ETHNO BOTANICAL STUDIES OF SOME SELECTED MEDICINAL PLANTS OF PATHAPATNAM MANDALAM, SRIKAKULAM DISTRICT, ANDHRA PRADESH, INDIA


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ABSTRACT

Since ancient times, plants have been used as medicine, food, agrochemicals and pharmaceuticals by number of tribes, rural and urban peoples. The tribal region of Andhra Pradesh, has not received proper attention of ethno medicinal researchers. The information on plants was collected interviewing the local tribal traditional practitioners. The present study revealed that the plants which are used in traditional systems are mostly collected from the wild resources. A total of 44 plant species, 40 genera and 24 families of ethno botanical interest upon inquiries from these tribal informants between the age of 30-75 were reported. They have been using these parts in the form of paste, powder, decoction, juice, infusion and also in crude form, with other additives like honey, curd, and urine and cow milk to get relief from different ailments like diabetes, Abortion, Jaundice, Snakebite, cough, Blood pressure and other diseases. The study therefore concludes, it is necessary that suitability requirements are needed in other to protect the traditional knowledge in a particular area with references to medicinal plants utilization.

Keywords: Ethno Botanical Studies, Selected Medicinal Plants, Pathapatnam

INTRODUCTION

Plants have been used both in the prevention and cure of various diseases of humans and their pets. With the advent of human civilization, many systems of therapy have been developed primarily based on plants. Ayurveda, Homeopathy, Sidda, Unani etc. are our traditional systems of medicine. The World health organization has estimated that over 80% of the global population rely chiefly on traditional medicine (Akerele, 1992). Ethno botanical research can provide a wealth of information regarding both past and present relationships between plants and traditional societies. It is hoped that in the future, ethno botany can play an increasingly important role in sustainable development and biodiversity conservation (Rajasekaran & Warren 1994). The indigenous people of various regions have developed their own way of using plants for their health care and following their own culture, customs, folk songs and food habits. This knowledge is transferred through orally from one generation to another The main focus of the present study is to ascertain the detailed information on the use of plants and their therapeutic medical practices popular among Savara, Jatapu and Gadaba tribals of study area. The main aim of the present investigation is to mainly focus the hidden and unexplored valuable knowledge of the tribal community and to aware the man kind about the value of vegetation and lostly to give further research in the field of ethno botanical studies. There are so many workers have been done by ethno botanical studies of Andhra Pradesh, Reddy et al., (2006) reported ethno botanical observations on some endemic medicinal plants of Eastern Ghats. Pullaiah (2007) Provided information for 412 plants in his publication of medicinal plants of Andhra Pradesh. Savitramma et al., (2007), Prayaga Murthy et al.,(2012), Srinivasa Rao et al., (2014) reported ethnobotanical information for the 158 plant species in Makkuva mandalam, Vizianagaram district, Padal et al., (2013) and Venkaiah (1980,1998) have been worked in ethnobotanical studies, nobody can work in the ethno botanical studies on Pathapatnam mandalam of Srikakulam district.

Study Area

Pathapatnam Mandal was formed in the Year 1984. The Mandal was high density of tribal population and identified as agency area located in northern part of Srikakulam district, North bounded by Parlakimidi, South by Saravakota and Hiramandalam. East by Meliaputti and West by Kothuru Mandal. The Eastern
Ghats run roughly parallel to sea from the north east to south east of Srikakulam and therefore the Mandal drains from the Eastern Ghats to the coast. The Eastern Ghats, run from Pathapatnam (North West area of Srikakulam District) provide ample scope and exert profound influence on the economy and socio-cultural activities of the tribes. The pathapatnam Mandal (study area) is inhabited dominantly by two tribal groups, namely Savara, Jatapu and vary less population (58,134) as per 2011 census. The layout of settlement differs from tribe to tribe. The primitive culture of aborigines of this area is of pre-historic in origin, the evidence for Stone age culture are found in the Upper Godavari region and several micro and megalithic sites have since been discovered. The main occupation of these tribes is agriculture. Almost all tribal groups in the mandal practice Podu cultivation (Shifting cultivation) on the hill slopes and plough cultivation in plains.

MATERIALS AND METHODS
Methodology
The tribes, Savaras, Jatapus and Gadabas were studied for their relationship with plants in both material and cultural or spiritual relations. Plants employed material culture and plants associated with folk tales, magico-religious beliefs, mythology, taboos, ceremonies etc. were studied along with their vernacular or local or regional names. Regular ethno botanical surveys were undertaken with Savaras, Jatapus and Gadabas tribes at their habitations of Pathapatnam Mandal. Oral interviews with the tribal doctors, priests, women and workers and the information was recorded in a tape recorder. Some specific questions were asked and the information given by the tribals was written in the field books. The data was verified with other tribal people of different villages showing the sample plants specimens and the information given by the previous tribal people. The experienced tribal doctors were taken into the field and collected voucher plant specimens and the uses of these plants were recorded. Information on plants used by the tribals for food, construction of huts, for the preparation of intoxicating drinks (alcoholic drinks), for fibres and magico-religious beliefs with their local names were collected. Some pains have been taken to reach some interior villages of tribal areas of Pathapatnam mandal. Some personal observations were recorded in the field note book, on habit, habitat, phenology, abundance, and conservational aspects of various plants which were used by the tribal’s. The names of tribal doctors, other knowledgeable people, women who have given the ethno botanical information were recorded. Plant specimens were collected either with flower or fruit or with both. They were dried and poisoned with saturated solution of mercuric chloride in rectified spirit and herbarium specimens were prepared with their botanical names and deposited in the Herbarium of botany department, Andhra University, Visakhapatnam.

RESULTS AND DISCUSSION
The present study includes 44 species representing 40 genera of 24 families of Angiosperms were recorded in Pathapatnam mandalam. These plants species were used by tribal’s Savaras, Jatapus and Gadabas as food, for shelter and as herbal medicines. This tradition knowledge was learned from their forefathers. The tribal people use a wide range of herbal medicines for curing various ailments like, Abortion, Asthma, Blood Pressure, Diabetes, Diarrhoea, Dysentery, Snakebite, Malaria, Jaundice, Leucoderma, Menstrual disorders. The knowledge of these medicinal herbs was learned from their forefathers from generation to generation. There are some herbal medicines which are not well tapped by the other local people. Out of these 44, 23 are herbs, 6 are shrubs, 7 are trees and 8 are Climbers Presented in the Table-2. The 44 medicinal plants were reported to be used in curing 34 diseases, of which 11 species for used in the part of leaves, 12 species for Root, 8 species for hole plant, 7 species for Rhizome, 6 species for seed and 2 each for flower and stem bark are using for the treatment of several ailments. Information on plant species regarding botanical name, local name, family, diseases and medicinal dosages are presented in the Figure-1. Among the different plan parts used for the preparation of medicine the roots were the most important and frequently used and majority of the remedies reported in the present study are by administering the roots. The dominant families of ethnobotanical importance are
Apocynaceae representing 6 species, Asteraceae (5), Asclepiadaceae and Euphorbiaceae (3) Fabaceae, Combretaceae, Liliaceae, Loganiaceae, Solanaceae and Verbenaceae (2) and Amaranthaceae, Rutaceae, Mimosaceae (1) are present in the study area. The area of Pathapatnam mandal is a rich source of floral diversity with strong traditions of ethnobotanical practices existing among the ethnic community groups.

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The area of pathapatnam mandal is a rich source of floral diversity with strong traditions of ethnobotanical practices existing among the ethnic community groups.

**Figure 1: Plants Parts wise Ethno botanical analysis**

**Figure 2: Habit wise Ethno botanical analysis**
<table>
<thead>
<tr>
<th>S.No</th>
<th>Name of the Diseases</th>
<th>Name of the Plant</th>
<th>Family</th>
<th>Common Name</th>
<th>Dosages</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Abortion</td>
<td>Abrus precatorius L.</td>
<td>Fabaceae</td>
<td>Guruvinda</td>
<td>2 or 3 seeds are ground and the paste is mixed in a glass of water. This is administered once a day before breakfast for 3 days.</td>
</tr>
<tr>
<td>2</td>
<td>Jaundice</td>
<td>Acalypha indica L.</td>
<td>Euphorbiaceae</td>
<td>Muripindi</td>
<td>leaves with leaves of Justicia adhatoda, Eclipta prostrata, Centella asiatica, Phyllanthus amarus, Coccinea indica, and Momordica charantia are taken in equal quantities and ground and made into pills of soapnut seed size. One pill is administered with rice cunjee or butter milk twice a day for 3 days.</td>
</tr>
<tr>
<td>3</td>
<td>Diabetes</td>
<td>Aegle marmelos L.</td>
<td>Rutaceae</td>
<td>Maredu</td>
<td>About 10ml of leaf juice is given with 5 Piper nigrum seeds twice a day for two months.</td>
</tr>
<tr>
<td>4</td>
<td>Kidney Stones</td>
<td>Aerva lanata(L.)</td>
<td>Amaranthaceae</td>
<td>Kondapindikura</td>
<td>10 ml of whole plant juice is given orally once a day for a period of 21 days to dissolve stones in kidneys.</td>
</tr>
<tr>
<td>5</td>
<td>Diabetes</td>
<td>Andrographis paniculata (Burm.f.) Wall. ex Nees</td>
<td>Acanthaceae</td>
<td>Nelavemu</td>
<td>Leaves powdered with leaves of Syzgium jambolanum, Zizyphus rugosa, Aegle marmelos, Gymnema sylvertre and tubers of Corollocarpus epigaeus (2:1 ratio) given with hot water for 20 days.</td>
</tr>
<tr>
<td></td>
<td>Condition</td>
<td>Plant Name</td>
<td>Family</td>
<td>Recipe/Preparation</td>
<td></td>
</tr>
<tr>
<td>---</td>
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<td>-------------</td>
<td>-----------------------------------------------------------------------------------</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Fertility</td>
<td>Asparagus racemosus Willd</td>
<td>Liliaceae</td>
<td>Tuberous root with of Bombax ceiba, tuberous root of Boerhavia chinensis and seeds of Piper nigrum are taken in equal quantities and ground. 2 spoonfuls of paste mixed in a glass of goat milk is administered early in the morning from the 3rd day of menses for 5 days.</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>Leucorrhora</td>
<td>Boerhavia diffusa L.</td>
<td>Nyctaginaceae</td>
<td>15 ml of decoction of plant is taken orally once a day for 3 days.</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>Memory</td>
<td>Centella asiatica (L.)</td>
<td>Apiaceae</td>
<td>Plant soaked in milk for 2 days ays then the leaves are taken out, dried and pound to powder. A pinch of this powder is administered daily for 1-2 months to improve memory.</td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>Chicken pox</td>
<td>Costus speciosus (Koenig) Smith</td>
<td>Costaceae</td>
<td>Rhizome paste is applied on the body about 5 days.</td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>Irregular Menstruation</td>
<td>Curculigo orchoides: Gaertn</td>
<td>Hypoxidaceae</td>
<td>Tuber paste with curd is taken orally for three days.</td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>Asthma</td>
<td>Datura metal L.</td>
<td>Solanaceae</td>
<td>Root powder is mixed with honey and is given which acts as an anti-cognizant and gives quick relief.</td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>Sterility</td>
<td>Dioscorea bulbifera: L.Syn:</td>
<td>Dioscoreaceae</td>
<td>Tuber paste is used orally from the 4th day of menstruation for a period of 21 days to attain sterility.</td>
<td></td>
</tr>
<tr>
<td>13</td>
<td>Hair fall</td>
<td>Eclipta prostrata (L.)</td>
<td>Asteraceae</td>
<td>3ml of leaf extract is given orally twice a day with cow milk for 3 months.</td>
<td></td>
</tr>
<tr>
<td>No.</td>
<td>Disease</td>
<td>Plant Name</td>
<td>Family</td>
<td>Author(s)</td>
<td></td>
</tr>
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<td>-----</td>
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<td></td>
</tr>
<tr>
<td>14</td>
<td>Rheumatism</td>
<td>Entada pursaetha DC</td>
<td>Mimosaceae</td>
<td>Gillitavva</td>
<td></td>
</tr>
<tr>
<td>15</td>
<td>Leucorrhoea</td>
<td>Euphorbia hirta L. Syn:</td>
<td>Euphorbiaceae</td>
<td>Pachabottlu</td>
<td></td>
</tr>
<tr>
<td>16</td>
<td>Asthma</td>
<td>Gloriosa superba: L.</td>
<td>Liliaceae</td>
<td>Adavinabi</td>
<td></td>
</tr>
<tr>
<td>17</td>
<td>Diabetes</td>
<td>Gymnema sylvestre: (Retz.) R. Br. Ex Schult</td>
<td>Asclepiadaceae</td>
<td>Podapatri</td>
<td></td>
</tr>
</tbody>
</table>

General Weakness

5ml of plant extract mixed with 3 gm fruit powder of *Phyllanthus emblica* is given orally twice a day for 6 weeks to cure.

Rheumatism

Seed coat made into paste and applied externally on the affected parts till cure.

Leucorrhoea

20 g of leaves are crushed and extract of the leaves is taken with honey once in the morning for a month.

Dysentery

Leaves are warmed and bandaged over the affected part by applying castor oil till cure.

Asthma

Leaf paste is heated and applied on the forehead and neck for 7 days.

Rheumatism

Rootstock is crushed and boiled in sesame oil for an hour. The oil is strained and applied on joints for about a month to get rid of the pain.

Diabetes

Leaves powdered along with leaves of *Aegle marmelos*, *Andrographis paniculata*, *Syzygium cumini*, *Zizyphus rugosa* and the tubers of *Carallocarpus Epigaeus* in 2:1 ratio. 1 spoonful of powder is taken twice a day until the pain is relieved.
18 Diarrhoea  

*Hemidesmus indicus* : (L.) R. Br.

Asclepiadaceae  

Sugandapala

Root ground to paste along with roots of *Jatropha curcas* and *Holarrhena pubescens* two spoonfuls of the paste is administered twice a day for 3 days.

Menstrual Disorders

19 Dysentery  

*Holarrhena pubescens* : Wall. ex G.Don.

Apocynaceae  

Palakodisa

Roots pounded to paste along with the roots of *Jatropha curcas* and *Hemidesmus indicus*, 2 spoonfuls of the paste is administered twice a day for 3 days.

20 Impotency  

*Hybanthus enneaspermus* : (L.)

Violaceae  

Ratnapurusha

3 spoonfuls of whole plant extract is mixed with goats milk and administered once a day for 30 days.

21 Epilepsy  

*Ichnocarpus frutescens* : (L.) R.Br.

Apocynaceae  

Palateega

2 spoonfuls of the root filtrate with *curcuma longa* is administered twice a day till cure.

22 Cough  

*Justicia adhatoda* : Medik.

Acanthaceae  

Addasaram

One teaspoonful of the leaf extract is taken orally for 7 days.

23 Jaundice  

*Phyllanthus amarus* Schum.

Euphorbiaceae  

Nelausiri

Plant paste mixed with curd 3 spoonfuls is given orally twice a day for 7 days.

24 Peptic Ulcers  

*Pueraria*  

Fabaceae  

Gummadi

Tuber extract mixed along with hot water is given twice a day for 1 week.
Rajeshwari Rao et al.

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<table>
<thead>
<tr>
<th>Problem</th>
<th>Plant(s)</th>
<th>Family</th>
<th>Preparation/Method</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rheumatoid Arthritis</td>
<td><em>Rauvolfia tuberosa</em> (Roxb. ex Willd.)</td>
<td>Apocynaceae</td>
<td>Tuber paste is applied over the affected parts till cure.</td>
</tr>
<tr>
<td>Snake Bite</td>
<td><em>Rauvolfia serpentina</em> (L.)</td>
<td>Apocynaceae</td>
<td>Roots crushed with the leaves of <em>Kalanchoea pinnata</em> and the extract given orally and paste applied over the bitten spot.</td>
</tr>
<tr>
<td>Blood Pressure</td>
<td><em>Rauvolfia tetraphylla</em> L.</td>
<td>Apocynaceae</td>
<td>6ml decoction of root bark is administered once a day for 7 days.</td>
</tr>
<tr>
<td>Gonorrhoea</td>
<td><em>Solanum nigrum</em> L.,</td>
<td>Solanaceae</td>
<td>5ml juice of whole plant is given thrice a day for 15 days.</td>
</tr>
<tr>
<td>Anthelminthic</td>
<td><em>Sphaeranthus indicus</em> L.</td>
<td>Asteraceae</td>
<td>Seeds are pound into powder, this powder is mixed with warm water and administered one spoonful twice a day for 3 days.</td>
</tr>
<tr>
<td>Cuts and Wounds</td>
<td><em>Stachytarpheta jamaicensis</em> (Salisb.)</td>
<td>Verbenaceae</td>
<td>Leaves ground with that of <em>Leucas cephalotes</em> and the paste is applied over the affected parts.</td>
</tr>
<tr>
<td>Hunting</td>
<td><em>Strychnos nux-vomica</em> L.</td>
<td>Loganiaceae</td>
<td>Seed and pulp used for arrows for hunting animals.</td>
</tr>
</tbody>
</table>

25

26

27

28

29

30

Dysentery

with little sugar and administered in doses of 2 spoonfuls twice a day till cure.

1 spoonful of stem bark extract is administered with honey twice a day for 2 days ays.
Water Purification: Strychnos potatorum: L. Loganiaceae Cleaning nuts

Blood Pressure

Asthma: Terminalia bellirica (Gaertn.) Combretaceae Tanikaya

Combretaceae

Asthma: Terminalia belirica (Gaertn.) Combretaceae Tanikaya

Combretaceae

Cough: Terminalia chebula Retz. Combretaceae Karakaya

Combretaceae

Stomach Ulcers: Tinospora cordifolia (Willd.) Menispermaceae Tippateega

Menispermaceae

Jaundice: Tribulus terrestris L. Zygophyllaceae Palleru

Zygophyllaceae

Jaundice: Tridax Asteraceae Gaddi chamanti

Asteraceae

Seed paste when mixed with turbid water, the water become clean and clear.

Seed paste mixed with root paste of Abelmoschus ficulneus and Cuminum cuminum seeds is administered orally for 5 days.

Fruits are ground to power with the fruits of Terminalia chebula, Balanites aegyptiaca; roots of Aristolochia indica, Rauvolfia serpentine and Syzygium aromaticum. 1 spoonful of powder along with honey is given thrice a day for 30 days.

Fruit paste mixed with breast milk and administered orally to infants. 3 spoonfuls of tuber extract is given orally twice a day till cure.

Equal quantities of whole plant Amaranthus tricolor with Tribulus terrestris are made into paste. Two spoonfuls of this paste mixed with cow milk is given on empty stomach for about 7 days.

Plant paste with
<table>
<thead>
<tr>
<th></th>
<th>Disease</th>
<th>Plant Name</th>
<th>Family</th>
<th>Administration Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>37</td>
<td>Dysentery</td>
<td>Tylophora indica (Burm.f.)</td>
<td>Asclepiadaceae</td>
<td>Root pound to paste, two spoonfuls of the paste is administered twice a day for 3 days.</td>
</tr>
<tr>
<td>38</td>
<td>Malarial Fever</td>
<td>Vernonia cinerea (L.)</td>
<td>Asteraceae</td>
<td>A spoonful of root decoction mixed with 2 black pepper fruits is administered once a day for 6 days.</td>
</tr>
<tr>
<td>39</td>
<td>Jaundice</td>
<td>Vitex negundo L.</td>
<td>Verbenaceae</td>
<td>Leaves crushed with leaves of Acalypha indica, 3 daysrops of fresh juice administered orally and 1 drop each instilled into eyes for a period of 3 days.</td>
</tr>
<tr>
<td>40</td>
<td>Diarrhoea</td>
<td>Woodfordia fruticosa (L.)</td>
<td>Lythraceae</td>
<td>Dried flower powder is mixed with warm water and is given in doses of two spoonfuls per a day for 3 days.</td>
</tr>
<tr>
<td>41</td>
<td>Menstrual Disorders</td>
<td>Wrightia arborea</td>
<td>Apocynaceae</td>
<td>Root bark ground with Piper nigrum and the paste made into pills, 2 pills are administered orally twice a day for 10 days.</td>
</tr>
<tr>
<td>42</td>
<td>Asthma</td>
<td>Wrightia tinctoria (Roxb.)</td>
<td>Apocynaceae</td>
<td>Latex with jaggery is taken internally in the form of pills of</td>
</tr>
</tbody>
</table>
the Bengal gram seed size twice a day for about 15 days.

Bark along with *Cuminum cyminum* and garlic is used to reduce weight.

3ml of root extract is administered once a day for 2 days ays.

One spoonful of the rhizome juice is mixed with an equal quantity of cow butter, is warmed and massaged on the chest and throat for 4 days before bed time.

**Conclusion**

Industrial development, urbanization and other development activates and podu cultivation by some tribal communities causes lot of damage to the forest areas and to the ethnobotaniocal knowledge. Therefore it is the urgent need to protect the forest and as well as ethno botanical knowledge. Both the Government and non – Government organizations should take necessary steps to conserve these ethno botanical plants which are the source of food, herbal medicine and a variety of materials for daily use of the ethnic communities. The ecosystems in which they are present by introducing *in-situ* as well as *ex-situ* conservational measures in pathapatnam Mandal. It is also suggested that an ethno botanical garden with all these ethno botanical species should be maintained in the mandal headquarters as an experimental garden.

**ACKNOWLEDGEMENT**

The authors are grateful thanks to the forest deportment of Pathapatnam range office for giving accommodation and field help in during my field survey.

**REFERENCES**


