounds [71], fever and eye diseases [72], body cooling [60] and ulcer [73]</td>
<td>Aloin, isobarbaloin, emodin, gum, resin, chrysophanic acid, uric acid, oxidase, catalase and sugars</td>
</tr>
<tr>
<td><em>Alternanthera sessili</em> (L.) R.Br ex. DC. (Amaranthaceae)</td>
<td>Dwarf copperleaf</td>
<td>Ponnankanni keerai</td>
<td>Chologogue, galactogogue and febrifuge</td>
<td>Leaf - hair tonic [34], nutrient [74] and eye diseases [25,73], o- and β-tocopherols, stigmasterol and β-sitosterol</td>
<td></td>
</tr>
<tr>
<td><em>Anacardium occidentale</em> L. (Anacardiaceae)</td>
<td>Cashew Nut</td>
<td>Munthiri</td>
<td>Alternative, astringent, demulcent, purgative, rubefacient, fungicidal, vermical, protozoical</td>
<td>Stem bark - fever [75]; Fruit - cholera [15], wounds [21], asthma and headache [23]; Seed oil – heel cracks [60]</td>
<td>Quercitin, kaempferol, anacardic acid, anacardol, cardol, ginkgo and anacardin</td>
</tr>
<tr>
<td><em>Azadirachta indica</em> A. Juss. (Meliaceae)</td>
<td>Neem</td>
<td>Vembu</td>
<td>Astringent, antiperiodic, anti-inflammatory, discutient, demulcent, tonic, emmenagogue, emollient, insecticide, purgative, refrigerant, stimulant, stomachic and vermifuge</td>
<td>Stem bark - toothache [75], rheumatism [23,60]; Seed oil - headache [34], contraceptive [71]; Leaf - chicken pox [57], antiseptic and wounds [59] and dandruff [76]</td>
<td>Margosine, margosic acid, margosoricin, glycerides of fatty acids, butyric acid, valeric acid, nimbin, nimbinid, nimbinin, nimbisterin and bakayanin</td>
</tr>
<tr>
<td><em>Bambusa arundinacea</em> (Retz.) Wild. (Poaceae)</td>
<td>Bamboo</td>
<td>Moongil</td>
<td>Anthelmintic, antispasmodic, aphrodisiac, astringent, refrigerant, febrifuge, stimulant and tonic</td>
<td>Leaf - bone setting [60], rheumatism [70]; Seed – rheumatism [23]; Young shoot – food [77]</td>
<td>Silicic acid, cholin, betain, nucleic acid, urease, cyanoxygenic glucoside, benzoic acid and cyanoxygenic glucoside</td>
</tr>
<tr>
<td><em>Cardiospermum halicacabum</em> L. (Sapindaceae)</td>
<td>Ballon Vine, Winter Cherry</td>
<td>Mudakkathan</td>
<td>Alternative, diaphoretic, diuretic, emetic, emmenagogue, laxative, rubefacient and stomachic</td>
<td>Leaf - waist pain [8,23], joint pain [23,55]; Stem - rheumatism [57,65,68] and jaundice [74]</td>
<td>β-sitosterol, xalic acid and quebrachitol</td>
</tr>
<tr>
<td><em>Cassia auriculata</em> L. (Caesalpiniaaceae)</td>
<td>Tanner’s Cassia</td>
<td>Avaram poo</td>
<td>Alternative, antihelminthic, antiallergic, astringent, refrigerant and tonic</td>
<td>Leaf - eye and skin infections [14,23]; Seeds - piles [78]; Flower - wounds [57], diabetes [73], kidney problems [55] and stomachache [23]</td>
<td>Nonacase, nonacassan-6-one, chrysophanol, emodin and rubiandin</td>
</tr>
<tr>
<td><em>Centella asiatica</em> (L.) Urban. (Aipiceae)</td>
<td>Indian Pennywort</td>
<td>Vallarai</td>
<td>Adaptogenic, central nervous system relaxant, peripheral vasodilator, sedative, diuretic, antibiotic, detoxifier, blood-purifier, laxative and emmenagogue</td>
<td>Whole plant - Jaundice, fever, leprosy [79]; Leaf - Dysentery [79], inflammation [54], jaundice [64], headache [25] and memory power [23]</td>
<td>Vallarine, asiaticoside and oxy-asiaticoside, essential oil, fatty oil, saponin, tannin, pectic acid,ascorbinic acid, alkaline hydrocortyline and resins</td>
</tr>
<tr>
<td><em>Cissus quadrangularis</em> L. (Vitaceae)</td>
<td>Veld Grape</td>
<td>Pirandai</td>
<td>Alternative, digestive and stomachic</td>
<td>Stem - stomachache [71], rheumatism [70]; Leaf – stomachache [69,73]; Leaf - indigestion and constipation [55]</td>
<td>Ketosteroids, sialoside, alamyphrynin, o-amypnroyne and tetracyclic triterpenoids</td>
</tr>
<tr>
<td><em>Clitoria ternatea</em> L. (Fabaceae)</td>
<td>Butterfly Pea, Winged leaf Clitoria</td>
<td>Sangu pushpam</td>
<td>Cathartic, demulcent, diuretic, laxative and purgative</td>
<td>Root - stomachache [71], wounds [54]; Seed - indigestion [69]; Leaf - diabetes [72] and throat pain [23]</td>
<td>Cinnamic acid, flavonol glycoside andkaempferol</td>
</tr>
<tr>
<td>Species</td>
<td>Common Names</td>
<td>Main Uses and Components</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>---------</td>
<td>--------------</td>
<td>--------------------------</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Euphorbia hirta L.</td>
<td>Indian Spurge</td>
<td>Anthelmintic, antiinflammatory, antispasmodic, diuretic, expectorant, febrifuge, diaphoretic, diuretic, sedative, analgesic and antipyretic. Contains cannabinoids, flavonoids, lignans, terpenoids, and fatty acids.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ficus bengalensis L.</td>
<td>Ficus Benghalensis</td>
<td>Ideal for diabetes [72]; Leptin [80], Latex – rheumatism [68]; wounds [25]; Young stem – dental and gum disorders [81] and toothache [23].</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gymnema sylvestris L.</td>
<td>Gymnema Sylvestre</td>
<td>Leaf - diabetes [23,57,60,64,65,73], asthma [13] and poison bites [23]; Gymnemic acid, resins, tannins, pararapin, carbohydrates, tartaric acid, calcium salts and crystalline concretions.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hemidesmus indicus R. Br.</td>
<td>Indian Mahua</td>
<td>An alternative, antipyretic, expectorant, and sedative. Benefits include diuretic and stomachic.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hibiscus rosa-sinensis L.</td>
<td>Shoe-Flower</td>
<td>Anodyne, aphrodisiac, demulcent, emollient, emmenagogue and refrigerant. Flower - jaundice [83], blood secretion [73], menstrual disorders [54] and heat problems [73].</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mangifera indica L.</td>
<td>Mango</td>
<td>Anthelmintic, anticorbutic, astringent, diuretic, laxative, refrigerant, stomachic and tonic. Stem bark - bleeding [67], asthma [80]; Fruit - mouth ulcer [81]; Leaf - toolache [73]; Seed - choler [68] and delivery pain [23.25].</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Muraya koenigii (L.) Spreng.</td>
<td>Curry Leaf</td>
<td>Aromatic, anti-catarhal, antiperiodic, demulcent, expectorant, febrifuge and stomachic. Root - toothache [8]; Bark - toothache [75]; Leaf - To arrest vomiting [84], eye problems and indigestion [23.55], stomachache [61] and chicken-pox [73].</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ocimum sanctum L.</td>
<td>Holy Basil</td>
<td>Astringent, anti-inflammatory, antispasmodic, diuretic, refrigerant and stomachic. Leaf - cold, cough and fever [8,61]; fits [57]; scorpion sting [60,85]; Whole plant - cold, cough and fever [16,23]; Eugenol, carvacrol, nerol, eugenin methyl ether, ursolic acid, apigenin, luteolin, orientin, molluscidin and ursolic acid.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Phyllanthus amarus Schum and Thonn.</td>
<td>Stonebreaker</td>
<td>Astringent, refrigerant, deobstruent, diuretic and stomachic. Whole plant - jaundice [61]; Root - jaundice [69]; Leaf - jaundice [23,57,60,74,88].</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Phyllanthus emblica L.</td>
<td>Indian Gooseberry</td>
<td>Astringent, carminative, diuretic, laxative, refrigerant and stomachic. Leaf - cold [65]; Fruit - jaundice [83], inflammation [80], blood pressure [73] and body strength [23]. Phyllanthin, hypophyllanthin, niranthin, nitratin, phytin, quercitin, queritin, ascorbic, luteolin, orientin, luteolin and ursolic acid.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Piper betle L.</td>
<td>Betel Leaf</td>
<td>Antiseptic, aromatic, aphrodisiac, astringent, digestive, stomachic, stimulant and carminative. Leaf - to prevent thirst [60], gum bleeding [61], skin diseases [76], ear pain [68], skin diseases [23] and scorpion bite [58].</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Piper nigrum L.</td>
<td>Black Pepper</td>
<td>Antiperiodic, antipyretic, carminative, resolvent, rubefacient and rubefacient. Leaf and fruit - stomach problems [8], wounds and skin diseases [59]; Seed - throat infection [84]; Leaf – rheumatism [70]; Fruit – dysentery [13], skin diseases [76], cough and snakebite [23].</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pongamia pinnata Pierre.</td>
<td>Indian Vehicles</td>
<td>Anthelmintic, antiinflammatory, antispasmodic, diuretic, expectorant, febrifuge and stomachic. Seed oil - skin diseases [80], wounds [21,23]; Flower – diabetes [68]; Root – Ulcer [72]; Seeds – rheumatism [77].</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Solanum xanthocarpum S. and W.</td>
<td>Yellow Berried Nightshade</td>
<td>Alternative, astringent, carminative, diuretic, expectorant, febrifuge and laxative. Stem - cough [34]; Leaf - cough [55,69]; skin diseases [61]; Seed - toothache [23,56,64], Stem and leaf - ulcer [54].</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Syzygium cumini (L.) Skeels.</td>
<td>Jambolan, Black Plum</td>
<td>Astringent, carminative, diuretic and stomachic. Stem bark - toothache [8,61]; dysentery [80]; Seed - diabetes [23,58,61]; Leaf - dysentery [85].</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Research on medicinal plants and the search for plant-derived drugs require a multidisciplinary approach with integrated projects, financial and technical support, and a very carefully planned strategy. The aims should consider demands in terms of public health, preservation of biodiversity and the technical qualification of each laboratory or research group involved [49]. Renewed interest in traditional pharmacopoeias has meant that researchers are concerned not only with determining the scientific rationale for the plant’s usage, but also with the discovery of novel compounds of pharmaceutical value [50].

In Tamil Nadu also there is a growing interest among the local people and farmers in cultivating medicinal plants which are in high medicinal value and significance in trade. The efficacy and safety of the commonly used ethnomedicinal plants needs to be evaluated for detailed phytochemical and pharmacological studies especially the plants with high trade value should be given priority to carry out bioassay and toxicity studies. Ayyanar and Ignacimuthu [23] reported that the frequently used medicinal plants such as Alpinia galanga, Azadirachta indica, Calophyllum inophyllum, Gymnema sylvestre, Leucas aspera, Melia azedarach, Mollugo nudicaulis, Ocimum tenuiflorum, Syzygium cumini, Terminalia chebula and Tribulus terrestris by the Kani tribal people in Tamil Nadu should be further analyzed for the associated pharmacological studies.

Conclusion

This review revealed that plants have formed the basis of sophisticated traditional medicine systems that have been in existence for thousands of years and continue to provide mankind with new remedies. Medicinal plant therapy is based on the empirical findings of hundreds and thousands of years. Some plants with higher performance indices were found to be widely used in other regions of India for the treatment of variety of ailments. There are also other plants in the literature known for their effective properties against certain ailments, which leads credibility to the popular pharmacopoeia used by the tribal people. They have a rich ethnomedical knowledge, but this is fading due to migration to urban areas, a loss of interest among the young, religious restrictions or dependence on modern medicine. The wealth of tribal knowledge of medicinal and other useful plants points to a great potential for research and the discovery of new drugs to fight diseases.

Acknowledgements

The author gratefully acknowledges Science and Engineering Research Board (SERB), New Delhi for financial support through Scheme for Young Scientists (Ref. No.SB/FT/TS-226/2012) for preparation of this manuscript.

References


Table 1: Common medicinal plants used by the tribal people of Tamil Nadu, India.

| Terminalia chebula Retz. (Combretaceae) | Chebulic Myrobalan | Kadukkai | Alternative, antibilious, astrignent, purgative, laxative, stomachic and tonic | Flower - asthma [62] Fruit - Indigestion [65], asthma [62], stomachache [64], bone fracture [22] and ulcer [23,80] | Shikimic, gallic, triacontanoid and palmitic acids, β-sitosterol, daucosterol, chebulic acid, ellagitannin, terchebulin, punicalagin, teafavrin A, chebupentol, arjunigenin, terminico and arjunicolic acid |
| Terminalia chebula Retz. (Combretaceae) | Chebulic Myrobalan | Kadukkai | Alternative, antibilious, astrignent, purgative, laxative, stomachic and tonic | Flower - asthma [62] Fruit - Indigestion [65], asthma [62], stomachache [64], bone fracture [22] and ulcer [23,80] | Shikimic, gallic, triacontanoid and palmitic acids, β-sitosterol, daucosterol, chebulic acid, ellagitannin, terchebulin, punicalagin, teafavrin A, chebupentol, arjunigenin, terminico and arjunicolic acid |
| Vitex negundo L. (Verbenaceae) | Five-Leaved Chaste Tree | Notchi | Alternative, antispasmodic, aromatic, astrigent, discutient, emmenagogue, expectorant, febrifuge, tonic and vermifuge | Leaf – asthma and headache [86], colic [55,69], poison bites [23], wounds [81]; Stem - cough [86] and Fever [58] | Essential oil, organic, malic acid, alkaldoids and resin, iridoids, lignan, ecodynes, iridoid glucoside, Acetyl oleic acid, silosterol, isoniceric flavonanes and furoaneremophillate |

*Nadkarni [26]; Rastogi and Mehrotra [27]; Khare [28]; Ayyanar and Ignacimuthu [19,20,24]


Reserve, Western Ghats, Tamil Nadu for the treatment of rheumatism. Indian J Trad Know 9: 502-509.