

Ethnobotany of Stem Bark of Certain Plants of Visakhapatnam District, Andhra Pradesh

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Article Info	Abstract
Article History Received : 20-12-2010 Revised : 29-03-2011 Accepted : 30-03-2011	The paper enumerates 56 medicinal plant species belonging to 47 genera and 31 families, whose stem barks are used for ethnobotanical purposes by the Primitive Tribal Groups (PTGs) of Visakhapatnam district, Andhra Pradesh. Three plant species and 70 practices were found to be new.
*Corresponding Author Tel : +91-9440641545 Fax : +91-8912735767 Email: koteswararaojarra@yahoo.com ©ScholarJournals, SSR	Key Words: Ethnobotany, Stem bark, Primitive Tribal Groups, Visakhapatnam

Introduction

Bark is the outer hard layer covering the trunk of the plant. From ethnobotanical point of view it has immense importance in day to day life of the people throughout the world. Ethnobotanical uses of different plants were studied by several workers (Ambashta 1986, Banerjee 1977, Caius 1935, Chopra et al 1969, Islam 2000, Rao et al 2001, Rao et al 2000, Rao and Reddi 2010 and Rao et al 2006). The utility of bark for making ropes, cordages, dyes, resins, medicines etc. in different parts of the country by different tribal inhabitants was studied in a scattered manner, but very little work has been done so far on the uses of bark obtained from different parts of different species of the district.

Visakhapatnam district is situated on the northern part of Andhra Pradesh consisting 43 mandals of which 11 are exclusively inhabited by 11 tribals communities of which four belongs to Primitive Tribal Groups category (PTGs) viz., Gadaba, Khond, Porja and Savara. The study area lies between 17°-34' 11" and 18°-32' 57" N latitude and 18°-51' 49" and 83°-16' 9" in E longitude (Fig. 1) with a total area of 6298 Km² i.e. 56.4% of the total geographical area of the district. The total population of the district is 3, 832, 336 of which 557, 572 (14.55%) are tribals and the Primitive Tribal Groups constitutes 126, 778 (3.3%).

Material and Methods

Ethnobotanical survey of the PTGs inhabited areas of the district was conducted during 2008-10 covering all seasons. Information was obtained through field interviews with traditional healers. The medicinal uses and mode of administration were gathered from tribal medicine men and herbalists and compared with relevant literature. Each medicinal practice was verified and cross-checked. Plant specimens were collected, identified and deposited in the Herbarium of the Department of Botany, Andhra University, Visakhapatnam.

Ethnomedicinal plant species used by the PTGs for curing various diseases are listed below in alphabetical order with botanical and local names (VN), E-English names, uses and the methods of preparation and administration of the drugs.

Enumeration

Acacia nilotica (L.) Willd. Mimosaceae VN: Nalla thumma E: Black babul

***Piles:** Stem bark paste mixed with half cup of water is administered once a day till cure.

***Swelling of eyes:** Boiled stem bark paste is applied on the eyebrows.

Aegle marmelos (L.) Correa. Rutaceae VN: Maredu E: Bael tree

***Tumours in stomach:** Bark paste mixed with half cup of water is administered twice a day till cure.

***Aganosma caryophyllata (Roxb. ex Sims) G. Don** Apocynaceae VN: Saluvamada Chettu

Malaria, fits, chicken pox, witchcraft and antidote to poison: Stem bark along with that of *Grewia tiliaefolia* mixed with old tamarind stored for 3 years is ground with crab and the skin of monitor lizard (*Veranus*) is made into tablets and administered orally daily twice.

Alangium salvifolium (L. f.) Wang. Alangiaceae VN: Ooduga chettu E: Stone mango

Neurological weakness: Stem bark paste mixed with root paste of *Achyranthes aspera* is administered twice a day till cure.

Alstonia scholaris (L.) R. Br. Apocynaceae VN: Edakulapala E: Devil tree

Galactagouge: Bark paste is administered with half cup of water.

***Alstonia venenata* R. Br.** Apocynaceae VN: Pala mandhu chettu

***Scabies and boils:** Dried stem bark powder mixed with coconut oil is applied on the affected parts.

***Annona reticulata* L.** Annonaceae VN: Ramaphalam E: Bullocks heart of India

***Sciatica:** Stem bark paste with that of *Jatropha curcas* and root pastes of *Clerodendrum viscosum* and *Solanum torvum* mixed with half cup of water is administered daily twice till cure.

***Artocarpus heterophyllus* Lam.** Moraceae VN: Panasa E: Jack fruit

***Body pains:** Stem bark paste mixed with half cup of water is administered twice a day for 2 days.

***Dysentery:** Stem bark paste mixed with that of *Syzygium cumini* is administered with half cup of water twice a day for 2 days.

***Wounds:** Stem bark paste is applied on affected parts. Latex is used for **bird-trapping**.

***Azadirachta indica* A.Juss.** Meliaceae VN: Yepa chettu E: Margosa tree

Dysentery: Stem bark paste mixed with half cup of water is administered twice a day for 2 days.

***Stomach pain:** Stem bark paste along with tuberous pastes of *Acorus calamus* and *Rauvolfia serpentina* mixed in half cup of water is administered twice a day for 2 days.

***Bambusa arundinacea* (Retz.) Roxb.** Bambusaceae VN: Bonga veduru E: Thorny bamboo

***Diabetes:** Tender stems are eaten as curry once a day till cure.

***Piles:** Stem bark ground with roots of *Asparagus recemosus* is administered in 5 mg once a day for 3 days.

***Bauhinia purpurea* L.** Caesalpiniaceae VN: Goddu koora E: Pink bauhinia

***Asthma:** Stem bark paste mixed with half cup of water is administered twice a day for 5 days.

***Dysentery:** Stem bark paste mixed with half cup of water is taken twice a day till cure.

***Bauhinia vahlii* Wight & Arn.** Caesalpiniaceae VN: Addachettu E: Camel's foot climber

Stem bark fibre is used in the preparation of traditional ropes, mats and cordage.

***Boehmeria flatyphylla* Jacq.** Urticaceae VN: Karagadi chettu

Tonsils: Stem bark paste is applied on the affected parts.

Uses: Stem bark fibre is used for ropes.

***Bombax ceiba* L.** Bombacaceae VN: Boorugu E: Silk cotton tree

***Sprains:** Stem bark paste is applied on affected parts.

***Callicarpa arborea* L.** Verbenaceae VN: Badiga chettu (Fig. 2)

Helminthiasis: Stem bark paste along with tuber paste of *Rauvolfia serpentina* mixed with half cup of water is administered twice a day till cure.

***Careya arborea* Roxb.** Barringtoniaceae VN: Kummadi E: Patana oak

***Jaundice:** Stem bark paste mixed with half cup of water is administered thrice a day for 2 days.

***Ward off evil spirits:** Stem bark is kept in the copper foil and buried in front of the house to ward off evil spirits.

***Casearia elliptica* Willd.** Flacourtiaceae VN: Girugudu (Fig. 3)

***Muscular pain:** Stem bark paste mixed with a cup of water is administered twice a day till cure.

***Celastrus paniculatus* Willd.** Celastraceae VN: Palleru thivva E: Black oil tree (Fig. 4)

***Burning sensation:** Stem bark paste mixed with half cup of water is administered twice a day.

***Cipadessa baccifera* (Roth) Miq.** Meliaceae VN: Paradonda, Paladonda.

***Allergy:** Stem bark paste is taken with water orally twice a day for 2 days.

***Emetic:** Stem bark paste is given once.

***Fever:** Stem bark paste along with leaf paste of *Cassia occidentalis* is administered daily twice for 3 days.

***Jaundice:** Stem bark paste along with tuberous paste of *Mirabilis jalapa* mixed with half cup of water is administered twice a day for 3 days.

***Phlem:** Stem bark paste mixed with half cup of water is given once a day early in the morning till cure.

***Stomach pain:** Bark paste and *Solanum nigrum* stem paste mixed with half cup of water is administered twice a day.

***Clerodendrum philippinum* Schr.** Verbenaceae VN: Phidithiki mokka E: Fragrant glory tree

***Cough:** Stem bark paste mixed with half cup of water is administered twice a day for 2 days.

***Dalbergia lanceolaria* L.f.** Fabaceae VN: Saki chettu

***Jaundice:** Stem bark paste along with *Mirabilis jalapa* tuber paste is administered twice a day for 2 days.

***Dalbergia paniculata* Roxb.** Fabaceae VN: Chitakura chettu (Fig. 5)

***Toothache:** Stem bark paste is applied on effected teeth and brush the teeth with tender shoots once a day for 3 days.

***Dalbergia volubilis* Roxb.** Fabaceae VN: Maredu tivva E: Cinnamon

***Blood dysentery:** Stem bark paste mixed with half cup of water is administered thrice a day for 2 days.

***Menorrhagia:** Stem bark paste mixed with half cup of water is administered twice a day till cure.

***Dillenia indica* L.** Dilleniaceae VN: Revadachettu E: Elephant apple (Fig. 6)

***Piles:** Stem bark pounded with paddy is cooked and administered in one glassful in the morning and evening till cure.

***Diospyros sylvatica* Roxb.** Ebenaceae VN: Pilli chettu

Fits: Stem bark paste mixed with half cup of water is administered on full moon day followed by half-moon and full-moon days.

***Euphorbia ligularia* Roxb.** Euphorbiaceae VN: Akujemudu E: Common milk hedge

***Arthritis:** Stem bark paste mixed with coconut oil is applied on affected parts till cure.

***Ulcer in stomach:** Stem bark paste, cooking oil and one egg is given with *Panicum sumatrense* once a day for 3 days.

***Euphorbia nivulia* Buch.-Ham.** Euphorbiaceae VN: Akujamudu E: Leaf milk hedge

***Back pain:** Stem bark paste mixed with half cup of water is administered twice a day for 3 days.

***Ficus microcarpa* L.f.** Moraceae VN: Pittamarri E: Chinese banyan

***Stomach pain:** Stem bark paste along with half cup of water is administered twice a day for 2 days.

***Ficus racemosa* L.** Moraceae VN: Medi Chettu E: Gular fig

Dysentery: Stem bark paste mixed with half cup of water is administered twice a day for 3 days.

Cuts and wounds: Stem bark paste is applied on the affected parts.

***Ficus religiosa* L.** Moraceae VN: Ravi chettu E: Peepal tree

***Leucorrhoea:** Stem bark paste, bark pastes of *Pterocarpus marsupium* and *Oroxylum indicum* mixed with root paste of *Mirabilis jalapa* are administered with half cup of water daily twice for 2 days.

***Ficus tinctoria* Forst. f. subsp. *parasitica* (Willd.) Corner** Moraceae VN: Tella barnika E: Stone fig

***Dysentery:** Stem bark paste mixed with half cup of water is administered twice a day for 3 days.

***Gardenia latifolia* Ait.** Rubiaceae VN: Korukodi E: Indian box wood (Fig. 7)

***Cuts:** Stem bark paste is applied on affected parts.

***Dysentery:** Stem bark paste along with half cup of water is administered twice a day for 2 days.

***Sorcery:** Stem bark paste mixed with half cup of water is administered orally twice for one day only.

***Glycosmis pentaphylla* (Retz.) DC.** Rutaceae VN: Konda gilugu

***Leucorrhoea:** Stem bark paste along with that of *Oroxylum indicum* is administered with half cup of water twice a day for 3 days.

***Piles:** Stem bark paste mixed with half cup of water is administered daily once for 3 days.

***Grewia tiliaefolia* Vahl** Tiliaceae VN: Nela syamanth E: Dhamani

***Cuts:** Stem bark paste is applied on the affected parts.

***Holarrhena pubescens* (Roxb. ex Fleming) Wall.** Apocynaceae VN: Kodicipala E: Ivory tree (Fig. 8)

Dysentery: Stem bark paste mixed with half cup of water is administered twice a day for 2 days.

****Homalium nepalense* (Wall.) Benth.** Flacourtiaceae VN: Chedu chettu (Fig. 9)

Puerperal fever: Stem bark paste made into tablets of 10 gm each is administered thrice for one day only.

***Kydia calycina* Roxb.** Malvaceae VN: Pothada chettu E: Roxburgh's Kydia

Heart pain: Stem bark paste along with that of *Erythrina variegata* is ground and administered with water twice a day till cure.

***Lannea coromandelica* (Houtt.) Merr.** Anacardiaceae VN: Gumpena E: Indian ash tree (Fig 10)

Bone fracture: Stem bark paste along with that of *Listea deccanensis* is plastered on the fractured area. The bandage is changed for every 2 days.

***Mimusops elengi* L.** Sapotaceae VN: Pogada E: Spanish cherry

***Dysentery:** Stem bark paste mixed with half cup of water is administered twice a day till cure.

***Oroxylum indicum* (L.) Vent.** Bignoniaceae VN: Bapana, Pumpena E: Indian trumpet-flower

***Easy delivery:** Stem bark paste mixed with half cup of hot water is given at the time of delivery.

Jaundice: Stem bark paste and root pastes of *Cassia occidentalis* and *Rhinacanthus nasutus* are administered with curd twice a day till cure.

***Leucorrhoea:** Flowers and stem bark are ground and made into tablets of 50 g each and administered one tab daily twice till cure.

***Menorrhagia:** Stem bark paste along with tuber paste of *Mirabilis jalapa* mixed with half cup of water is administered twice a day for 2 days.

***Rib muscle pain:** Stem bark mixed with that of *Jatropha curcas*, *Artocarpus heterophyllus* and *Murraya koenigii* are ground with water and administered in cupful once a day till cure.

***Tuberculosis:** Stem bark paste or seed paste mixed with half cup of water is administered twice a day till cure.

***Weakness:** Stem bark paste mixed with half cup of water is administered daily twice.

***Phyllanthus emblica* L.** Euphorbiaceae VN: Usiri chettu E: Indian gooseberry

Dysentery: Stem bark along with that of *Terminalia chebula* is boiled in one litre of water until it is reduced to one or three spoons of decoction. One spoon of this decoction is taken twice a day till cure.

***Plumeria alba* L.** Apocynaceae VN: Lakshmi poolu E: Pagoda tree

***Anti-emetic:** Stem bark paste mixed with root paste of *Argemone mexicana* is administered with half cup of water daily twice till cure.

***Plumeria rubra* L.** Apocynaceae VN: Yerra champangi E: Pagoda tree

***Stomach pain:** Stem bark mixed with that of neem is administered with half cup of water twice a day for 2 days.

***Witchcraft:** Stem bark paste is administered twice a day for one day only.

***Pongamia pinnata* (L.) Pierre** Fabaceae VN: Ganuga E: Indian beech tree

***Contraceptive:** Stem bark along with that of *Cipadessa baccifera* and a pinch of salt are ground and administered with three spoons of water thrice a day.

***Pterocarpus marsupium* Roxb.** Fabaceae VN: Yegisa E: Kino tree

Dysentery: Stem bark paste mixed with *Punica granatum* tender leaf paste is administered with half cup of water twice a day.

***Jaundice:** Stem bark mixed with roots of *Rubia cordifolia* and *Rauvolfia serpentina* and tubers of *Colocasia esculenta* and *Nelumbo nucifera* are ground with water and administered in half cup of water once a day for 3 days.

***Menorrhagia:** Stem bark along with that of *Bauhinia vahlii*, *Ficus religiosa* and tender leaves of tomato are ground and mixed with half cup of rice washed water is administered thrice a day till cure.

***Randia spinosa* (Retz.) Poir.** Rubiaceae VN: Mangachettu E: Common emetic nut

***Abortion:** Stem bark paste mixed with half cup of water is administered only once to abort pregnancy up to 3 months.

***Schefflera stellata* (Gaertn.) Harms** Araliaceae VN: Purugodi (Fig. 11)

***Uses:** If the young bride becomes lean after intercourse she will be administered with stem bark soaked in half glass of water twice for one day only. If this is done she will become normal.

***Sesbania grandiflora* (L.) Poir.** Fabaceae VN: Tella sunintha E: Swamp pea

Dysentery: Stem bark paste is administered along with half cup of hot water twice a day till cure.

***Solanum erianthum* D.Don** Solanaceae VN: Pitta chettu E: Indian current tomato

***Anti-emetic:** Stem bark paste mixed with half cup of water is administered thrice a day for 2 days.

***Solanum torvum* Sw.** Solanaceae VN: Kondusti E: Devil's fig

***Fits:** Stem bark ground with that of *Jatropha curcas*, roots of *Calotropis procera*, *Boerhavia diffusa*, *Solanum nigrum* and *Teprosia purpurea* are administered with half cup of water twice a day till cure.

***Sterculia urens* Roxb.** Sterculiaceae VN: Kovila chettu E: Gum karaya (Fig. 12)

***Amoebic dysentery:** Gum along with stem bark paste of *Bombax ceiba* mixed with curry of ladies finger is eaten thrice a day for 2 days.

Dysentery: Gum mixed with whole plant of *Phyllanthus niruri* and flour of *ragi* made into a bread are fed to the patient suffering from blood motions by keeping him to sit on a big flat stone.

***Heel cracks:** Gum is applied on the heel cracks.

***Syzygium cumini* (L.) Skeels** Myrtaceae VN: Neredu E: Indian cherry

***Ulcers in stomach:** Stem bark along with that of *Mangifera indica*, *Terminalia alata* and *Moringa oleifera* are ground and mixed with half cup of water is administered twice a day for 3 days.

***Terminalia alata* Roth** Combretaceae VN: Nallamaddi E: Black murdah

***Malaria:** Twenty g of stem bark mixed with 100 ml of water is given in small doses thrice a day for 3 days.

***Mental disorder:** Stem bark along with that of *Ficus benghalensis*, *Artocarpus heterophyllus* and *Moringa oleifera* are ground and mixed with half cup of water is administered twice a day for 5 days.

***Terminalia arjuna* (Roxb. ex DC.) Wight & Arn.** Combretaceae VN: Tellamadhi E: Arjun tree

***Boils and blisters:** Stem bark paste is applied all over the body and 50 mg of bark paste is given orally once a day till cure.

***Woodfordia fruticosa* (L.) Kurz** Lythraceae VN: Arepuvvu E: Fire flame brush

***Jaundice:** Stem bark paste mixed with tuberous paste of *Rauvolfia serpentina* is administered with half cup of water twice a day for 2 days.

***Extra kick of toddy:** Bark is used to give extra kick.

***Wrightia tinctoria* (Roxb.) R. Br.** Apocynaceae VN: Ankudu E: Sweet indrajao

***Headache:** Leaf and stem bark are ground and applied on the forehead. A spoonful of paste is administered orally.

***Abdominal pain:** Stem bark paste mixed with half cup of water is administered twice a day for 2 days.

***Zanthoxylum armatum* DC.** Rutaceae VN: Konda kasivinda E: Wing leaf

Scabies: Stem bark paste is applied on affected parts.



1. Study area; 2. *Callicarpa arborea*; 3. *Casearia elliptica*; 4. *Celastrus paniculatus*; 5. *Dalbergia paniculata*; 6. *Dillenia indica*; 7. *Gardenia latifolia*; 8. *Holarrhena pubescens*; 9. *Homalium nepalense*; 10. *Lannea coromandelica*; 11. *Schefflera stellata*; 12. *Sterculia urens*

Results and Discussion

The present study yielded 56 species covering 45 genera and 31 families used by the Primitive Tribal Groups of Visakhapatnam district to cure human ailments and in their daily use. The common ailments cure by them are abdominal pain, abortion, allergy, amoebic dysentery, anti-emetic, antidote to poison, arthritis, asthma, back pain, boils, blisters, blood dysentery, body pains, bone fracture, burning sensation,

chicken pox, contraceptive, cough, cuts, diabetes, dysentery, easy delivery, fever, fits, galactagogue, headache, heart pain, heel cracks, helminthiasis, jaundice, leucorrhoea, malaria, menorrhagia, mental disorders, muscular pain, neurological weakness, phlem, piles, puerperal fever, rib muscle pain, sprains, scabies, sciatica, sorcery, stomach pain, swelling of eyes, toothache, tonsils, tumours, tuberculosis, ulcers, weakness, witchcraft, wounds, ward off evil spirits and

witchcraft with a total of 83 practices. *Aganosma caryophyllata*, *Diospyros melanoxylon* and *Homalium nepalense* and 70 practices were found to be new (Jain 1991 and Kirtikar and Basu 2003). Of the 31 families Apocynaceae was found to be dominant with 7 species followed by Fabaceae (6), Moraceae (5), Rutaceae and Euphorbiaceae (3 each) and others with 1-2 species. Of the 56 species of the present study, 17 were common with those reported earlier in North-east India and the families Fabaceae, Moraceae and Euphorbiaceae were dominant in both the areas (Islam, 2000). Thus, bark plays an important role in day to day life of the primitive tribal groups of the region in curing various ailments and for other purposes.

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References

- Ambashta, S. P., 1986. The useful plants of India. CSIR, New Delhi.
- Banerjee, D.K. Observations on Ethnobotany of Araku Valley, Visakhapatnam district, Andhra Pradesh. Journal Science Club 33 (1977): 14-21.
- Caius J.F. Medicinal and Poisonous plants of India. J. Bomb. Nat. Hist. Soc., 37(1935): 917-941.
- Chopra, R.N., Chopra, I.C., B.S. Verma. 1969. Supplement to glossary of Indian Medicinal Plants. CSIR, New Delhi.
- Islam, M. Ethnobotany of bark of certain plants of North-east India, J. Econ. Tax. Bot., 24 (2000): 419-432.
- Rao, B.T., B.B. Lakshmi, L.M. Rao. Medico-Ethnology and conservation of medicinal plants of Paderu forest division-Visakhapatnam, Ecol. Env. Cons., 7(2001): 117-131.
- Rao B.T., B.B. Lakshmi, L.M. Rao, K. Ramaneshwari, V. Hymavathi., 2000. Medicinal plants of Paderu forest division in the Eastern Ghats of Visakhapatnam. *Asian Journal Microbiology Biotech.* Environmental Science., 2: 67-80.
- Rao J.K., T.V.V.Seetharami Reddi. Tuberous medicinal plants of certain tribal people in Andhra, India. J. Tropical Medicinal Plants., 11 (2010): 125-130.
- Rao, V.L.N., B.R. Busi, B. Dharma Rao, Ch. Seshagiri Rao, K. Bharathi, M. Venkaiah. Ethnomedicinal practices among the Khonds of Visakhapatnam district, Andhra Pradesh. Indian J. Trad. Knowl., 5 (2006): 217-219.
- Jain, S.K. 1991. *Dictionary of Indian folk medicine and ethnobotany*, Deep publications, New Delhi,
- Kirtikar, K.R., B.D. Basu., 2003. *Indian Medicinal Plants*, Vol. 1-11; Oriental Enterprises, Dehradun, Uttaranchal, India.