

Ethnomedicine for diarrhoea and dysentery by the tribes of Srikakulam district, Andhra Pradesh

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Abstract

The paper deals with 65 species of plants covering 58 genera under 43 families used by the tribes of Srikakulam district for curing diarrhoea and dysentery. Family-wise analysis showed the dominance of Rutaceae and Rubiaceae with 4 species each followed by Fabaceae, Caesalpiniaceae, Mimosaceae, Apocynaceae, Ebenaceae each with 3 species and others. Habit-wise analysis showed the dominance of trees with 31 species followed by herbs (19), shrubs (11) and others. Leaf is used in maximum practices (16) followed by stem bark (15), root (10) and others. Thirty two plants are exclusively used for curing diarrhoea followed by 24 for dysentery and 9 for both. Information on *Diospyros chloroxylon* and 15 practices were found to be new or less known.

Keywords: Ethnomedicine, Diarrhoea, Dysentery, Srikakulam district, Andhra Pradesh

Introduction

According to World Health Organization, diarrhoea is the passage of three or more loose or liquid stools per day, or more frequently than is normal for the individual. It is usually a symptom of gastrointestinal infection and this can be caused by a variety of bacterial, viral or other parasitic organisms. To cure this ailment, there are numerous traditional methods or practices followed by the tribal communities of Srikakulam district of Andhra Pradesh.

Srikakulam district is located within 18°5' - 19°12'N and 83°32' - 84°47'E and bounded by Odisha state on the North and Bay of Bengal in the East and South-East and the Vizianagaram district in the West and South-West. The district, though ranking very low both in area (5837 sq km) and in density of population among the districts of Andhra Pradesh, possess considerably high density of tribal population in hilly and forest areas. Srikakulam district is

inhabited by 1,33,239 tribal people comprising of 5.74 percentage of the population. The tribal communities include *Savara*, *Jatapu*, *Kondadora*, *Gadaba*, *Kuttiya*, *Yerukula* etc. Most of the tribes are found inhabiting the hill tracts of Eastern Ghats excepting *Yerukula* and *Gadabas* who usually make their habitations in plains, as isolated hutments. *Savaras* are the most primitive and they largely depend on plant resources for their food, medicine and material culture.

Though there are ethnomedicinal studies on diarrhoea and dysentery by different tribes (Bhattarai, 1993; Chanda *et al.*, 2007; Kamble *et al.*, 2008; Sen & Behera, 2008; Moktan & Das, 2013) exclusive studies on Srikakulam district were not reported, necessitating the present study.

Materials and Methods

The ethnomedicinal data presented here were the outcome of a series of intensive field studies

conducted during 1997-2002 in 74 interior tribal pockets with good forest cover. Each field trip was of 20-24 days duration covering 5-6 pockets in a day. In each forest range area 4-5 days were spent at each time. The very first field trip of the study in the area was completely devoted to acquaint with the local chiefs, priests, vaidhyas, herbal practitioners, headman and elderly people. Subsequent field trips were mainly devoted to gather information on ethnomedicinal practices by the aborigines.

In addition to the randomly selected informants in the field, tribal villages and shandies, 41 vaidhyas/medicine men have contributed their ethnomedicinal knowledge to the present study. Each medicinal practice was cross checked with at least 4-5 informants. In some cases where individuals are experts to cure particular ailments, it has become very difficult to elicit information from them. But due to the frequent visits they too revealed the practices with preparation and dosage. With further increase in frequency of the field trips, better rapport was established with the people which in turn paved the way for uninhibited flow of information.

Along with ethnomedicinal data, the vernacular names were collected. Every attempt was made to locate the medicinal plants and voucher specimens were collected and deposited in the Herbarium of Botany Department, Andhra University, Visakhapatnam.

Enumeration

The plants are enumerated and arranged in an alphabetical order with botanical name followed by vernacular and English names, locality, voucher specimen number, part(s) used, method, mode and duration of treatment. Plants

and practices marked with an asterisk (*) are considered to be new or less known.

Abrus precatorius L. Fabaceae VN: Gulivinda
E: Crab's eye, Root, Seethampeta, 1465

*Dysentery: The paste of root mixed with cow milk is given.

Acacia chundra (Roxb. ex Rottl.) Willd.
Mimosaceae VN: Nallasandra E: Cutch tree, Stem bark, Palakonda, 1381

Dysentery: 2 gm of powder extract from the stem bark is taken along with ripe banana twice a day for about 3 days to cure.

Actinopteris radiata (Swartz) Link.
Actinopteridaceae VN: Mayursikha E: Peacock's tail, Whole plant, Kadagandi, 1081

Diarrhoea and Dysentery: About 3 gm of the whole plant is ground with butter and the paste is given twice daily for 2 days to cure.

Aegle marmelos (L.) Correa Rutaceae VN: Maredu E: Bael tree, Fruit, Antikonda, 1174

Diarrhoea and Dysentery: Tender fruit pulp of *Aegle marmelos* and *Ziziphus mauritiana* fruits are made into a paste and one teaspoonful of this paste along with little jaggery is given thrice daily for 2 days.

Ailanthus excelsa Roxb. Simaroubaceae VN: Piyypachettu E: Tree of heaven, Stem bark, Burnakonda, 1199

*Dysentery: Dried stem bark powder mixed with rice water is given in 5 spoonful thrice a day for 2 days.

Amaranthus viridis L. Amaranthaceae VN: Chilakathotakura E: Slender amaranth,

Whole plant, Darapadu, 1322

Diarrhoea: Whole plant is boiled in about 200 ml of water and the extract is administered in doses of 3 spoonful thrice a day for 3 days.

Andrographis paniculata (Burm.f.) Wall. ex Nees Acanthaceae VN: Nelemu E: King of bitters, Root, Leaf, Chinnagora, 1349

Diarrhoea and Dysentery: Roots and leaves are ground along with black pepper and water and filtered. The filtrate is administered in 3 spoonful dose twice a day for about 3 days.

Anogeissus acuminata (Roxb. ex DC.) Guill. & Perr. Combretaceae VN: Pasichettu E: Button tree, Stem bark, Korada, 1453

Dysentery: Stem bark ground with *Pithecellobium dulce* and paste is made into pills of Bengal gram seed size and administered in doses of 3 pills twice a day for 3 days to cure.

Bacopa monnieri (L.) Pennel Scrophulariaceae VN: Sambranimokka E: Thyme leaved graticula, Leaf, Baluru, 1697

Diarrhoea: The leaf juice in doses of 1 teaspoonful is given to children.

Balanites aegyptiaca (L.) Del. Balanitaceae VN: Garachettu E: Desert data, Stem bark, Fruit, Battili, 1773

Dysentery: Stem bark and fruits are ground in butter milk and the juice is taken in 5 ml quantity 3-4 times a day for 2 days.

Barringtonia acutangula (L.) Gaertn. Barringtoniaceae VN: Kadapachettu E: Mango-pine, Seed, Kothuru, 1583

Diarrhoea: The kernels are made into powder and the powder in doses of 5 gm with butter

twice a day for 3 days is administered orally.

Bauhinia purpurea L. Caesalpiniaceae VN: Peddari E: Purple bauhinia, Stem bark, Antharaba, 1688

*Dysentery: Bark extract with *Zizipus mauritiana* root in doses of 2 spoonful is given twice a day for 3 days.

B. racemosa Lam. Caesalpiniaceae VN: Adiviyavisa E: Bidi leaf tree, Root bark, Polavaram, 1752

Diarrhoea: The root bark is crushed and filtered. The filtrate is administered in 5 spoonful twice a day for 5 days.

B. vahlii Wight & Arn. Caesalpiniaceae VN: Addatheega E: Maloo creeper, Root, Chinthapalli, 1713

Dysentery: One spoonful of root extract in ½ cup of curd is taken twice a day for 3 days.

Borreria pusilla (Wall.) DC. Rubiaceae VN: Patchanuri E: Tiny false buttonweed, Leaf, Pedddalogidi, 1480

Diarrhoea: Leaf paste is taken in 2 teaspoonful twice a day for about 3 days.

Brassica nigra (L.) Koch. Brassicaceae VN: Aalu E: Black mustard, Seed, Themburukonda, 1753

Diarrhoea: A spoonful of seeds with ½ spoon of powder prepared from black pepper, cumin seeds and dried ginger in equal quantities are taken and decoction is prepared to a half glass. This decoction is given 2-3 times a day for 3 days.

Buchanania lanzan Spr. Anacardiaceae VN: Jarumamidi E: Chironji tree, Stem bark Nutilova, 1764

Diarrhoea: Stem bark is powdered with that of *Syzygium cuminii* and administered in doses of 1 spoonful twice a day for 3 days to children.

Canthium parviflorum Lam. Rubiaceae VN: Balusu E: Carraucheddie, Root bark, Saravakota, 1700

*Dysentery: Root bark decoction is administered in doses of 1 spoonful twice a day for 3 days to infants.

Careya arborea Roxb. Lecythidaceae VN: Kumbi E: Slow match tree, Stem bark, Narlova, 1064

*Diarrhoea: Stem bark is ground with black pepper and the extract with curd in equal proportions is taken in doses of 5 spoonful twice a day for 5 days.

Catharanthus roseus (L.) Don. Apocynaceae VN: Billaganneru E: Madagascar periwinkle, Leaf, Bejji, 1670

Diarrhoea: Leaf infusion with that of *Psidium guajava* in doses of 5 spoonful is taken twice a day for 3 days.

Celosia argentea L. Amaranthaceae VN: Gurungura E: Cock's comb, Seed, Donubai, 1834

Diarrhoea: Seed powder is administered in ½ tea spoonful dose once a day for 3 days.

Citrus medica L. Rutaceae VN: Dabba E: Citron, Fruit, Chinnagora, 1710

Diarrhoea: Unripe fruit paste is taken orally with little sugar once a day for 3 days.

Combretum roxburghii Spr. Combretaceae VN: Peyyarambaddu E: Buffalo calf plant, Leaf, Nutilova, 1376

Dysentery: Tender leaves are crushed with

those of *Syzygium cuminii* and the extract is taken in 2 spoonful twice a day for 2 days.

Cryptolepis buchananii Roem. & Schult. Periplocaceae VN: Adavipalateega E: Wax leaved climber, Root, Garalapadu, 1951

*Diarrhoea: Dried root powder is administered in doses of 1 spoonful twice a day for 5 days.

Cyperus rotundus L. Cyperaceae VN: Tunga E: Common nut sedge, Peddakedari, Tuber, 1313

Diarrhoea: About 10g of tuberous underground stolons are crushed and the extract along with few drops of honey is taken for about 3 days.

Dalbergia sissoo Roxb. Fabaceae VN: Iridi E: Rose wood, Leaf, Kausalyametta, 1441

Dysentery: Leaf juice in doses of 2 spoonful is given twice a day for 5 days.

****Diospyros chloroxylon*** Roxb. Ebenaceae VN: Thorika, Leaf, Jalantrakota, 2184

Diarrhoea: The juice of the leaves is given in 2 spoonful for 3 days.

D. melanoxylon Roxb. Ebenaceae VN: Tumikichettu E: Coromandel ebony, Fruit, Barasingapura, 1674

Dysentery: Unripe fruits are eaten.

D. montana Roxb. Ebenaceae VN: Yerragatha E: Bombay ebony, Root bark, Rukki, 2093

*Dysentery: Root bark is crushed with turmeric and the filtrate is administered in doses of 2 spoonful twice a day for 3 days.

Elephantopus scaber L. Asteraceae VN: Yedduadugu E: Elephant's foot, Root, Hunnali, 1405

Diarrhoea: Root extract of 2 spoonful is given twice a day for 3-5 days.

Euphorbia hirta L. Euphorbiaceae VN: Chukkamokka E: Asthmaweed, Leaf, Ratti,1776

Dysentery: Leaf extract mixed with sugar is taken in 2-3 spoonful thrice a day.

Ficus hispida L. f. Moraceae VN: Bemameddi E: Hairy fig, Latex, Taralakota, 1367

Diarrhoea: The latex collected from the stem is taken in doses of 2 spoonful twice a day for 3 days.

F. religiosa L. Moraceae VN: Rayi E: Peepal tree, Stem bark, Jagathi,1025

Diarrhoea: Two spoonful of the stem bark extract is given thrice a day for 3 days to adults and once a day for 3 days to infants.

Haldina cordifolia (Roxb.) Ridsdale Rubiaceae VN: Kamba E: Haldu, Neelavanka, Stem bark, 1825

*Diarrhoea: The bark extract in doses of 2 spoonful twice a day for 3 days.

Hemidesmus indicus (L.) R. Br. Apocynaceae VN: Sugandhipala E: Indian sarsaparilla, Root, Kotcherla, 2239

Diarrhoea: Root powder mixed with mother's milk is given to babies.

Holarrhena pubescens (Roxb. ex Fleming) Wall. Apocynaceae VN: Palabariki E: Kurchi, Seed, Gollagandi, 2120

Dysentery: Dried seed powder in doses of 1 spoonful twice a day for 4 days.

Jatropha curcas L. Euphorbiaceae VN: Pedanepalam E: Physic nut, Latex, Kolli,1894

*Dysentery: A few drops of latex is taken orally along with ripe banana twice a day for 3 days.

Kalanchoe pinnata (Lam.) Pers. Crassulaceae VN: Gurrelamasalakura E: Cathedral bells, Leaf, Kotapalem,1610

Diarrhoea: Leaf paste along with 3 black pepper in doses of 2 spoonful is given twice a day.

Lagerstroemia parviflora Roxb. Lythraceae VN: Chennangi E: English crepe flower, Leaf, Rushikonda,1438

Dysentery: Tender leaves are ground into paste with pepper. This paste in doses of 2 spoonful is administered for 5 days.

Lygodium flexuosum (L.) Sw. Lygodiaceae VN: Khorothi E: Maiden hair creeper, Root, Ekuvooru,1181

Diarrhoea: Root paste of 15 gm with one glassful of water is taken twice a day for 3 days.

Maranta arundinacea L. Marantaceae VN: Palagunda E: Arrowroot, Rhizome, Kolli,2420

Diarrhoea and Dysentery: Rhizome powder in doses of 50 gm in about 500 ml of water mixed with milk is boiled with 100 gm of sugar candy. The paste is administered thrice a day in about 1 glassful at each time for 2 days.

Melia azedarach L. Meliaceae VN: Turkavepa E: Chinaberry, Stem bark, Allivalasa, 2154

*Diarrhoea and *Dysentery: 1Kg of stem bark is crushed and boiled in 5-6 litres of water until a dark colored sticky mass is obtained. A spoonful of this drug is taken

with curd or honey twice a day for 5 days to cure. This drug can also be preserved in an air tight container.

Mimosa pudica L. Mimosaceae VN: Lajjukudi E: Touch-me-not, Root, Bheempura, 1577

*Diarrhoea: Root extract in doses of 1 spoonful is given twice a day for 3 days.

Murraya koenigii (L.) Spr. Rutaceae VN: Karepaku E: Curry leaf, Leaf, Metturu, 1598

Dysentery: Leaf decoction in doses of 2 spoonful twice a day for 3 days.

M. paniculata (L.) Jack. Rutaceae VN: Peethurimalli E: China-box, Leaf, Sudikonda, 1396

Diarrhoea and Dysentery: The leaves are crushed and the juice is administered in doses of 2 spoonful twice a day for 3 days.

Musa paradisiaca L. Musaceae VN: Arati E: Banana, Chinnavani, Leaf, 1423

Diarrhoea: Sap from leaf and sheaths is administered orally once a day for 3 days.

Nelumbo nucifera Gaertn. Nelumbonaceae VN: Tamara E: Indian lotus, Rhizome, Hunnali, 1556

Diarrhoea: Rhizome extract is administered in doses of 2 spoonful twice a day for 3 days.

Oxalis corniculata L. Oxalidaceae VN: Pulisinta E: Creeping wood sorrel, Whole plant, Baruva, 2441

Diarrhoea: Whole plant decoction is taken in doses of ½ cup twice a day for 3 days.

Phoenix sylvestris (L.) Roxb. Arecaceae VN: Eeta E: Silver date palm, Leaf, Kowada, 1429

Diarrhoea and Dysentery: Tender leaves are ground into a paste and the paste in doses of 2 spoonful is given twice a day for 3 days.

Piper nigrum L. Piperaceae VN: Bonpippal E: Pepper, Root, Mentada, 1631

Dysentery: Root extract is administered orally in doses of 3 spoonful twice a day for 3 days.

Pithecellobium dulce (Roxb.) Benth. Mimosaceae VN: Seemachinta E: Madras thorn, Stem bark, Donupeta, 1758

Dysentery: Stem bark is ground with that of *Anogeissus acuminata* and the paste is made into pills of Bengal gram seed size and the pills are administered in doses of 3 pills twice a day for 3 days.

Punica granatum L. Punicaceae VN: Danimma E: Pomegranate, Fruit, Dharmavaram, 1202

Diarrhoea and *Dysentery: About 50 gm of the fruit rind is crushed and boiled in 500 ml of water till it is reduced to 200 ml. This decoction in doses of 2 spoonful with honey is given 3 times a day for 3 days.

Scoparia dulcis L. Scrophulariaceae VN: Ghodtulasi E: Licorice weed, Root, Kuppili, 1513

*Dysentery: Root extract is mildly heated and taken in 3 teaspoonful twice a day for about 3 days.

Shorea robusta Gaertn. f. Dipterocarpaceae VN: Guggilamu E: Sal tree, Latex, Thonangi, 1178

Dysentery: One spoonful of latex powder mixed with 1 cup of curd is taken twice for 1 day to treat severe amoebic dysentery.

Sida cordata (Burm. f.) Borssum Malvaceae

VN: Bankodi E: Long-stalk sida, Whole plant, Koyyam,1960

*Diarrhoea and *Dysentery: 5ml of the paste of the whole plant is taken with 1 glassful of butter milk 3 times a day for 2 days.

Soymida febrifuga (Roxb.) A. Juss. Meliaceae
VN: Somi E: Indian red wood, Stem bark, Budamboo,2929

Diarrhoea: Stem bark extract is administered in 1 spoonful twice a day for 5 days.

Spermocoe articularis L.f. Rubiaceae VN: Nelasadakura E: Bristly button weed, Leaf, Ratti,2321

Diarrhoea: Two spoonful of leaf juice is taken twice a day for 3 days.

Strychnos nux-vomica L. Loganiaceae VN: Mushinika E: Strychnine tree, Stem bark, Jagathi,1939

Diarrhoea: The stem bark is macerated with lemon juice and the paste in doses of 1 spoonful is given once a day for 3 days to treat acute diarrhoea.

S. potatorum L.f. Loganiaceae VN: Chillapikka E: Clearing nut tree, Seed, Kotcherla,1619

Diarrhoea: Seed paste is given with curd early in the morning for 3 days to treat diarrhoea in children.

Syzygium cuminii (L.) Skeels Myrtaceae
VN: Jinna E: Indian cherry, Stem bark, Bheempura,1994

Dysentery: The bark extract is given in 2 spoonful once a day for 3 days.

Trichosanthes tricuspidata Lour. Cucurbitaceae
VN: Aguda E: Indrayan, Root, Lakkivalasa,2411

Diarrhoea: Root tuber decoction is taken in doses of 2 spoonful daily for 5 days.

Woodfordia fruticosa (L.) Kurz Lythraceae
VN: Puliaayila E: Fire flame bush, Flower, Mulapeta,1142

*Diarrhoea: One teaspoonful of powder of dried flowers mixed in 5 teaspoonful of warm water is given thrice a day for 3 days.

Wrightia tinctoria (Roxb.) R. Br. Apocynaceae
VN: Ankudu E: Pala indigo, Stem bark, Amalapadu,1622

Dysentery: Stem bark along with fruits of *Helicteres isora* is taken in equal proportions and an extract is made. 20-30 ml of this extract is given twice a day for 1 day.

Ziziphus mauritiana Lam. Rhamnaceae
VN: Regichettu E: Indian jujube, Leaf, Bendukonda, 2187

Diarrhoea: One teaspoonful of leaf paste along with little jaggery is taken thrice a day for 3 days.

Zornia gibbosa Span Fabaceae VN: Dummakoloth E: Grass like zornia, Whole plant, Raiwada, 1936

Dysentery: Whole plant is ground into a paste and administered in doses of 2 spoonful twice a day for 5 days.

Results and discussion

The present study yielded 65 species of plants including 2 pteridophytes covering 58 genera and 43 families used by the tribes of Srikakulam district, Andhra Pradesh for curing diarrhoea and dysentery. Family-wise analysis showed the dominance of Rutaceae and Rubiaceae with 4 species each followed by Fabaceae, Caesalpiniaceae, Mimosaceae, Apocynaceae, Ebenaceae each with 3 species; Meliaceae,

Combretaceae, Loganiaceae, Amaranthaceae, Euphorbiaceae, Moraceae each with 2 species and others each with one species. The results of growth form analysis of medicinal plants showed that trees made up the highest proportion being represented by 31 species (47.69%) followed by herbs (19 spp. 29.23%), shrubs (11 spp. 16.92%) and climbers (4 spp. 6.15%). Morphological analysis showed the maximum utilization of leaf in 16 practices followed by stem bark in 15 practices; root in 10 practices; whole plant, fruit and seed in 5 practices each; root bark and latex in 3 practices each; tuber and rhizome in 2 practices each and flower in one practice. They are administered either in the form of powder, paste, filtrate, decoction, extract or pills along with either water, warm water, lemon juice, butter milk, mother's milk, cow milk, curds, butter, honey, jaggery or ripe banana. Diarrhoea is cured exclusively by 32 species followed by dysentery (24) and both (9). Of the 65 practices 54 involve single plant only followed by 9 involving two plants and one involving three and four plants each. *Diospyros chloroxylon* and 15 practices were found to be new or less known (Jain, 1991; Kirtikar & Basu, 2003). Plants used for diarrhoea in different parts of India and its neighbor, Nepal are *Amaranthus viridis*, *Cyperus rotundus*, *Ficus religiosa*, *Musa paradisiaca*, *Woodfordia fruticosa*, *Ziziphus mauritiana* in central Nepal (Bhattarai, 1993); *Aegle marmelos*, *Strychnos potatorum*, *Ziziphus mauritiana* by the people of 11 districts of Karnataka (Shiddmallayya *et al.*, 2010); *Celosia argentea*, *Hemidesmus indicus* by the *Gond*, *Kol*, *Baiga*, *Panica*, *Khairwar*, *Manjhi*, *Mawasi*, *Agaria* tribes of Rewa district of Madhya Pradesh (Shukla *et al.*, 2010); *Cyperus rotundus*, *Mimosa pudica* by the *Sahanra*, *Binjhal*, *Kondh*, *Gond*, *Munda*,

Kuli, *Kalanga*, *Oran*, *Mirdha*, *Dharua*, *Kisan*, *Kharia* and *Parja* tribes of Bargarh district of Orissa (Sen and Behera, 2008); *Aegle marmelos*, *Mimosa pudica*, *Oxalis corniculata*, *Punica granatum* by the tribal communities like the *Lepchas*, *Limboos*, *Bhutias* and the *Nepalese* of Darjiling district of West Bengal (Moktan & Das, 2013); for dysentery are *Holarrhena pubescens*, *Syzygium cuminii* in Nepal (Bhattarai, 1993); *Aegle marmelos*, *Punica granatum* by the *Garos*, *Khasis*, *Jaintias*, *Nagas*, *Kukis*, *Manipuris*, *Mizos*, *Maras*, *Pawis*, *Chakmas*, *Daflas* tribes of Mizoram (Bharadwaj & Gakhar, 2003); *Anogeissus acuminata* by the *Bhillas*, *Thakars*, *Warlis* and *Konkans* tribes of Northwest Maharashtra (Kamble *et al.*, 2008); *Holarrhena pubescens* by the *Gonds*, *Kols*, *Baigas*, *Panics*, *Khairwars*, *Manjhis*, *Mawasis*, *Agarias* tribes of Rewa district of Madhya Pradesh (Shukla *et al.*, 2010), by the local healers, *Bongthings*, in Sikkim Himalayas (Chanda *et al.*, 2007), West Bengal (Moktan & Das, 2013); *Syzygium cuminii* in Orissa (Sen & Behera, 2008); *Wrightia tinctoria* in Karnataka (Shiddmallayya *et al.*, 2010) and for both diarrhoea and dysentery are *Aegle marmelos*, *Melia azedarach*, *Punica granatum* in central Nepal (Bhattarai, 1993); *Punica granatum* in Karnataka (Shiddmallayya *et al.*, 2010). Efforts should be made for the evaluation of therapeutic efficacy of reported drugs. Search for new biological potent entities from the indigenous system of medicine and folklore has a substantial potential to offer.

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