Ethnomedicinal plants used by Palliyars in Sirumalai hills, Western Ghats, Tamil Nadu for the treatment of various poisonous bites

Maruthupandian A*1 and V.R. Mohan2

Department of Botany1, Periyar University, Salem - 636 011, Tamil Nadu, India.
Ethnopharmacology Unit2, Research Department of Botany, V. O. Chidambaram College, Tuticorin - 628 008, Tamil Nadu, India.

Received: 10 August 2012 / Accepted: 28 September 2012/ Published online 7 October 2012.

© INJCTR – 2012.

ABSTRACT
The preliminary current ethnobotanical study was carried out among the Palliyar tribals of five settlements in Sirumalai hills, Dindigul District, Tamil Nadu, India. The current investigation reveals that, 21 plants species of 19 angiosperm families belonging to 21 genera are being used by the Palliyars for the treatment of various poisonous bites like snake bite, scorpion sting, anti rabies, honeybee sting and insect bites. According to the information obtained, medicinal plants are arranged alphabetically and their botanical names, vernacular names, family, voucher specimen number and mode of uses were tabulated.

Keywords: Palliyars, Sirumalai, Poisonous bite, Snake bite, Ethnomedicine.

Introduction

Since time immemorial man has used various parts of plants in the treatment and prevention of many ailments (Chah et al., 2006). Many infectious diseases are known to be treated with herbal remedies throughout the history of mankind. The maximum therapeutic and minimum side effects of herbal remedies have been verified in numerous scientific investigations. Even today, plant materials continue to play a major role in primary health care as therapeutic remedies in many developing countries (Czygan, 1993). In India, medicinal plants are widely used by all sections of the population with an estimated 7500 species of plants used by several ethnic communities and it is known that, India has the second largest tribal population in the world after Africa (Kala, 2005; Jagtap et al., 2006). The WHO estimated that, over 80% of the people in developing countries rely on traditional remedies such as herbs for their daily needs and about 855 traditional medicines include crude plant extracts (Tripathi and Mukherjee, 2003). This means that, about 3.5 to 4 billion of the global population rely on plants resources for drugs (Farnsworth, 1998).

Scorpion sting and snake bite are serious problems in tropical countries like India. The former may not be too dangerous, while the later can cause death. The tribal and non-tribal people prefer herbal treatment for scorpion sting and snake bite (Bakhru, 1999). A scrutiny of literature reveals that, exceedingly limited attempts were made on herbal remedies for poisonous bites. The objective of this study was to assess the richness of ethnomedicinal plant species used by the Palliyar tribes in Sirumalai hills, Dindigul District (Tamil Nadu, India), forest areas to treat various poisonous bites.

Materials and Methods

The Palliyars are distributed along the Sirumalai hills of the Western Ghats, Madurai and parts of...
Dindigul district, Tamil Nadu. The study area Sirumalai hills, lies lat: 77°.55’ long 78°.12’ E in Dindigul district of Tamil Nadu. In the present investigation, ethnobotanical studies were carried out in the following settlements of Palliyar tribes like, Ooradi, Madadamalai, Ponnuruvi, Kannadiparai and Talaikadu in Sirumalai hills, Dindigul District. Ethnobotanical information's were collected from the aged elders, Village vaidyas and experienced local Palliyar tribes through interview. The information was considered only after confirmation through two or more informants from different settlement of Palliyars in Sirumalai hills, Tamil Nadu. The medicinal plants were identified (Fischer and Gamble, 1957; Gamble, 1957a,b; Matthew, 1983a, b; Nair and Henry, 1983; Henry et al., 1987; Henry et al., 1989; Sharma et al., 1993; Sharma and Balakrishnan, 1993; Sharma and Sanjappa, 1993; Sasidharan and Sivarajan, 1996; Hajra et al., 1997; Matthew, 1999a, b; c; Pallithanam, 2001), photographed and sample specimens were collected for the preparation of herbarium. The identified plant specimens were confirmed and deposited in the herbarium of Ethnopharmacology Unit, Research Department of Botany, V.O.Chidambaram College, Tuticorin, Tamil Nadu.

Results and discussion

The present exploration exposes that, the medicinal plants used by the Palliyar tribes for various poisonous bites requirements were collected by the informants. The descriptions of medicinal plants are arranged alphabetically with their botanical names, vernacular names, family, voucher specimen number and mode of uses in table 1. The present study reveals that, 21 species of ethnomedicinal plants have been documented for their herbal remedies against various poisonous bites like snake bite, scorpion sting, honey bee sting, insect bites and antirabies. These medicinal plants belong to 21 genera and 19 angiospermic families. Among the families like, Acanthaceae and Fabaceae (2), A. langiaceae, A. maranthaceae, A. poycanaceae, A. ristolochiaceae, A. clepidaeaceae, Capparaceae, Cleomaceae, Cucurbitaceae, Euphorbiaceae, Lamiaiceae, Loganiaceae, Lythraceae, Melliaceae, Mimosaceae, Papavaceae, Solanaceae and Santalaceae, one species each were used by the Palliyar tribes in this area. The preparations were made from various plant parts like, leaves, root, root bark, stem bark, rhizome, flower, seeds, tuber and whole plant; for the treatment of snake bite, scorpion sting, insect bite, honey bee sting, and anti rabies. The leaves were the frequently used for the same. The above said plant parts were used in the form of extract or decoction, powder, paste, raw, and juice. The data collected shows that, majority of the remedies were used either individually or in combination with other plant parts (the dried fruits of Piper nigrum L., the fresh rhizome of Zingiber officinale Rosco., oil obtained from the seeds of Ricinus communis L., fresh leaves of Piper beetle L., fresh leaves of Cynodon dactylon (L.) Pers and fruit juice of Citrus aurantifolia (Christm Swingle.) and most of the remedies were preferred as oral. Most of the reported preparations are drawn from a single plant; mixtures are used rarely. In other parts of the country, the use of mixtures of plant species in treating a particular ailment is fairly common (Ignacimuthu et al., 1998; Natarajan et al., 2000 Rajan et al., 2002; Ganesan et al., 2004; Udyan et al., 2005; Ayyanar and Ignacimuthu, 2005a,b; Sandhya et al., 2006). From this account it is clear that, the Palliyar tribes like other ancient tribes (Rajasingh, 1971) possess the ability to discern the character of various plants and their beneficial properties used to treat various poisonous bites. It is interesting to note that, such a way of life, particularly with respect to healthcare practices has hardly undergone any change even in the present day. Similar ethnobotanical studies have been reported in several parts of India to protect the traditional knowledge from disappearing (Pushpangandan and Atal, 1984; AНЫs et al., 2000; Natarajan et al., 2000; Jain, 2001; Mahapatra and Panda, 2002; Harsha et al., 2003; Ignacimuthu et al., 2006; Maruthupandian and Mohan, 2010; Maruthupandian et al., 2011; Lalitharani et al., 2011.). Documenting the indigenous knowledge through ethnobotanical studies is important for the conservation of biological resources as well as their sustainable utilization.

Conclusion

This investigation is a preliminary ethnobotanical study, the indigenous knowledge gathered from the Palliyar tribes to treat the various poisonous bites. This study shows that, knowledge and usage of herbal medicine for the treatment of various ailments among Palliyar tribes is still a major part of their life and culture. The indigenous knowledge and efficacy of these medicinal plants have been proven in their community since time immemorial. There is also a need for follow up ethnopharmacological screening based on tribal claims, by testing these ethnomedicinal recipes in their crude form and also as aqueous and alcoholic extracts on animal models. Generally, the people of the study area still have a strong belief in the efficacy and success of herbal medicine. The results of the present study provide evidence that; medicinal plants continue to play an important role in the healthcare system of this tribal community. The medicinal plants are currently disappearing in vast, due to the lack of awareness and modernization. Consequently, there is an urgent need to study and document their knowledge or otherwise it will be lost forever.
Figure 1, Some ethnomedicinal plants used by Palliyars for treatment of various poisonous bite
Figure 1(a), Some ethnomedicinal plants used by Palliyars for treatment of various poisonous bite.
### Table - 1

<table>
<thead>
<tr>
<th>S. No.</th>
<th>Botanical Name</th>
<th>Vernacular Name</th>
<th>Family</th>
<th>Voucher Specimen No.</th>
<th>Mode of use</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Acalypha fruticosa Forsk</td>
<td>Athathalai</td>
<td>Euphorbiaceae</td>
<td>VOCB 5408</td>
<td>One teaspoon of the leaf powder is taken with little black pepper (the dried fruits of Piper nigrum L.) (milagu) twice a day for two to three days as an antidote for poisonous bites.</td>
</tr>
<tr>
<td>2</td>
<td>A chyranthes aspera L.</td>
<td>Nayuruvi</td>
<td>Amaranthaceae</td>
<td>VOCB 5410</td>
<td>A handful of fresh leaves are crushed and applied externally on the scorpion sting. The paste made from tender leaves is applied externally as many times for a period of one week to treat honeybee sting.</td>
</tr>
<tr>
<td>3</td>
<td>A langium salvifolium (L.f) Wang</td>
<td>A langi</td>
<td>Alangiaceae</td>
<td>VOCB 5416</td>
<td>One teaspoon of the root bark powder is taken twice a day for two days as an antidote for snake bite and other stings.</td>
</tr>
<tr>
<td>4</td>
<td>Albizia lebbeck (L.) Wild</td>
<td>Vagai</td>
<td>Mimosaceae</td>
<td>VOCB 5418</td>
<td>One teaspoon of the flower powder is taken with hot water thrice a day for three days as an antidote for snake bite.</td>
</tr>
<tr>
<td>5</td>
<td>Ammannia baccifera L.</td>
<td>Neermel neruppu</td>
<td>Lythraceae</td>
<td>VOCB 5426</td>
<td>The leaf paste is used as an ointment to cure various stings.</td>
</tr>
<tr>
<td>6</td>
<td>Argemone mexicana L.</td>
<td>Piramathandu</td>
<td>Papaveraeae</td>
<td>VOCB 5434</td>
<td>A n ounce of the leaf extract is taken four to five times for two days as an antidote for scorpion bite.</td>
</tr>
<tr>
<td>7</td>
<td>Aristolochia indica L.</td>
<td>Perumaruthkodi</td>
<td>Aristolochiaceae</td>
<td>VOCB 5435</td>
<td>A n ounce of hot water extract of the roots is taken thrice a day for two to three days as an antidote for snake bite and scorpion bite. The fresh leaves are crushed and used as a bandage over snake bite and scorpion sting.</td>
</tr>
<tr>
<td>8</td>
<td>Butea monosperma (Lam.) Taub</td>
<td>Porasu</td>
<td>Fabaceae</td>
<td>VOCB 5458</td>
<td>The twenty five ml of the extract prepared from ten grams of the stem bark and two grams of the fresh rhizome of Zingiber officinale Roscoe. (inji) is taken thrice a day for two days as an antidote for snake bite.</td>
</tr>
<tr>
<td>S. No.</td>
<td>Botanical Name</td>
<td>Vernacular Name</td>
<td>Family</td>
<td>Voucher Specimen No.</td>
<td>Mode of use</td>
</tr>
<tr>
<td>-------</td>
<td>----------------</td>
<td>-----------------</td>
<td>--------</td>
<td>----------------------</td>
<td>-------------</td>
</tr>
<tr>
<td>9</td>
<td>Calotropis gigantea (L.) R.Br.</td>
<td>Erukku</td>
<td>Asclepiadaceae</td>
<td>VOCB 5461</td>
<td>The tender leaves are chewed as an antidote for snake bite. Gently heated mass of crushed tender leaves is used as a bandage over scorpion sting.</td>
</tr>
<tr>
<td>10</td>
<td>Cipadessa baccifera (Roth) Miq.</td>
<td>Pulippanchedi</td>
<td>Meliaceae</td>
<td>VOCB 5480</td>
<td>The leaf paste is used as an ointment to heal honey bee sting.</td>
</tr>
<tr>
<td>11</td>
<td>Cleome viscosa L.</td>
<td>Karkakartun</td>
<td>Cleomaceae</td>
<td>VOCB 5485</td>
<td>The fresh root pieces or seeds are made into a paste with castor oil (oil obtained from the seeds of Ricinus communis L.) and used as an ointment to reduce swellings and to treat insect bites.</td>
</tr>
<tr>
<td>12</td>
<td>Corallocarpus epigaeus (Rottl &amp; Willd) Clarke</td>
<td>A kashagarunder</td>
<td>Cucurbitaceae</td>
<td>VOCB 5491</td>
<td>The tuber paste is used as a poultice over the poisonous stings. The tubers are chewed along with one or two fresh leaves of Piper betle L. (vettrilai) as an antidote for snake bite.</td>
</tr>
<tr>
<td>13</td>
<td>Crataeva adansonii DC</td>
<td>M avilingam</td>
<td>Capparaceae</td>
<td>VOCB 5493</td>
<td>One teaspoon of the root powder is taken thrice a day for two days to treat poisonous bites.</td>
</tr>
<tr>
<td>14</td>
<td>Datura innoxia M ill.</td>
<td>Oomathai</td>
<td>Solanaceae</td>
<td>VOCB 5507</td>
<td>A n ounce of the leaf extract is taken with curd once a day for three days as an anti-rabies medicine.</td>
</tr>
<tr>
<td>15</td>
<td>Dipteracanthus prostratus (Poir.) Nees.</td>
<td>Pottakanchi</td>
<td>Acanthaceae</td>
<td>VOCB 5515</td>
<td>A n ounce of the whole plant juice is taken twice a day for two to three days as an antidote for snake bite.</td>
</tr>
<tr>
<td>16</td>
<td>Indigofera tinctoria L.</td>
<td>Kattavuri</td>
<td>Fabaceae</td>
<td>VOCB 5551</td>
<td>One teaspoon of the paste made from a handful of fresh roots, few fresh leaves of Cynodon dactylon (L.) Pers (arugampul) and few black pepper (the dried fruits of Piper nigrum L.) (milagu) is taken twice a day for three days as an antidote for snake bite.</td>
</tr>
<tr>
<td>17</td>
<td>Leucas aspera (Willd) Link.</td>
<td>Thumbai</td>
<td>Lamiaceae</td>
<td>VOCB 5565</td>
<td>A n ounce of the leaf extract is taken with honey as an antidote for snake bite. It is also applied as a poultice over the sting.</td>
</tr>
<tr>
<td>18</td>
<td>R hinocanthus nasutus (L.) K urz.</td>
<td>Nagamalli</td>
<td>Acanthaceae</td>
<td>VOCB 5619</td>
<td>A handful of fresh leaves or roots are chewed as an antidote for snake bite.</td>
</tr>
<tr>
<td>19</td>
<td>Santalum album L.</td>
<td>Santhanam</td>
<td>Santalaceae</td>
<td>VOCB 5623</td>
<td>A n ounce of the wood infusion is taken twice a day for three days as an anti-rabies medicine.</td>
</tr>
<tr>
<td>20</td>
<td>Strychnos nux-vomica L.</td>
<td>Etti</td>
<td>Loganiaceae</td>
<td>VOCB 5634</td>
<td>A n ounce of the root extract blended with the leaf extract of Leucas aspera (Willd.) Link (thumbai) and the fruit juice of Citrus aurantifolia (Christm) Swingle (elumitchai) is taken as an antidote for snake bite and scorpion bite.</td>
</tr>
<tr>
<td>21</td>
<td>Thevetia peruviana (Pers.) Merr.</td>
<td>Ponnarali</td>
<td>Apocynaceae</td>
<td>VOCB 5643</td>
<td>The stem bark paste is used as a poultice over the poisonous stings.</td>
</tr>
</tbody>
</table>
Acknowledgement

Authors gratefully acknowledge Mr.R. Kottaimuthu, Research Associate, ATREE, Bangalore for his valuable help and suggestions during the course of the study and also thanks to Mr. Sanjeevi and his family and all the other Palliyars of the study area for their whole hearted cooperation and support given to during the course of our investigation.

References


