Studies on ethnomedicinal plants used by Malayali Gounder Tribes in Pachamalai of Eastern ghats, Tamil Nadu, India

Vaidyanathan D., M. S. Salai Senthilkumar, N. Sisubalan and M. Ghouse Basha*

P.G and Research Department of Botany, Jamal Mohamed College (Autonomous), Tiruchirapalli, Tamil Nadu, India

ABSTRACT

An ethnomedicinal survey was carried out among Malayali Gounder tribals in various villages of Pachamalai, Tiruchirapalli District, Tamil Nadu, India during August 2012 to September 2013. A total of 100 Species of ethnomedicinal plants belonging to 91 genera and 47 families were reported with the help of tribal people between the age of 40 – 75 years. Dwellers provided information regarding plant species used as medicine, parts used to prepare the medicines for ailments to which the remedies were prescribed.

Key words: Ethno medicine, Medicinal plants, pachamalai, Malayali Gounder tribes.

INTRODUCTION

The existence of traditional knowledge on medicinal plants and their uses are more common among the spiritual healers locally known. India is endowed with about 50,000-plant species [1]which distributed in different bio geographical conditions associated tribal and folk knowledge systems [2]. Out of these, 10,000 species are known to be medicine[3]. Indian System of Medicine uses around 3000 plant species belonging to more than 1000 genera[4]. India has a long history in traditional health practices in local health tradition and home remedies and is especially aimed uplifting the health profile of women, children and society[5]. Stated that many rural people throughout the world rely on medicinal plants because of their effectiveness, lack of modern healthcare alternatives and cultural preferences [6]. Ethnobotany study acts as a bridge between botany and tribal knowledge regarding medicinal properties of plants. The plant based traditional knowledge has become a recognized tool in search for new sources of drugs[7].

India is rich ethnic diversity and traditional knowledge on ethnomedicinal plants. The tribal’s belonging to the minor communities are socially, economically and among the least advanced. But they have lot of knowledge on medicinal plants[8]. This diversified system of traditional practices prevails among the rural communities since time immemorial. These studies assume great importance in enhancing our traditional skills about the plant growth and used for native or tribal communities for their sustenance. Which threaten the existence of medicinally important plants makes it inevitable that this information be made available and preservation of their culture, traditional knowledge.

MATERIALS AND METHODS

Study area

Studies were carried out in the Pachamalai hills located at Tiruchirappalli district in Tamilnadu. The hills situated between east 78°31’ longitude 11°28’ North latitude at an altitude of 700 to 900 meters MSL. Pachamalai is green and natural hill range, just 80Kmsnorth of Tiruchirappalli via Thuraiyur. In pachamalai there are 87 villages, divided into four groups called NADU. They are Southern NADU-14, Van NADU-32, Kombai NADU-10 and Aathi NADU-31. Public believe that persons who are living here will not be affected by nerve disease. The indigenous people in
the Pachamalai of eastern ghats of this region attempted to survey and document the medicinal plant species in the study area. This is a pioneer attempt for an exhaustive analysis of the therapeutic values of such medicinal plants. Their specific medicinal value were verified with the knowledge of local people and also conforming the details available in recent studies [9-10]

Our survey protocols are based on our previous study of the Malasars in the velliangiri Hills of India[11]. To assess the consumption of indigenous medicinal plants, the present survey was carried out during the year August 2012 to September 2013, in Pachamalai hills of Tiruchirapalli district in Tamil Nadu, India. The Interview was desired to identify the indigenous knowledge of plant based remedies from local people by words of mouth and also by personal observation. The information on medicinal uses of the indigenous plants have been described after gathering it from local people, experienced and rural folk, traditional herbal medicine practitioners and also the information collected from the available literature. A total of 100 inhabitants were interviewed, randomly and selected between 40-75 age. In addition, direct plant observation and identification was done with the help of local healers known as Vaidhyar. Information on medicinal plants, botanical name, and plant part used and mode of administration for curing ailments has been recorded. During the survey, plants have been collected in their flowering and fruiting stages as far as possible from the natural habit and standard ethnobotanical methodology was followed to collect data on ethnomedicinal aspects [12] from various villages and Flora of the Presidency of Madras,(Gamble1935), The Flora of the Tamil Nadu Carnatic,(Matthew1983), Society of ethnobotany, (Jain1989), Field and Herbarium Methods, (Jain and Rao1997), Dictionary of Medicinal plants,(Balasubiramanian2010) and Poorvigamaruthuva Kalangium,(Loganathan 2010) were referred for compilation of data.

RESULT AND DISCUSSION

Medicinal plant diversity
In the present study ethnobotanical survey was documented, 100 plant species are used for medicines representing 91 genera and 47 families(Table 1). Among them 35 trees, 28 herbs, 13 shrubs, 4 stragglers, 4 were vine (Table - 2). Collected data contains the list of plants of different families with their medicinal uses, which are listed in the order of Bentham and Hooker classification. Based on the interview with the elder people the list of various plants used by the malayali tribes to cure various diseases were highlighted (Table – 3). The representing plants are mostly used to cure skin diseases, jaundice, cough, wounds, and urinary problems and snake bite. These are medicinally important and dominated plants are observed in Euphorbiaceae 9 Species, Mimosaceae 6 Species, Apocynaceae 5 Species, Fabaceae 5 Species, Lamiaceae 5 Species, Rubiaceae 5 Species and Asclepiadaceae 4 Species.

Habit form and plant parts used
Among 100 plant species, studied 15 habit forms were identified ; tree(35), herb(28), shrub(13), straggler(4), vine(4), climbing(3), climbing shrub(2), small tree(2), straggling shrub(2), twining shrub(2), climbing herb(1), erect culms(1), rambling shrub(1), shrubby(1), under shrub(1) (fig:1). Among the various dominant medicinally important largest to decreasing order of the family Euphorbiaceae(9), Mimosaceae(6), Apocynaceae(5), Fabaceae(5), Lamiaceae(5), Rubiaceae(5), Asclepiadaceae(4), Asteaceae(4), Verbinaceae(4) etc, (fig: 2). Among the various plant parts used, the leaf(50), bark(17), root(14), fruit(10), stem(9), seed(8), whole plant (6), flowers(4), rhizome (2), latex(2), tuber(1), young buds(1) (fig: 3). In ethno medicinal plant species, 8 different mode are used for the treatments. The major mode of administration is juice(27), decoction(27), Leaf paste (17), stem paste(16), powder(7), tonic(5), fresh parts(4),cooking(3), (fig :4). From the ethnomedicinal survey it was obvious that the people of pachamalai possessing knowledge of medicinal plants and has ability to cure various diseases.

During the survey it was also learned that the traditional knowledge regarding ethnomedicine is declining as there is no proper documentation. The knowledge is passed down from generation to generation only by means of verbal communication. The traditional practitioners believed that knowing these medicinal plants reduce the effectiveness of the systems. The Malayali tribes of various Nadu shared knowledge of the ethnomedicinal plants to use ‘Neendaaauil’, which translate to “living long healthy life”. The malayalis are also believes in spiritualism for which they utilize many ethnomedicinal plants. Due to more demand of ethnomedicinal plants and have been motivated for conservation of these plant species.
Table-1: Family with maximum number of genus & species

<table>
<thead>
<tr>
<th>S. No</th>
<th>Family</th>
<th>No. of Genus</th>
<th>No. of Species</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Euphorbiaceae</td>
<td>5</td>
<td>9</td>
</tr>
<tr>
<td>2</td>
<td>Moraceae</td>
<td>4</td>
<td>6</td>
</tr>
<tr>
<td>3</td>
<td>Apocynaceae</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>4</td>
<td>Fabaceae</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>5</td>
<td>Lamiaceae</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>6</td>
<td>Rubiaceae</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>7</td>
<td>Asclepiadaceae</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>8</td>
<td>Asteraceae</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>9</td>
<td>Verbenaceae</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>10</td>
<td>Cassiaiaceae</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>11</td>
<td>Combretaceae</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>12</td>
<td>Poeae</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>13</td>
<td>Rutaceae</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>14</td>
<td>Amaranthaceae</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>15</td>
<td>Anacardiaceae</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>16</td>
<td>Liliaceae</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>17</td>
<td>Plumbaginaceae</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>18</td>
<td>Rhamnaceae</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>19</td>
<td>Sapindaceae</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>20</td>
<td>Zingiberaceae</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>21</td>
<td>Acanthaceae</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>22</td>
<td>Astroaceae</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>23</td>
<td>Acanthaceae</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>24</td>
<td>Apiaceae</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>25</td>
<td>Arecaceae</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>26</td>
<td>Combretaceae</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>27</td>
<td>Cucurbitaceae</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>28</td>
<td>Dioscoraceae</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>29</td>
<td>Herniaceae</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>30</td>
<td>Legumiaceae</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>31</td>
<td>Lythraceae</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>32</td>
<td>Magnoliaceae</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>33</td>
<td>Malvaceae</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>34</td>
<td>Meliaceae</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>35</td>
<td>Menispermacae</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>36</td>
<td>Moraceae</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>37</td>
<td>Moringaceae</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>38</td>
<td>Myrtaceae</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>39</td>
<td>Nyctaginaceae</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>40</td>
<td>Pedaliaceae</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>41</td>
<td>Piperaceae</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>42</td>
<td>Punicaceae</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>43</td>
<td>Santalaceae</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>44</td>
<td>Simaroubaceae</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>45</td>
<td>Vitaceae</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>46</td>
<td>Zygophyllaceae</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>TOTAL</td>
<td>91</td>
<td>100</td>
</tr>
</tbody>
</table>

Table-2: Distribution of plants under different habits

<table>
<thead>
<tr>
<th>S.N.O</th>
<th>HABITS</th>
<th>NO. OF SPECIES</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Tree</td>
<td>35</td>
</tr>
<tr>
<td>2</td>
<td>Herb</td>
<td>28</td>
</tr>
<tr>
<td>3</td>
<td>Shrub</td>
<td>13</td>
</tr>
<tr>
<td>4</td>
<td>Straggler</td>
<td>4</td>
</tr>
<tr>
<td>5</td>
<td>Vine</td>
<td>4</td>
</tr>
<tr>
<td>6</td>
<td>Climbing</td>
<td>3</td>
</tr>
<tr>
<td>7</td>
<td>Climbing shrub</td>
<td>2</td>
</tr>
<tr>
<td>8</td>
<td>Small tree</td>
<td>2</td>
</tr>
<tr>
<td>9</td>
<td>Straggling shrub</td>
<td>2</td>
</tr>
<tr>
<td>10</td>
<td>Twining shrub</td>
<td>2</td>
</tr>
<tr>
<td>11</td>
<td>Climbing herb</td>
<td>1</td>
</tr>
<tr>
<td>12</td>
<td>Erect culms</td>
<td>1</td>
</tr>
<tr>
<td>13</td>
<td>Rambling shrub</td>
<td>1</td>
</tr>
<tr>
<td>14</td>
<td>Shrubby</td>
<td>1</td>
</tr>
<tr>
<td>15</td>
<td>Under shrub</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>TOTAL</td>
<td>100</td>
</tr>
</tbody>
</table>
Table-3: Medicinal plants utility by the tribals in the Pachamalai

<table>
<thead>
<tr>
<th>S. No</th>
<th>Botanical name</th>
<th>Family</th>
<th>Local name</th>
<th>Habit</th>
<th>Plant Parts used</th>
<th>Ethnomedicinal uses</th>
<th>Mode of administration</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Wattlekula volubitis Cocke</td>
<td>Magnoliaceae</td>
<td>Kurinjan notchi</td>
<td>Straggler</td>
<td>Leaf</td>
<td>Rheumatic pain.</td>
<td>Leaf Paste is applied topically for rheumatic pain, cough, and fever.</td>
</tr>
<tr>
<td>3.</td>
<td>Tinospora cordifolia (Willd.)</td>
<td>Menispermaceae</td>
<td>Seenhil</td>
<td>Climbing shrub</td>
<td>Leaf</td>
<td>Wound.</td>
<td>Leaf paste is applied topically to cure wound.</td>
</tr>
<tr>
<td>4.</td>
<td>Brassica juncea Hk. f. &amp; T.</td>
<td>Cruciferae</td>
<td>Kadugu</td>
<td>Herb</td>
<td>Leaf, seed</td>
<td>Fever.</td>
<td>Leaves and green pods are eaten as vegetables.</td>
</tr>
<tr>
<td>5.</td>
<td>Abaision indicum G. Don</td>
<td>Malvaceae</td>
<td>Thuthi</td>
<td>Shrub</td>
<td>Root</td>
<td>Piles.</td>
<td>Roots taken orally along with onion.</td>
</tr>
<tr>
<td>6.</td>
<td>Tribulus terrestris, L.</td>
<td>Zygophyllaceae</td>
<td>Nerunchimul</td>
<td>Climbing shrub</td>
<td>Fruit, root</td>
<td>Urinary troubles.</td>
<td>The fruit and roots are mixed with boiled raw rice, taken orally to prevent white discharge in women and to treat urinary troubles.</td>
</tr>
<tr>
<td>8.</td>
<td>Toddalia asiatica, L.</td>
<td>Rutaceae</td>
<td>Vellai straggler</td>
<td>Leaves, fruits</td>
<td>Poison reliever, fever, diarrhea, cough, wound and ulcer.</td>
<td>Decoction of leaves and stems used to control fever. Fresh fruits eaten to reduce fever and headache.</td>
<td></td>
</tr>
<tr>
<td>9.</td>
<td>Aslanthus excelus Roxb.</td>
<td>Simorubaceae</td>
<td>Pei maram</td>
<td>Tree</td>
<td>Bark</td>
<td>Fever.</td>
<td>Bark used in India as a powerful, tonic, juice of the leaves and fresh bark.</td>
</tr>
<tr>
<td>10.</td>
<td>Acaridractha indica Juss.</td>
<td>Meliaceae</td>
<td>Vembu</td>
<td>Tree</td>
<td>Leaves</td>
<td>Removal of worms in stomach.</td>
<td>Leaves ground with ginger applied externally for poisonous insect bites and young leave juice taken for stomach pain. Tender leave and bark extract consumed to eliminate stomach worms. Leave twigs with leaves are tied or hanged in front of the house to keep away evil spirits.</td>
</tr>
<tr>
<td>11.</td>
<td>Scutia myrtha (Burn. f.) Kruez.</td>
<td>Rutaceae</td>
<td>Sudali</td>
<td>Snagglng shrub</td>
<td>Leaves</td>
<td>Indigestion.</td>
<td>Leaves are cooked and eaten to increase digestion.</td>
</tr>
<tr>
<td>12.</td>
<td>Ziziphus oenoplia Mill</td>
<td>Rhamnaceae</td>
<td>Churipala chedi</td>
<td>Climbing shrub</td>
<td>Fruit</td>
<td>Dysentery.</td>
<td>Fruit extract orally to reduce dysentery.</td>
</tr>
<tr>
<td>13.</td>
<td>Cissus quadrangularis, L.</td>
<td>Vitaceae</td>
<td>Pirandai</td>
<td>Shrub</td>
<td>Total parts</td>
<td>Stomach irritation, hot reliever.</td>
<td>Stem paste mixed with egg white is applied on the affected portion in the treatment of fractures. Young stems cure eaten after cooking.</td>
</tr>
<tr>
<td>15.</td>
<td>Dodonaea angustifolia L.f</td>
<td>Sapindaceae</td>
<td>Valeri</td>
<td>Shrub</td>
<td>Leaves, stem, root</td>
<td>Fever.</td>
<td>The stem and roots are used. The plant decoction is useful.</td>
</tr>
<tr>
<td>17.</td>
<td>Mangifera indica, L.</td>
<td>Anacardiacae</td>
<td>Maamaram</td>
<td>Tree</td>
<td>Bark</td>
<td>Fever.</td>
<td>Bark crushed finely and juice is taken for a week to control dysentery and the latex is applied to heal the cracks.</td>
</tr>
<tr>
<td>18.</td>
<td>Macaranga oleifera Lam.</td>
<td>Moringaceae</td>
<td>Murungai</td>
<td>Tree</td>
<td>Leaves, bark</td>
<td>Gastric problem, poison reliever.</td>
<td>The leaf is used as female contraceptive.</td>
</tr>
<tr>
<td>20.</td>
<td>Erythrina variegata L.</td>
<td>Fabaceae</td>
<td>Baditha</td>
<td>Tree</td>
<td>Leaves</td>
<td>Cough.</td>
<td>Leaf smeared with castor oil. Warmed and applied on the head of young babies.</td>
</tr>
<tr>
<td>21.</td>
<td>Macaranga pruriens (L.)</td>
<td>Fabaceae</td>
<td>Poonai kali</td>
<td>Vine</td>
<td>Leaf</td>
<td>Snake bite.</td>
<td>Leaf extract to apply for biting area.</td>
</tr>
<tr>
<td>22.</td>
<td>Pongamia pinnata L.</td>
<td>Fabaceae</td>
<td>Pungam</td>
<td>Tree</td>
<td>Bark</td>
<td>Wounds in heads, Ringworm.</td>
<td>Dried bark powder is gently fried in coconut oilinfection and the extract is applied externally.</td>
</tr>
<tr>
<td>23.</td>
<td>Tamarindus indica L.</td>
<td>Fabaceae</td>
<td>Puliaram</td>
<td>Tree</td>
<td>Fruits</td>
<td>Eye infections, Female contraception.</td>
<td>The unripe pods are cooked and taken for abortion.</td>
</tr>
<tr>
<td>24.</td>
<td>Bauhinia purpurea L.</td>
<td>Caesalpiniaceae</td>
<td>Mandari</td>
<td>Tree</td>
<td>Whole plant</td>
<td>Carminative, Diarrhoea, anthelmintic.</td>
<td>Roots carminative, bark used in diarrhoea, leavedused as a fodder, flower are laxative &amp; anthelmintic.</td>
</tr>
<tr>
<td>26.</td>
<td>Cassia fistula L</td>
<td>Caesalpiniaceae</td>
<td>Sara konrai</td>
<td>Tree</td>
<td>Bark</td>
<td>Fever.</td>
<td>A fruit perscarp grined with sugar and mud into paste is given orally for easy delivery.</td>
</tr>
<tr>
<td>27.</td>
<td>Acaiaca nit determina Wild</td>
<td>Mimosaceae</td>
<td>Karuvellam</td>
<td>Tree</td>
<td>Young stem</td>
<td>Toothache.</td>
<td>Young stem is used as toothbrush.</td>
</tr>
<tr>
<td>28.</td>
<td>Acaiaca torta (Roxb.) Cray</td>
<td>Mimosaceae</td>
<td>Seeva keerai</td>
<td>Rambling shrubs</td>
<td>Leaves</td>
<td>Stomach-ache.</td>
<td>Leaves cooked with onion taken as food.</td>
</tr>
<tr>
<td>29.</td>
<td>Albizia amara Bov.</td>
<td>Mimosaceae</td>
<td>Usulai</td>
<td>Tree</td>
<td>Bark</td>
<td>Snake bite.</td>
<td>Paste of leaf and root bark along with root bark of jasminum angustifolium Vhal and rhizome of...</td>
</tr>
</tbody>
</table>
Cyperus rotundus Linn. Is heated with neem oil and applied externally on affected places for 10 days.

32. Dichrostachys cinerea, W. & A. Mimosaceae Vedatharai Shrub Bark Fever, skin disease. The leaves are said to have local anaesthetic properties, and the wood is used for fence poles. Fresh bark is used to make fibre.
33. Mimosa pudica, L. Mimosaceae Thoottalsinungi Herb Leaves Eye related disease. Whole plant used to prevent excess menstrual bleeding, hence plant paste is applied externally for head ache.
34. Anogeissus latifolia Roxb. Combretaceae Chiramanu Small tree Stem bark and leaves Cough. Stem bark extract is administered 3 spoonfuls twice a day for 3 days. Leaves with tubers of Dioscorea pentaphylla are taken in equal quantities and ground. 2 spoonfuls of paste mixed with a spoonful of honey is administered daily once for 3 d. Meanwhile paste soaked in hot water and is inhaled daily once for 3 days.
35. Myrica esculenta, Buch.Ham. Combretaceae Marutham Tree Seed Stomach pain. Fruit seeds are used for digestive, antiseptic and diuretic purpose.
36. Terminalia catappa, Linn. Combretaceae Kadakkai Tree Bark Allergic troubles. Plant bark is used to prepare tonic to cure allergy.
37. Syzygium cumini, L. L. Myrtaceae Thoottalsinungi Herb Leaves Eye related disease. Whole plant used to prevent excess menstrual bleeding, hence plant paste is applied externally for head ache.
38. Lawsonia inermis, L. Lytheraceae Maruthani Shrub Leaves, root Treatmen of paranoia. Extract of root is given twice a day as health tonic.
39. Punica granatum, L. L. Punicaceae Maathulai Tree Young buts, shoots, fruits Wound. The flower buds mixed with salt are used in bronchitis, dysentery.
40. Cocernia indica, W. Cucurbitaceae Kovai Vine Juice Diabetes. Fruit is consumed orally to cure disease.
41. Trainthema portulacasaurum, L. Aizoaceae Sooranai Herb Stem, root Rheumatism. Stem and roots are crushed and the extract is used.
42. Centella asiatica, L. Apiaceae Vallarai Herb Leaves Wound. Juice applied topically along with coconut oil.
43. Adina cordifolia Hook F. Rubiaceae Manjal kadambai Tree Bark Stomach-ache. Fresh bark is ground with brown sugar and taken internally.
44. Morenda titorea Roxb. Rubiaceae Nanamaram Tree Fruit Diabete, Cardiovascular Disease. Fruit juice taken orally to cure Cardiovascular disease.
45. Randia dometorum, Lam. Rubiaceae Kottai karantai Herb Leaf, Flower and seeds Skin disease. Leaf, Flower and seeds are used into paste, Seeds applied to treat skin disease.
46. Ipomoea indica, DC. Convolvulaceae Nallavarai Herb Root, flower Skin diseases. Roots, flower made into paste to cure skin disease.
47. Eclipta prostrata, L. Asteraceae Manjal Karisalangannai Herb Leaves Indigestion and Dysentery. Leaf is boiled in water and the decoction is administered orally.
49. Plumbago auriculata, Lam. Plumbaginaceae Neela Kodiveli Herb Root Touch the external part of the tumour, fever. Roots used as toothpaste and for fever.
50. Calotropis gigantea, L. Plumbaginaceae Sudukadu mallikai Herb Root Leprosy. Root is made into paste with milk and salt is applied for leprosy.
51. Nerium oleander, L. Apocynaceae Azali Shrub Root , leaves Diabetes, Menorrhagia, pain, Anti cancer. Leaves are used in diabetes for orally. Infusion of leaves used in menorrhagia, juice applied for relief of pain and also used as Anti cancer.
52. Wrightia tinctoria, (Roxb.) R.Br. Apocynaceae Vetpalai Tree Seeds Indigestion. Juice of seeds taken orally to increase digestion.
53. Calotropis gigantea, L. Asclepiadaceae Sirukurinji or Shakarai kolli Shrub Eulephamasis Paste of the root bark reduce, with sour cone (Rice vinegar) is applied externally.
54. Gymnema sylvestre, R.Br. Asclepiadaceae Sinurumperi or Shakarai kolli leaves for Diabetes. Leaves mixed with sugar is taken on empty stomach to treat diabetes. Cooked leaves may also be used in meals to treat diabetes.
55. Hemidesmus indicus Asclepiadaceae Nattan Tamilin Whole plants Body cool. Root Juice extracted from the whole Plants is taken internally to keep the body cool.
The paste of the leaves with black pepper is applied on forehead for the relief of headache. The decoction of the leaves is used in treatment of asthma and snake bite.

Leaves paste taken internally to cure diarrhoea.

Clear the clotting cells of wounds. Seeds have been used as a medicine since antiquity.

Leaf juice given orally to cure disease.

The paste of the leaves is used in treatment of asthma and snake bite. The decrease in strychnine amount was best when the seeds were immersed for detoxification in excess of water for 5 days, in milk for 2 days followed by their boiling in milk.

Snake bite. Flower paste with ghee, orally to cure snake bite.

Snake bite. Flower paste with ghee externally to cure snake bite.

Snake bite. Flower paste with ghee externally to cure snake bite.

Snake bite. Flower paste with ghee externally to cure snake bite.

Snake bite. Flower paste with ghee externally to cure snake bite.

Snake bite. Flower paste with ghee externally to cure snake bite.

Snake bite. Flower paste with ghee externally to cure snake bite.

Snake bite. Flower paste with ghee externally to cure snake bite.

Snake bite. Flower paste with ghee externally to cure snake bite.

Snake bite. Flower paste with ghee externally to cure snake bite.

Snake bite. Flower paste with ghee externally to cure snake bite.

Snake bite. Flower paste with ghee externally to cure snake bite.

Snake bite. Flower paste with ghee externally to cure snake bite.

Snake bite. Flower paste with ghee externally to cure snake bite.

Snake bite. Flower paste with ghee externally to cure snake bite.

Snake bite. Flower paste with ghee externally to cure snake bite.

Snake bite. Flower paste with ghee externally to cure snake bite.

Snake bite. Flower paste with ghee externally to cure snake bite.

Snake bite. Flower paste with ghee externally to cure snake bite.

Snake bite. Flower paste with ghee externally to cure snake bite.

Snake bite. Flower paste with ghee externally to cure snake bite.

Snake bite. Flower paste with ghee externally to cure snake bite.

Snake bite. Flower paste with ghee externally to cure snake bite.

Snake bite. Flower paste with ghee externally to cure snake bite.

Snake bite. Flower paste with ghee externally to cure snake bite.

Snake bite. Flower paste with ghee externally to cure snake bite.

Snake bite. Flower paste with ghee externally to cure snake bite.
<table>
<thead>
<tr>
<th>No.</th>
<th>Species</th>
<th>Family</th>
<th>Common Name</th>
<th>Part Used</th>
<th>Medical Uses</th>
</tr>
</thead>
<tbody>
<tr>
<td>95.</td>
<td><em>Asparagus racemosus</em> Willd.</td>
<td>Liliaceae</td>
<td>Thanneervitan</td>
<td>Root</td>
<td>Asthma, stomach ulcer. Root powder mixed with taken internally for increasing lactation and uterine disorder. Young rhizome is consumed after cooking. Rhizome powder mixed with honey is given for a week to cure stomach ulcer.</td>
</tr>
<tr>
<td>96.</td>
<td><em>Gloriosa superb</em>, L.</td>
<td>Liliaceae</td>
<td>Kalappai kilangu or Kanvalipo</td>
<td>Climbing Tubers</td>
<td>After grind for the abortion. Paste from tuber applied externally to reduce inflammation and also used for abortion. Seed are used for epilepsy. Decocion of the tuber is taken internally to treat aphrodisiac.</td>
</tr>
<tr>
<td>97.</td>
<td><em>Acorus calamus</em> L.</td>
<td>Araceae</td>
<td>Vasambu</td>
<td>Shrub</td>
<td>Rhizome</td>
</tr>
<tr>
<td>98.</td>
<td><em>Bambusa arundinacea</em> (Retz. )willd.</td>
<td>Poaceae</td>
<td>Moongil</td>
<td>Tree</td>
<td>Leaves</td>
</tr>
<tr>
<td>99.</td>
<td><em>Cynodon dactylon</em>, Pers.</td>
<td>Poaceae</td>
<td>Arugampul</td>
<td>Erect culms</td>
<td>Total plant</td>
</tr>
</tbody>
</table>
Figure 1: Distribution percentage of medicinal plants according to habits.

Figure 2: Dominant meditionally important family with respect to the number of species.
Conclusion

The present investigation revealed that medicinal plants still play a vital role in the primary health care of the people. The information gathered from the tribal is useful for ethnobotany and taxonomic studies. This study offers a model for the relationship between plants and people, within the context of traditional remedies obviously ensure therapeutical efficacy. The value of using ethno botanical information is to initiate drug discovery efforts. This study also gathered a broad spectrum of information concerning medicinal plants used by tribals. Due to lack of interest among the younger generation of tribal’s as well as their tendency to migrate to cities for lucrative jobs, we face the possibility of losing this wealth of knowledge in their near future.

Acknowledgement

The authors are thankful to the elderly people of the Malayali Gounder tribes of various Nadus for their valuable information shared regarding the ethnomedicine and healing practice of Pachamalai hills.

References