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

J. Koteswara Rao*, T.V.V. Seetharami Reddi and O. Aniel Kumar
Department of Botany, Andhra University, Visakhapatnam-530 003, Andhra Pradesh, India

Abstract
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.

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 81°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.

*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

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

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

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

*Galactagogue:* Bark paste is administered with half cup of water.

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*Corresponding Author*

Tel: +91-9440641545
Fax: +91-8912735767
Email: koteswararaogar@yahoo.com

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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: Ramphalam 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 cuminii 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:Bongu 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 flatphylla 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. Bombaceae 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 Wild. Flacourtiaeaceae 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: Palluru 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, Paladona.
  *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 past 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 lanceolara 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: Pili 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** L. Moraceae VN: Tella barnika E: Stone fig

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

**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 daily twice for 3 days.

**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 tilaefolia** 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 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: Indian clove 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: Indian beech 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 bean 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 one only 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 sumintha 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.
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 cured 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, phlegm, piles, puerperal fever, rib muscle pain, sprains, scabies, sciatica, soreness, 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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