



Research Article

TRADITIONAL PHYTOTHERAPY FOR HEALTH CARE OF TRIBAL'S IN EASTERN GHATES OF ANDHRA PRADESH, INDIA.

S.B. Padal¹, S. Devisoundarya¹, Koda. Satyavathi¹

¹Department of Botany, Andhra University, Visakhapatnam-530003, Andhra Pradesh, India

Correspondence should be addressed to **S.B. Padal**

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ABSTRACT

Ethno botanical studies were carried out to collect information on the use of Medicinal Plants by the tribal people of Eastern Ghates of Andhra Pradesh, India. Ethnomedicinal uses of 71 plant species along with local name, botanical name, family, part used, ailments for which the drug is administrated, mode of administration are presented. They belong to 54 genera and 33 families. These plants use to cure different type of ailments. Most remedies were taken orally, accounting for 62% of medicinal use. The most widely sought after plant parts in the preparation of remedies in the areas are the root and leaves. Tribal people have high number of medicinal plant species for the treatment of different type of diseases.

KEY WORDS: Ethnomedicinal investigation, tribal people, eastern ghates, andhra Pradesh.

INTRODUCTION

Ethnobotany deals with the direct relationship of plants with man. Early origins of traditional medicine must have had their roots in ethnobotanical folklore, but today, traditional medicine incorporates several well-organized, distinct systems of diagnosis and cure. In India alone, three traditional systems of medicine, namely Ayurveda, Siddha and Unani are distinguished. The use of plants in 'Ayurveda' (2500-900 B.C.) the foundation of medicinal science in human culture has been observed as dealing with plants possessing special properties of drugs in various aspects of healing (Bhandari 1984-86). Further, ethnobotany includes study of foods, fibers, dyes, and tannin, other useful and harmful plants, taboos, avoidances and even magico-religious beliefs about plants (Jain 1967 a; Ford, 1978). The plant-based traditional medical systems continue to provide the primary health care to more than three-quarters of the world's populace. The World Health

Organization has estimated that over 80% of the global populations rely chiefly on traditional medicine (Akerle 1992). In India, the use of plants for medicinal treatment dates back to 5000 years. It was officially recognized that 2500 plant species have medicinal value while over 6000 plants are estimated to be explored in traditional, folk and herbal medicine (Huxley 1984) and the roots of Aloe vera (Kalabanda) as a food during famine. Hemadri (1976) wrote a paper on the procurement of raw drugs in Andhra Pradesh. Rao & Hamadri (1979) published the book on Andhra Pradeshlo Mandumokkalu (The Medicinal Plants of Andhra Pradesh). Later, Hemadri wrote two books in Telugu, namely, Andhra Pradesh lo Vanamulikalu (1987) and Shastravettalanu Akarshinstunna Girijana Vaidyam (1994). The latter is about the ethnobotany of various tribes more or less covering the three geographical regions of Andhra Pradesh. The medicinal plant wealth of Andhra Pradesh by Hemadri et al. (1986, 1987) contains a mere list of medicinal plants. Ramarao et al. (1999) published a brief note on phyto-zootherapy of the tribes of Andhra

Pradesh. V. S Raju (2001) made a note on Ethnoveterinary medicine in Andhra Pradesh; Ratnam & Raju (2005) reported Folk medicine used for common women ailments by Adivasis in the Eastern Ghats of Andhra Pradesh. S.N. Jadhav & K.N. Reddy (2006) presented detail account on threatened medicinal plants of Andhra Pradesh. Bhakshu & Raju (2007) made abstract account on Ethno-medico-botanical studies of certain medicinal plants and certain Euphorbiaceae medicinal plants of Eastern Ghats, Andhra Pradesh. Geetha & Raju (2007) made a note on Ethno-medico-botanical properties of Terminalia species in the forests of Eastern Ghats of Andhra Pradesh. There are ethnobotanical works either based on an ethnic tribe or on phytotherapy of a disease. Anonymous (1966) provided the information on Koyas of Andhra Pradesh. Ramarao et al. (1984) presented the note on ethnobotanical studies in Andhra Pradesh while Ramarao (1988) did his Ph.D. work on the Ethnobotany of Eastern Ghats in Andhra Pradesh. Ramarao & Henry (1996) carried out the publication on Ethnobotany of Eastern Ghats in Andhra Pradesh.

STUDY AREA

Eastern Ghats are a long chain of broken hills and elevated plateaus, running about 1750 km with an average width of about 100 km between Mahanadi and Vaigai rivers along the Indian East coast through Orissa, Andhra Pradesh and Tamilnadu. Eastern Ghats in the state are discontinuous range of hills situated between 12° 38' -22°00'N latitudes and 78° 50'-84° 46' E longitudes. Its northern boundary is marked by river Mahanadi basin while the southern boundary is the Cauvery and Tamil Nadu uplands and passes through Visakhapatnam, Vijayanagaram, Srikakulam, East Godavari, West Godavari, Khammam, Krishna, Guntur, Mahaboobnagar, Prakasam, Kurnool, Kadapa, Nellore and Chittoor districts. The altitudes range from 300-1500 m above MSL. The highest peak in these Ghats is Sambari Konda with the elevation of 2527m near Gudem village in Visakhapatnam district. The vegetation varies from semi-evergreen forests to scrub jungles. The predominant tribal communities inhabiting the study area are *Bagata, Konda Dora, Valmiki, Konda Kammara, Mali, Kotia, Khond, Jatapu, Muka Dora, Gadaba, Porja, Khond* and *Savaras etc.*



MATERIAL AND METHODS

The information on plants used for treating various disorders of folklore origin were obtained during the course of ethnobotanical surveys of Eastern Ghats of Andhra Pradesh conducted in 2013-2014. Ethno-medico botanical data were collected through conversation with traditional healers, tribal doctors and old women in the field trips. During the interview local names, useful plant parts, method of preparation, and dosage were recorded. The plant species were identified with the help of regional and local floras (Hooker, 1897; Gamble, 1967; Narayana Rao *et al.*, 1981, Rangacharyulu, 1991; Thammanna *et al.*, 1994 and Matthew, 1983). The method of collection of voucher specimens, their preservation herbaria and technique for the collection of ethnomedicobotanical information follows Jain and Rao (1977).

RESULT AND DISCUSSION

Ethno floristic exploration was made during the period 2012-2014 covering all the regions of Eastern ghates, Andhra Pradesh. The total number of species is segregated according to the family. Thus the family-wise analysis of the ethnic species revealed that, 71 species belonging to 33 families and the dominant 5 families with ethnobotanical importance are furnished. Among them, Fabaceae and Euphorbiaceae is in hierarchy with 7 species constituting 6.18% followed by Mimosaceae with 5 (5.37%), Malvaceae, Combretaceae, Lamiaceae and Moraceae with 4 (5.10%), Rutaceae, Liliaceae, Meliaceae and Verbenaceae with 3 (4.03%), Araceae, Caesalpiniaceae and Plunbaginaceae with 2 (3.49%). Out of the 71 species, angiosperms are 69 (97.2%), followed by 2 species of pteridophytes (2.8%). Among angiosperms, 61 are

dicotyledons (85.9%) and 8 are monocotyledons (11.3%). The drug yielding plants are statistically analysed based on their morphological habit and revealed that herbs dominated with 23 species (33%) followed by trees 25 (35%), shrubs 18 (25%) and climbers 3 (4%). Whereas the Lianes / Stragglers are with 2 species (3%). Different parts or products of medicinal plants are employed for ethnomedicinal purposes like root, root bark, tuber, stem, stem bark, tender branch, rhizome, leaf, flower, fruit, seed, whole plant and latex, gum in different formulations like decoctions, infusion, extract, paste, powder, etc. are in practice. It is probably that the whole herb/plant is thought worth more by the tribal medicine men than the sum total of its parts. Based on the study the different plant parts that are used in crude drug preparation to cure 33 diseases with 71 practices are analyzed.

plant preparation for curing different ailments followed by using combination of two plants. The tribal people are treasures of traditional knowledge of plants from utilitarian point of view. They have successful art of curing diseases in several localities of the Eastern ghates. Frequent field survey and regular personal interviews in different pockets revealed 33 diseases could be treated with 71 medicinal plants in the study area. More prevalent diseases are Blood dysentery, Rheumatism, Galactagogue, Jaundice, Cough, Menorrhoea, Fever, Stomachache, Scabies, Wounds, Itching, Chickenpox, Boils, Backache, Earache, Diabetes, Snake bite, Weakness, Asthma, Purgative, Headache, Leg pain, Tooth decay, Heel crakes, Paralysis, Dandruff, Heart pain, Bone fracture, Sprain, Leucorrhoea, Scorpion sting and Leg pain. In the present study 71 plant species either singly or in combination are used for curing 33 ailments.

In case of combination of different ailments, the study has highlighted that about 71 practices are used by using single

Table 1: Ethno medicinal plants used by the tribal people of Eastern ghates.

Botanical name	Family	Vernacular name	Habit	Mode of administration & Dosage.
<i>Abutilon indicum</i> (Linn.) Sweet	Malvaceae	Tuttura benda	Shrub	Galactagogue: Root paste is applied over the mammae to enhance lactation in nourishing mothers.
<i>Acacia leucophloea</i> (Roxb.) Willd.	Mimosaceae	Tella tumma	Tree	Wounds: Stem bark paste mixed with a pinch of turmeric is applied on the affected areas twice a day for 2 days.
<i>Acacia rugata</i> (Lam.) Ham.	Mimosaceae	Sikaya	Straggler	Jaundice: Half glass of pod decoction is administered daily once on empty stomach.
<i>Acalypha indica</i> Linn.	Euphorbiaceae	Kuppinta	Herb	Toothache: Two to three drops of leaf juice is poured into the affected teeth side of the ear.
<i>Achyranthes aspera</i> Linn.	Amaranthaceae	Duchheru	Herb	Jaundice: Root ground with that of <i>Prosopis spicigera</i> is made into soap nut seed sized pills and administered along with buttermilk.
<i>Acorus calamus</i> Linn.	Araceae	Vasa	Herb	Fever: Rhizome paste is applied all over the body and a pinch of rhizome or leaf paste is administered with a glass of water only once to keep away evil spirits causing fever.
<i>Actinopteris radiata</i> (Swartz) Link.	Actinopteridaceae	Mayurasikha	Herb	Snake bite: One spoon of root paste mixed with that of cow ghee is administered with rice washed water
<i>Adiantum philippense</i> Linn.	Adiantaceae	Challi	Herb	Cough: Root paste along with leaf paste of <i>Centella asiatica</i> mixed with water is administered twice a day

				for 3 days.
<i>Aegle marmelos</i> (Linn.) Correa	Rutaceae	Maredu	Tree	Blood dysentery: One spoon of unripen fruit powder mixed with jaggery is administered twice a day.
<i>Ageratum conyzoides</i> Linn.	Asteraceae	Pumpullu	Herb	Itching: Equal quantities of leaves and turmeric are ground into paste and mixed with triple the amount of coconut oil, boiled and applied on the affected areas.
<i>Ailanthus excelsa</i> Roxb.	Simaroubaceae	Peddamaan	Tree	Nervous weakness: Ten to fifteen drops of seed oil mixed in one glass of milk is administered daily once
<i>Albizia lebbek</i> (Linn.) Willd.	Mimosaceae	Dirisena	Tree	Asthma: One spoon of stem bark juice is administered once a day.
<i>Aloe vera</i> (Linn.) Burm. f.	Liliaceae	Kalabandh	Herb	Jaundice: Fleshy leaves are burnt and made into powder. It is mixed in water along with equal amounts of sugar crystals and given orally.
<i>Anisomeles indica</i> (Linn.) Kuntze	Lamiaceae	Ada beera	Shrub	Rheumatism: Leaves are crushed with castor oil and warmed and bandaged on the joints.
<i>Bauhinia racemosa</i> Lam.	Caesalpiniaceae	Chinaware	Tree	Stomachache: Ten to twenty ml of stem bark juice is taken only once.
<i>Bauhinia vahlii</i> Wight & Arn.	Caesalpiniaceae	Addachettu	Liane	Blood dysentery: One small cup of stem bark decoction is administered daily thrice for 4-5 days.
<i>Calycopteris floribunda</i> Lam.	Combretaceae	Adavijama	Shrub	Purgative: Two to three spoons of root or leaf decoction is administered for 2-3 days.
<i>Cannabis sativa</i> Linn.	Cannabinaceae	Ganjai	Herb	Headache: Leaves are slightly heated, crushed and 2-3 drops are instilled into the two ears
<i>Cereus pterogonus</i> Lam.	Cactaceae	Nagajemud	Shrub	Leg pains: Succulent stem with that of <i>Opuntia dillenii</i> , free of thorns is crushed and bandaged on the affected areas.
<i>Chlorophytum arundinaceum</i> Baker	Liliaceae	Bhundeda	Herb	Galactagogue: Two spoons of tuberous root paste mixed in a glass of goat milk is administered daily twice for 3 days.
<i>Cipadessa baccifera</i> (Roth) Miq.	Meliaceae	Palladonda	Shrub	Chickenpox: Leaves are ground with turmeric. Paste is applied on the affected areas.
<i>Desmodium gangeticum</i> (Linn.) DC.	Fabaceae	Bhumi ippa	Shrub	Rheumatism: One spoon of root decoction is administered daily once.

<i>Desmodium pulchellum</i> (Linn.) Benth.	Fabaceae	Konda anteetha	Shrub	Wounds: The leaves and tubers ground with the bark of <i>Moringa oleifera</i> and green banana and the paste is applied on the affected areas.
<i>Dichrostachys cinerea</i> (Linn.) Wt. & Arn.	Mimosaceae	Veluturu chettu	Shrub	Rheumatism: Quarter cup of root or stem bark juice is administered daily once.
<i>Diplocyclos palmatus</i> (Linn.) Jeffrey	Cucurbitaceae	Linga donda	Climber	Tooth decay: Roots are crushed and kept in the cavity of the affected tooth.
<i>Dysophylla quadrifolia</i> Benth.	Lamiaceae	Rati thulasi	Herb	Chickenpox: Dried leaves are burnt and the patient is exposed to the fumes and leaf paste is also applied to the body.
<i>Entada rheedii</i> Spr.	Mimosaceae	Adavi chinta	Liane	Scabies & Boils: Seed paste is applied on the affected areas.
<i>Eryngiumfoetidum</i> Linn.	Apiaceae	Kerala kotthimere	Herb	Stomachache: Ten g of root paste mixed with 5 g of seed paste of <i>Elettaria cardamom</i> is administered twice a day.
<i>Erythrina variegata</i> Linn.	Fabaceae	Badita	Tree	Backache: One spoon of shade dried stem bark powder is taken with one cup of rice washed water only once in night for 15 days.
<i>Euphorbia hirta</i> Linn.	Euphorbiaceae	Pachabottu	Herb	Cough: Half spoon of plant juice is administered daily in the morning with pepper.
<i>Euphorbia heterophyllus</i> Linn.	Euphorbiaceae	Pala chettu	Herb	Galactagogue: Young leaves and fruits are boiled and ground into paste with garlic is given orally daily once for a week.
<i>Euphorbia ligularia</i> Roxb.	Euphorbiaceae	Chettu jamudu	Tree	Heel cracks: Latex and gingelly oil each taken in two spoons mixed with salt is applied on the affected areas.
<i>Euphorbia nivulia</i> Buch.-Ham.	Euphorbiaceae	Akujamudu	Tree	Earache: Leaves are warmed and 2-3 drops of juice is squeezed into the ears.
<i>Euphorbiatirucalli</i> Linn.	Euphorbiaceae	Kada jamudu	Shrub	Galactagogue: Latex mixed with that of papaya is taken with rice washed water daily.
<i>Ficus benghalensis</i> Linn.	Moraceae	Marri	Tree	Diabetes: Quarter glass of stem bark juice is taken daily in the morning.
<i>Ficus hispida</i> Linn. f.	Moraceae	Boddamarri	Tree	Menorrhagia: Fruit juice mixed with equal quantities of honey is administered daily (Milk rice is to be taken as food).

<i>Ficus microcarpa</i> Linn.f.	Moraceae	Juvvi	Tree	Blood dysentery: Stem bark is crushed into paste, cooked with cow milk and mixed with honey. One spoon of it is administered daily.
<i>Ficus racemosa</i> Linn.	Moraceae	Medi chettu	Tree	Backache: Half cup of fruit juice mixed with half spoon of myrobalan seed powder is administered daily twice.
<i>Globba marantina</i> Linn.	Zingiberaceae	Konda pasupu	Herb	Fever: Tuber paste is applied on the scalp to reduce high temperatures.
<i>Gloriosa superba</i> Linn.	Liliaceae	Vankavajjuram	Herb	Jaundice: One spoon of leaves ground into paste is mixed with butter milk and administered orally.
<i>Glycyrrhiza glabra</i> (Retz.) DC.	Fabaceae	Athimadhuram	Shrub	Cough: One spoon of root powder mixed with half spoon of honey is made into pills. One pill is kept in the mouth and the juice is gulped.
<i>Gmelina arborea</i> Roxb.	Verbenaceae	Gummadu chettu	Tree	Galactagogue: Root decoction with honey is given once a day for nourishing mothers.
<i>Gmelina asiatica</i> Linn.	Verbenaceae	Nela gummadi	Shrub	Dandruff: Fruit paste is applied to scalp for half an hour before bathing once a day for one week.
<i>Morinda pubescens</i> Sm.	Rubiaceae	Togaru	Tree	Stomachache: Two spoons of stem bark paste mixed with a spoonful of turmeric is administered twice a day for 2 days.
<i>Mucuna pruriens</i> (Linn.) DC.	Fabaceae	Dula dama	Climber	Blood dysentery: Ficus fruit sized root paste is administered with water daily once till cure.
<i>Murraya koenigii</i> (Linn.) Spreng.	Rutaceae	Karivepaku	Shrub	Dysentery: One to two spoons of leaf paste mixed with half glass of butter milk is administered for 3-5 times a day.
<i>Nyctanthes arbor-tristis</i> Linn.	Nyctaginaceae	Parijatam	Tree	Anthelmintic: One spoon of fresh leaf juice mixed with honey is administered for one week.
<i>Nymphaea pubescens</i> Willd.	Nymphaeaceae	Erra Kaluva puvvu	Herb	Menorrhagia: Half cup of fruit juice is mixed with little amount of sugar and administered daily thrice.
<i>Ocimum gratissimum</i> Linn.	Lamiaceae	Rama tulasi	Herb	Earache: One to two drops of leaf juice is instilled into the affected ears.
<i>Ocimum tenuiflorum</i> Linn.	Lamiaceae	Krishna tulasi	Herb	Cough: Leaf juice mixed with ginger juice and honey of equal amounts is administered daily on empty stomach. Leaf juice mixed with honey is given orally.
<i>Oroxylum indicum</i> (Linn.)Vent.	Bignoniaceae	Pampanga	Tree	Jaundice: Ten g of stem bark is ground with two g of turmeric. One spoon of paste is administered daily twice for five days.

<i>Phyllanthus emblica</i> Linn.	Euphorbiaceae	Vusiri	Tree	Menorrhagia: One to two spoons of fruit powder is taken with water or equal quantities of honey.
<i>Plumbago auriculata</i> Lam.	Plumbaginaceae	Nalla chitramoolam	Shrub	Rheumatism: One spoon of root paste is administered with milk or water daily once for 15 days.
<i>Plumbago indica</i> Linn.	Plumbaginaceae	Yerra chitramulam	Herb	Paralysis: Small piece (1 inch) of root ground into paste is administered with half glass of water daily once for 15 days.
<i>Plumeria rubra</i> Linn.	Apocynaceae	Lakshmi poolu	Tree	Heart pain: Latex of the stem is poked on the chest daily.
<i>Pongamia pinnata</i> (Linn.) Pierre	Fabaceae	Kangu	Tree	Diabetes: Three to five g of flower powder mixed with one glass of milk is administered daily once on empty stomach.
<i>Scindapsus officinalis</i> Schott	Araceae	Atukusaru	Climber	Bone fracture: Root is ground into paste and bandaged with stem bark of <i>Ceiba pentandra</i> to rejoin the bones.
<i>Semecarpus anacardium</i> Linn.f.	Anacardiaceae	Nalla jeedi	Tree	Scabies: Two g of stem bark powder is administered on empty stomach in the morning and evening for five days.
<i>Sesbania grandiflora</i> (Linn.) Poir.	Fabaceae	Tella sumintha	Tree	Itching: Fresh stem bark paste is applied on the affected areas.
<i>Sida acuta</i> Burm. f.	Malvaceae	Nela cheepuru	Shrub	Sprain: Leaves are crushed with those of <i>Sida cordifolia</i> and rubbed on the affected areas and paste is also applied on it.
<i>Sida cordifolia</i> Linn.	Malvaceae	Chiru benda	Herb	Menorrhagia: Five g of root powder mixed with one spoon of honey is taken with one cup of milk daily twice.
<i>Sida rhombifolia</i> Linn.	Malvaceae	Ativala	Shrub	Leucorrhoea: One spoon of root powder mixed with sugar is taken with milk regularly.
<i>Soymida febrifuga</i> (Roxb.) A. Juss.	Meliaceae	Sami chettu	Tree	Scorpion sting: Stem bark paste is applied on the bitten area and 10-20 ml fresh stem bark juice is administered orally.
<i>Terminalia alata</i> Roth.	Combretaceae	Nallamaddi	Tree	Jaundice: Stem bark mixed with that of <i>Oroxylum indicum</i> , and whole plant of <i>Phyllanthus amarus</i> are made into decoction. Quarter cup of it is administered daily once on empty stomach.

<i>Terminalia bellirica</i> (Gaertn.) Roxb.	Combretaceae	Tani	Tree	Blood dysentery: One to two spoons of fruit powder mixed with one spoon of sugar candy powder is given orally.
<i>Terminalia chebula</i> Retz.	Combretaceae	Karakkai	Tree	Boils: Myrobalan powder mixed with green grass is made into paste and applied externally.
<i>Thalictrum foliolosum</i> DC.	Ranunculaceae	Piyaranga	Herb	Rheumatism: One spoon of root paste is administered with half glass of water daily once for 15 days.
<i>Vetiveria zizanioides</i> (Linn.) Nash	Poaceae	Vatti veru	Herb	Fever: Half cup of root decoction is administered daily thrice with half cup of milk.
<i>Vitex negundo</i> Linn.	Verbenaceae	Vayila	Shrub	Leg pains: One glass of leaf juice is mixed with one glass of gingelly oil and slightly heated and used for massage.
<i>Withania somnifera</i> (Linn.) Dunal	Solanaceae	Pennerugad da	Shrub	Rheumatism: One spoon of root paste is taken with water daily once and it is mixed with equal quantities of dried ginger and plastered on the affected areas.
<i>Zanthoxylum armatum</i> DC.	Rutaceae	Konda kasivinda	Shrub	Scabies: Leaves mixed with turmeric are ground into paste and applied on the affected areas.

CONCLUSION

In this context, it may be mentioned that a well-planned and time bound strategy has to be adopted for proper documentation of the inherited ethnic knowledge of not only particular tribe but all the tribes of the country, by involving the state government and local people. The approach has to be very sincere and scientific in real sense of the term. This job has to be taken up on priority basis in view of the fact that after a decade, there may not be single person to tell us about their ethnic knowledge. In view of the above facts, it is felt that it is prime need of the time to establish a full-fledged multidisciplinary Institute of Ethnobiology, which will monitor all such ethnobiological researches and take care that such reports should be taken up seriously and ensure that further work (isolation of active principles, clinical tests, etc.) Should be done and the ethnic communities get their legitimate dues for sharing their ethnic knowledge (which is their intellectual property) with the scientists. It is hoped that the present findings will greatly contribute towards achieving this goal. Careful ethnobotanical research can help safeguard intellectual property rights based on natural resources and their relationships to indigenous knowledge throughout the world. The knowledge gathered from tribals may be returned back to them after value-addition.

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