

DOCUMENTATION OF ETHNOMEDICINAL KNOWLEDGE OF HILLY TRACT AREAS OF EAST GODAVARI DISTRICT OF ANDHRA PRADESH, INDIA

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ABSTRACT

Objective: The present paper deals the studies on traditional medicinal plants used by ethnic groups like *Konda Dora*, *Konda Kammara*, *Konda Kapu*, *Konda Reddi*, *Koya Dora*, *Manne Dora* and *Valmiki* of East Godavari District, Andhra Pradesh, India.

Methods: The native plants used for medicinal purposes by few people were collected through structural questionnaire and personally interviewed during field trips during 2008-2013.

Results: A total of 90 medicinal plant species belonging to 45 families are using to treat 44 types of ailments were noted and collected during the surveys. Out of 90 plant species the dominant life form is herbs (32) followed by shrubs (24), trees (24), climbers (05), creepers (04) and lianas (01). The tribal's using different plant parts and different forms of the drug. Among them roots and paste form and oral form of administration is occupied higher percentage. The plant based drugs were prepared by using them for the admixture of cow milk, garlic, gingelly oil, pepper, turmeric powder and other parts of the plant.

Conclusion: The indigenous knowledge of traditional healers of these ethnic groups has been disappearing due to decreasing the number of ancestors as well as followers. Only few people are practicing with little knowledge which was transmitted orally from their elders. A few aged persons are still able to furnish traditional ethnomedicinal values and continue to depend on medicinal plants at least for the treatment of primary healthcare. Hence the present study had been focused on the documentation of ethnic knowledge of East Godavari District. The documented information is useful for scientists, drug designers, medicinal plant boards and other scientific bodies for isolation of active ingredients to effective treatment.

Keywords: Ethnic groups, Medicinal plants, Traditional knowledge, East Godavari District.

INTRODUCTION

Since ages man relied on plants as a sole source of medicine. Plants have been used in traditional medicine for several thousand years [1]. In India, drugs of herbal origin have been used in traditional systems of medicine such as Unani, Ayurveda and Siddha [2]. India is known for its valuable heritage of herbal medicinal knowledge. The art of herbal healing has very deep roots in Indian culture and folklore. Even today in most of the rural areas, people are depending on local traditional healing systems for their primary health care [3]. Ethnic people living in the remote forest areas still depend to a great extent on the indigenous systems of medicine [4]. The knowledge has been transmitted orally from generation to generation [5] and most of the traditional knowledge had faded away due to lack of proper documentation and more number of practitioners [6]. WHO has estimated that over 80% of the global populations rely chiefly on traditional medicine [7]. According to Schippmann *et al* [8] more than 50,000 species are used for medicinal purposes worldwide, of which almost 13% are flowering plants. Over 8000 plant species are used in traditional and modern medicine in India [9] and 90-95% collection of medicinal plants is from the wild, of which more than 70% collection involves destructive and unscientific extraction. Over exploitation of trade species, destructive way of collection, vulnerability due to anthropogenic pressures are some of the major threats to medicinal plants. Documentation of indigenous knowledge through ethnobotanical studies is important for the conservation and utilization of biological resources [10, 11]. Very little number of ethnomedicinal studies had been carried out in this district. Hence an attempt has been made to document the available traditional knowledge with the ethnic tribes of East Godavari District, Andhra Pradesh, India.

MATERIAL AND METHODS

In order to document the utilization of indigenous medicinal plants and use of traditional medicine a survey was carried out by several

field trips during the years of 2008-2013. The information on medicinal uses of indigenous plants has been described after gathering information from experienced herbal medicinal practitioners of ethnic groups who are having knowledge of traditional healing. The informants belong to *Konda Dora*, *Konda Kammara*, *Konda Kapu*, *Konda Reddi*, *Koya Dora*, *Manne Dora* and *Valmiki* tribal people are interviewed and brief discussion was made in local language. The documentation of ethnomedicinal knowledge to explain them; your cooperation is valuable contribution to documentation of the traditional plants and to get their consent. In addition not only locating the medicinal plants in the field but also employed to collect the data on the knowledge and management of medicinal plants with the help of local healers. A structural questionnaire was used to elicit information from them and methodology used based on the methods available in literature [12]. During the study local name of the plants, parts used, mode of preparation and administration with modification of medicine was recorded.

Identification of plants

The plant species were collected from the forest with the help of practitioners and identified using the Gamble volumes [13] and local floras as well as through comparison with identified specimens deposited in the herbarium of Sri Venkateswara University. The gathered information was documented on data sheets and herbarium sheets with voucher number are preserved in department of Botany, S.V.U. College of sciences, Tirupati.

Study area

East Godavari District is a residuary portion of the old Godavari District after West Godavari District was separated in 1925. As the name of the district conveys, East Godavari District is closely associated with the river Godavari. Area of the District is 10,807 Sq.

Kms occupying a major portion of the delta area. The District lies North- East Coast of Andhra Pradesh and bounded on the North by Visakhapatnam District and the State of Orissa, on the East and the South by the Bay of Bengal and on the West by Khammam and West Godavari Districts (Fig. 1). Agency or hilly tracts consists of 07 mandals were selected for the present study as most of the ethnic groups are inhabited to this area. The district in the geographical condition of 16°30' and 18°20' of Northern latitude and 81°30' and 82°36' of Eastern latitude situated on the Northern part of Andhra Pradesh. The District can be broadly classified into three natural

divisions namely the Delta, Upland and Agency or hill tracts. The general elevation of the district varies from a few meters near the sea to about 300 meters in the hills of the agency. The Eastern Ghats rise by gradations from the level of the coast and spread throughout the erstwhile agency Taluks of Rampachodavaram and Yellavaram. The forest area of the district is 3, 34,193.79 ha and nearly 30% of the total area is under forests. It is inhabited by 1, 91,561 tribal people comprising 3.91% of the total population. The major tribal communities are *Konda Dora*, *Konda Kammarra*, *Konda Kapu*, *Konda Reddi*, *Koya Dora*, *Manne Dora* and *Valmiki*.

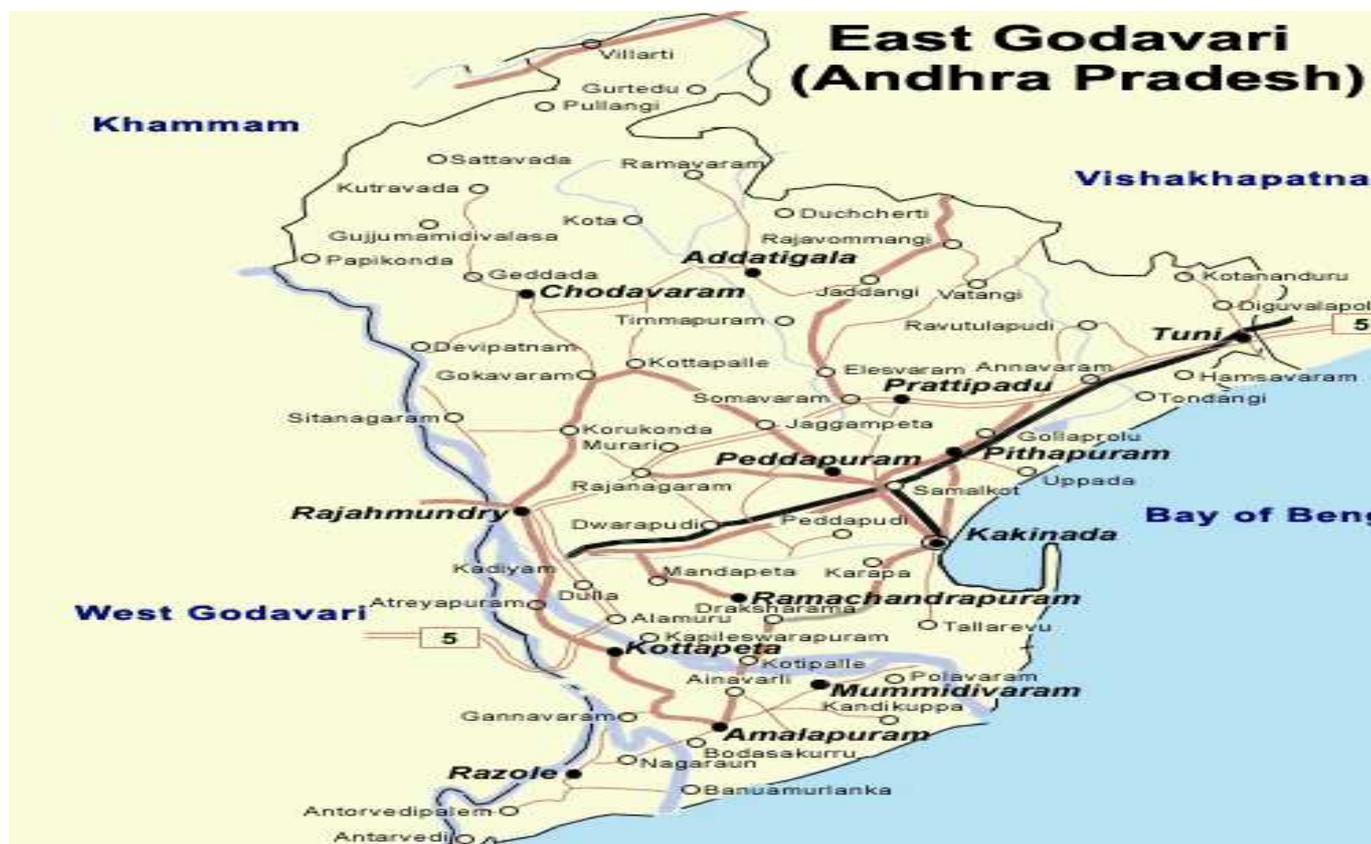


Fig.1: Study area

RESULTS AND DISCUSSION

The study revealed 90 medicinal plant species belonging to 45 families used by leaders of ethnic groups. The plants were used to treat 46 human ailments (Table 1, Fig. 2). Of the species, the majority of (74%) species obtained from the wild and remaining are cultivated (26%). According to the habit of plants- herbs are the most utilized plants (32) followed by shrubs (24), trees (24), climbers (05), lianas (01) and creepers (04) (Fig.3). Different parts of the medicinal plants are using by the traditional practitioners, among them leaves (34%) are used for the preparation of medicines predominantly followed by roots (25%), fruits (12%), root tuber (07%), stem bark (07%), leaf latex (03%), rhizome (03%) whole plant (03%), flower (02%), root bark (02%) seed (01%) and stem (01%) (Fig.4). The most prevalent methods of drug preparation are paste (31%) followed by powder (27%), decoction (17%), juice

(12%), natural form (07%), crushed form (02%), fumes (02%) capsules (01%) and tonic (01%) (Fig. 5). Preference ranking exercise on plants used against Wounds followed by Dysentery and Skin disease. 54% remedies are applied through oral route, 41% are applied topically and 5% are inhaled through nose (Fig. 6).

During the survey it was found that the practitioners of East Godavari District collect medicinal plants from variety of habitats mainly wild plants collected from nearby forests areas. For the preparation of drugs, the practitioners mainly using two methods. In the first method, drug preparation was done by shade drying and then pounding of the plant parts to form powder. The infusion or decoction of this powder is prepared after boiling with water. In the second method, pellets were prepared after mixing with honey or with other lubricant like oil of plants. Plants are used either single or in combination.

Table 1: Documentation of ethnobotanical knowledge from Ethnic groups of East Godavari District

| S. No | Scientific and Vernacular name | Family | Habit and Part used | Medicinal use |
|-------|---|---------------|---------------------|--|
| 1. | <i>Abrus precatorius</i> Linn. (Gurivinda) | Fabaceae | Creeper (Seed) | 1 gm of Seed Powder taken orally with glass of hot water 3 days for Contraceptive. |
| 2. | <i>Acalypha indica</i> Linn. (Kuppinta) | Euphorbiaceae | Herb (Leaf) | Leaf paste with lime and turmeric powder applied topically 3-6 days for the treatment of Skin disease. |

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| 3. | <i>Achyranthes aspera</i> Linn. (Uthareni) | Amaranthaceae | Herb (Root) | Decoction from root and <i>Terminalia chebula</i> fruits are taken orally for Jaundice. |
| 4. | <i>Acorus calamus</i> Linn. (Vasa) | Araceae | Herb (Rhizome) | Rhizome Powder with glass of water taken orally for Cough and Squeeze rhizome in clean water, pore 2-3 drops in the nose for cold. |
| 5. | <i>Adhatoda zeylanica</i> Medik. (Addasaram) | Acanthaceae | Shrub (Leaf) | Capsules made from leaves taken orally for relief from Cough. |
| 6. | <i>Aegle marmelos</i> (Linn.) (Maredu) | Rutaceae | Tree (Fruit) | Spoonful of Fruit juice taken orally for 2-3 days for the treatment of Dysentery. |
| 7. | <i>Ageratum conyzoides</i> Linn. (Pumpullu) | Asteraceae | Herb (Leaf) | Leaf Powder with gingelly oil applied externally for the treatment of Itching. |
| 8. | <i>Alangium Salvifolium</i> (i.f) Wang, Uduga | Alangiaceae | Tree (Leaf) | Leaf Paste applied externally for the treatment of Skin diseases. |
| 9. | <i>Alstonia scholaris</i> R.Br. (Edakulapala) | Apocynaceae | Tree (Stem bark) | Stem Bark Decoction taken orally 3 times per day for 2-3 days for the treatment of Malaria. |
| 10. | <i>Aloe vera</i> (L.)Burm. f. (Kalabanda) | Liliaceae | Herb (Leaf) | Natural form of fresh sap from leaf rubbed externally for the treatment of Rheumatism. |
| 11. | <i>Andrographis paniculata</i> (Burm.f.) Wall.ex Nees. (Nelavemu) | Acanthaceae | Herb (Leaf) | Decoction from leaves and dried zinger are taken orally for indigestion. |
| 12. | <i>Argyreia nervosa</i> (Burm.f.) Bojer., (Samudrapala) | Convolvulaceae | Shrub (Leaf) | Leaf powder taken orally with honey for the treatment of stomach ulcers. |
| 13. | <i>Aristolochia Indica</i> (Nalla eswari) | Aristolochiaceae | Shrub (Root) | Powder form of root with clove taken orally for scorpion sting and snake bites. |
| 14. | <i>Asparagus racemosus</i> Willd. (Pillitheegalu) | Liliaceae | Shrub (Root) | Root Decoction taken orally 1-2 days for the treatment of Diarrhea. |
| 15. | <i>Bauhinia purpurea</i> Linn. (Deva kanchanam) | Caesalpiniaceae | Tree (Stem bark) | Stem bark Powder taken orally 3 times for per day for the treatment of Leucorrhoea. |
| 16. | <i>Bauhinia vahlii</i> Wight & Arn. (Adda chettu) | Caesalpiniaceae | Liane (Stem bark) | Stem bark Powder taken orally for Dysentery. |
| 17. | <i>Benincasa hispida</i> (Thunb.) Cogn. (Budida gummadi) | Cucurbitaceae | Creeper (Fruit) | Paste from fruit and dried zinger taken orally for Stomachache. |
| 18. | <i>Bidens pilosa</i> Linn. (Rekkala rani) | Asteraceae | Herb (Leaf) | Leaf Paste poultice to externally for the treatment of Whitlow. |
| 19. | <i>Bixa orellana</i> Linn. (Jaffra) | Bixaceae | Tree (Root) | Root Decoction taken orally 2 times per day for Fever. |
| 20. | <i>Boerhavia diffusa</i> Linn. (Atuka mamidi) | Nyctaginaceae | Herb (Root) | Spoonful of Root Decoction taken orally 1 week for Jaundice. |
| 21. | <i>Bombax ceiba</i> Linn. (Buruga) | Bombacaceae | Tree (Root) | Root Powder taken orally with glass of cow milk increases the Fertility. |
| 22. | <i>Boswellia serrata</i> Roxb. ex Colebr. (Induga) | Bursaceae | Tree (Stem bark) | Teaspoon Stem bark Decoction taken orally 3 times per day for 3 days for the treatment of Diarrhea. |
| 23. | <i>Butea monosperma</i> (Lam.) Taub. (Moduga) | Fabaceae | Tree (Root bark) | Root bark Paste applied externally for the treatment of Wounds. |
| 24. | <i>Caladium bicolor</i> Vent. (Rudra chama) | Araceae | Herb (Root tuber) | Decoction from root tuber and <i>piper longum</i> taken orally for Snake bites. |
| 25. | <i>Calotropis gigantea</i> (L.) W. T. Aiton. (Jilledu) | Asclepiadaceae | Shrub (Leaf) | Leaf Paste poultice to externally for the treatment of Wounds. |
| 26. | <i>Canna indica</i> Linn. (Metta thamara) | Cannaceae | Shrub (Root tuber) | Paste from root tuber and turmeric powder is applied topically for the treatment of Ringworm. |
| 27. | <i>Carica papaya</i> Linn. (Boppayi) | Caricaceae | Tree (Fruit) | Natural form of fruit taken orally is used as Galactogauge. |
| 28. | <i>Cascabela thevetia</i> (Linn.) Lipp. (Paccha ganneru) | Apocynaceae | Tree (Leaf) | Leaf juice along with honey and lime applied topically for the treatment of Skin diseases. |
| 29. | <i>Cassia alata</i> Linn. (Seema avisa) | Caesalpiniaceae | Shrub (Leaf) | Juice from leaves with turmeric applied externally for Eczema. |
| 30. | <i>Cassia auriculata</i> Linn. (Thangedu) | Caesalpiniaceae | Shrub (Leaf) | Leaf Juice taken orally for the treatment of Dysentery. |
| 31. | <i>Cassia fistula</i> Linn. (Rela) | Caesalpiniaceae | Tree (Flower) | Teaspoonful flower Powder taken orally for one time per day for one week for the treatment of Jaundice. |
| 32. | <i>Ceiba pentandra</i> (Linn.) Gaertn. (Tella buruga) | Bombacaceae | Tree (Stem bark) | Stem bark Paste poultice on diagnosed part for the treatment of Skin disease. |
| 33. | <i>Celosia argentea</i> Linn. var. plumose (Mayurasikhi) | Amaranthaceae | Herb (Leaf) | Juice from leaves along with honey taken orally for the treatment of stomach Ulcers. |
| 34. | <i>Cipadessa baccifera</i> (Roth) Miq. (Phaladonda) | Meliaceae | Shrub (Leaf) | Leaf Juice along with turmeric powder applied externally for the treatment of Chickenpox. |
| 35. | <i>Cissampelos pareira</i> Linn. (Chiru boddhi) | Menispermaceae | Climber (Root) | Root Powder taken orally with a glass of hot water for Stomachache. |
| 36. | <i>Cissus quadrangularis</i> Linn. (Nalleru) | Vitaceae | Climber (Stem) | Spoonful of Stem Paste taken orally for 20-30 days for the treatment of Paralysis. |
| 37. | <i>Coldenia procumbens</i> Linn. (Hamsa paadu) | Boraginaceae | Herb (Leaves) | Crushed form of leaves poultice to affected part for the treatment of Rheumatism. |

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| 38. | <i>Costus speciosus</i> (Koen.) Sm. (Bokacchika) | Zingiberaceae | Herb (Rhizome) | Rhizome Powder taken orally acts as a Galactagogue. |
| 39. | <i>Crotalaria laburnifolia</i> Linn. (Pedda giligicha) | Fabaceae | Shrub (Root) | Root Powder taken orally and paste poultice on sting point for Snake bites. |
| 40. | <i>Crotalaria pallida</i> Dryd. (Kandiri) | Fabaceae | Shrub (Seed) | Inhalation of Seed fumes acts as a Narcotic and for the treatment of Bronchitis. |
| 41. | <i>Curcuma aromatica</i> Sal. (Kasthuri pasupu) | Zingiberaceae | Herb (Rhizome) | Rhizome Paste applied externally for the treatment of Skin diseases. |
| 42. | <i>Curcuma inodora</i> Blatt. (Chara Pasupu) | Zingiberaceae | Herb (Rhizome) | Fumes from Rhizome are inhaled for the treatment of extreme cough and cold. |
| 43. | <i>Curculigo orchioides</i> Gaertn., (Nelathadi) | Hypoxidaceae | Herb (Root) | The tonic prepared by using roots, jagary and water is taken orally for energy stimulant. |
| 44. | <i>Cuscuta reflexa</i> Roxb. (Bangarutheega) | Cuscutaceae | Herb (Whole plant) | Whole plant Paste applied externally for the treatment of Piles. |
| 45. | <i>Datura innoxia</i> Mill. (Ummetha) | Solanaceae | Shrub (Leaf) | Leaf Juice applied externally for the treatment of Itching. |
| 46. | <i>Desmodium gangeticum</i> (Linn.) DC., (Bhumiippa) | Fabaceae | Shrub (Root) | Root Decoction taken orally for 3days for the treatment of Rheumatic pains. |
| 47. | <i>Desmodium pulchellum</i> (Linn.) (Kondaanteetha) | Fabaceae | Shrub (Leaf) | Leaf Paste poultice to externally for the curing of cuts and Wounds. |
| 48. | <i>Dillenia indica</i> Linn. (Revada chettu) | Dilleniaceae | Tree (Leaf) | Leaf Juice taken orally 2 times per day for Stomachache. |
| 49. | <i>Diplocyclos palmatus</i> (Linn.) Jeffrey., (Linga donda) | Cucurbitaceae | Climber (Root) | Root Powder applied on affected part for the treatment of Tooth decay. |
| 50. | <i>Dysophylla quadrifolia</i> Benth. (Rati thulasi) | Lamiaceae | Herb (Leaf) | Leaf Paste applied externally for 1 week for the treatment of Chickenpox. |
| 51. | <i>Elephantopus scaber</i> Linn. (Enugabira) | Asteraceae | Herb (Root) | Root Paste applied on affected part for 3 days for the treatment of Toothache. |
| 52. | <i>Elytraria acaulis</i> (Linn.f.) Lindau., (Yeddu adugu) | Acanthaceae | Herb (Leaf) | Leaf Paste applied externally for twice a day to continue to one week for the treatment of Ringworm. |
| 53. | <i>Emilia sonchifolia</i> (L.) DC. (Garbapoda) | Asteraceae | Herb (Root tuber) | Table spoon of Root tuber Powder taken orally for 1 month for the treatment of Fits. |
| 54. | <i>Erythrina variegata</i> Linn. (Badita) | Fabaceae | Tree (Leaf) | Leaf Juice taken orally for the treatment of Stomachache. |
| 55. | <i>Euphorbia hirta</i> Linn. (Bottu mokka) | Euphorbiaceae | Herb (Whole plant) | Whole plant Paste applied externally for the treatment of Wounds. |
| 56. | <i>Euphorbia ligularia</i> Roxb. (Chettu jamudu) | Euphorbiaceae | Shrub (Leaf Latex) | Natural form of leaf Latex rubbed topically on the affected part for the treatment of Backache. |
| 57. | <i>Euphorbia nivulia</i> Buch.-Ham., (Akujamudu) | Euphorbiaceae | Shrub (Leaf Latex) | Natural form leaf latex applied externally and poultice to treat for Cuts and Wounds. |
| 58. | <i>Euphorbia tirucalli</i> Linn. (Kada jamudu) | Euphorbiaceae | Shrub (Leaf Latex) | Natural form of leaf latex applied externally and poultice to treatment for Cuts, boils and wounds. |
| 59. | <i>Ficus benghalensis</i> Linn. (Marri) | Moraceae | Tree (Leaf) | Leaf Juice applied externally for the treatment of Skin allergy. |
| 60. | <i>Ficus hispida</i> Linn. f. (Boddamarri) | Moraceae | Tree (Leaf) | Leaf Paste applied externally for the treatment of Ringworm. |
| 61. | <i>Glochidion tomentosum</i> Dalz. (Pageri) | Euphorbiaceae | Tree (Leaf) | Leaf paste with turmeric powder applied externally for the treatment of cuts and wounds. |
| 62. | <i>Gloriosa superba</i> Linn. (Vasa Nabi) | Liliaceae | Herb (Root tuber) | Spoonful of Root tuber Powder taken orally for Backache. |
| 63. | <i>Glycosmis pentaphylla</i> (Retz.) DC. (Konda gilugu) | Rutaceae | Tree (Leaf) | Leaf Paste poultice to treatment for the Wounds. |
| 64. | <i>Glycyrrhiza glabra</i> (Retz.) DC. (Athimadhuram) | Fabaceae | Shrub (Root) | 1gm of Root Powder taken orally with glass of water for Cough and Diabetes. |
| 65. | <i>Gmelina arborea</i> Roxb. (Gummadu) | Verbenaceae | Tree (Leaf) | Leaf powder Fumes inhale for the treatment of Partial Headache. |
| 66. | <i>Helicteres isora</i> Linn. (Nulidhada) | Sterculiaceae | Shrub (Fruit) | Fruit Powder taken orally for the control of Dysentery. |
| 67. | <i>Habenaria roxburghii</i> R. Br. (Malle Leena Gadda) | Orchidaceae | Herb (Leaf) | Leaf Juice with pepper powder taken orally for the treatment of Snake bites. |
| 68. | <i>Heliotropium indicum</i> Linn. (Naga danti) | Boraginaceae | Herb (Leaf) | Crushed form of leaves poultice at injurious part to treat Dog bite. |
| 69. | <i>Hibiscus vitifolius</i> Linn. (Kondapathi) | Malvaceae | Shrub (Root) | Root Powder taken orally to treat stomach ulcers. |
| 70. | <i>Indigofera linnaei</i> Ali. (Chala pachi) | Fabaceae | Herb (Leaf) | 1-2 gms of Leaf Powder taken orally for one week for the treatment of Jaundice. |
| 71. | <i>Jatropha curcas</i> Linn. (Dola chettu) | Euphorbiaceae | Shrub (Leaf) | Leaf paste applied Externally for the treatment of cuts and Wounds. |
| 72. | <i>Justicia glauca</i> Rottl. (kommu kura) | Acanthaceae | Herb (Leaf) | 2-3 ml of Leaf Decoction taken orally for 6-7 days for Backache. |
| 73. | <i>Lawsonia inermis</i> Linn. (Gorintaku) | Lythraceae | Shrub (Leaf) | Leaf paste is applied to head for the treatment of Headache. |
| 74. | <i>Leonotis nepetiifolia</i> (Linn.) R. Br. | Lamiaceae | Herb | Flower Paste applied externally for Cuts and |

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| 75. | (Pedha ranaberi) <i>Leucas aspera</i> (Roth) Spreng. (Tummi) | Lamiaceae | (Flower) Herb (Leaf) | wounds. Leaf Juice pore at nostrils for the treatment of Extreme cold and Headache. |
| 76. | <i>Limonia acidissima</i> Linn. (Velaga) | Rutaceae | Tree (Fruit) | Fruit Powder taken orally for diagnosis of Dysentery. |
| 77. | <i>Madhuca indica</i> Gmel. (Ippa) | Sapotaceae | Tree (Fruit) | Fruit Paste poultice to use for Dog bite. |
| 78. | <i>Maerua oblongifolia</i> (Forsk.) (Bhoochakra gadda) | Capparidaceae | Climber (Root) | The natural form raw root bulb with pepper is taken orally for diabetes. |
| 79. | <i>Marsilea quadrifolia</i> Linn. (Chenchalam kooraa) | Marsileaceae | Herb (Leaf) | Leaf Paste poultice to use for Skin diseases. |
| 80. | <i>Martynia annua</i> Linn. (Telukondi) | Martyniaceae | Herb (Fruit) | Fruit Decoction taken orally and poultice at sting point for the treatment of Scorpion sting. |
| 81. | <i>Mucuna pruriens</i> (Linn.) DC. (Dula dama) | Fabaceae | Climber (Fruit) | Spoonful of Fruit Powder taken orally with honey for the treatment of Dysentery. |
| 82. | <i>Musa paradisiaca</i> Linn. (Arati) | Musaceae | Shrub (Root tuber) | Root tuber Paste taken orally for the treatment of Dysentery. |
| 83. | <i>Piper longum</i> L. (Pippallu) | Piperaceae | Creeper (Fruit) | The paste was prepared by using seeds of <i>Trachyspermum ammi</i> , fruits of <i>Cuminum cyminum</i> , <i>Piper longum</i> and bulb of <i>Allium sativum</i> is applied topically for the treatment of rheumatic pains. |
| 84. | <i>Rauwolfia serpentina</i> (L.) Benth. ex Kurz. (Sarpagandhi) | Apocynaceae | Shrub (Root tuber) | Root Tuber Paste taken orally for the treatment of Diabetes and Poisonous bites. |
| 85. | <i>Strychnos nux-vomica</i> Linn. f. (Musidi) | Loganiaceae | Tree (Root) | Root Paste applied externally for Skin disease. |
| 86. | <i>Tinospora cardifolia</i> (Willd.) (Tippa teega) | Menispermaceae | Creeper (Root) | The roots are boiled in cow milk, dried and made into powder taken orally for diabetes. |
| 87. | <i>Terminalia arjuna</i> Roxb. (Tella maddi) | Combretaceae | Tree (Stem bark) | Stem bark decoction taken orally for blood pressure and heart diseases. |
| 88. | <i>Terminalia chebula</i> Retz. (Karakkai chettu) | Combretaceae | Tree (Fruit) | Fruit powder taken orally for respiratory disorders and indigestion. |
| 89. | <i>Thalictrum foliolosum</i> DC. (Piyaranga) | Ranunculaceae | Herb (Root) | Root Decoction taken orally for Stomachache. |
| 90. | <i>Withania somnifera</i> Dunal. (Aswagandha) | Solanaceae | Herb (Root) | Root decoction is used for blood pressure, diabetes and digestive problems. |



Fig. 2: List of some important medicinal plant photo graphs with their scientific names

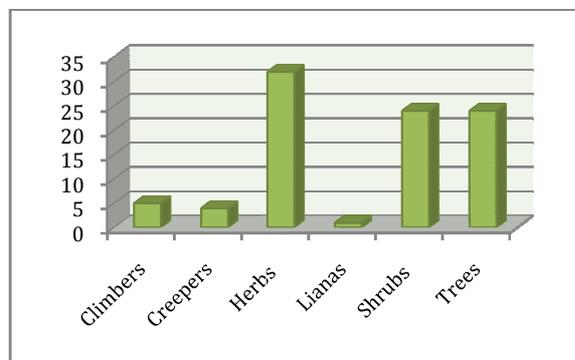


Fig. 3: Habitat wise distribution of Medicinal plants used by ethnic groups of East Godavari District

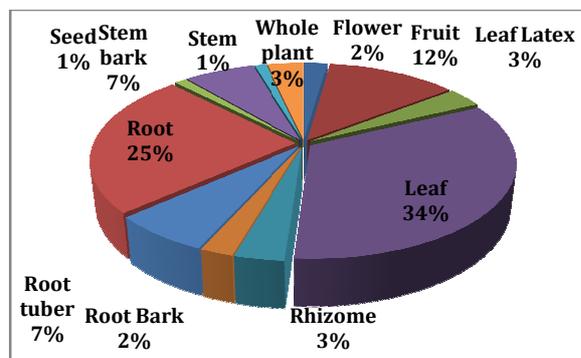


Fig.4: Percentage of medicinal plant parts used by ethnic groups of East Godavari District

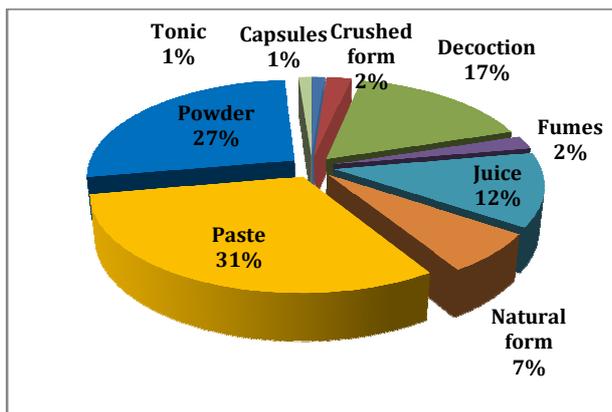


Fig. 5: Percentage of different forms of drugs used by ethnic groups of East Godavari District

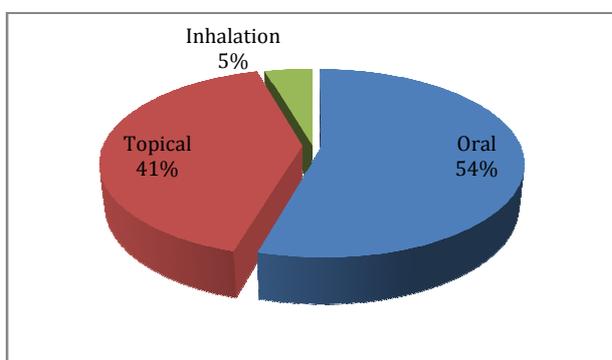


Fig.6: Percentage of mode of administration of drugs used by ethnic groups of East Godavari District

The most treatments were reported to be completed within two or three days. Somehow are weeks to months. But, in case of Scorpion sting or Snake bite treatment healers keep the patients for two or three days under continuous observation till the patients are antivenin. The patients were considered antivenin by the healers only often conformation for that the patient has given the cooking salt or capsicum to tasteless and dosage is repeated until the taste return to normal. Liquid remedies administrated to patients were usually measured by spoon or cup or number of drops. When patients did not show any sign of recovery to their illness then the healers sent the patients to nearby modern health centers. The medicinal flora of East Godavari District was earlier studied [14-16], Surprisingly our study revealed plants used by the ethnic groups of East Godavari District is new and most preferable because combination of plant parts is working more efficiently. The plants mentioned in the previous study not repeated, through we interview the ethnic groups of this district. The present study is providing new and additional information compare to previous documentations and *Curcuma inodora*, *Habenaria roxburghii* and *Heterostemma deccanense* are recorded as endemic and endangered plants to this area.

CONCLUSION

Medicinal plants are still playing significant role in the management of various human diseases in the study area with herbs taking the lead in the number of plants used in the preparation of remedies, which may be an indication of their relatively better abundance as compared to other life forms. Traditional medicinal knowledge is important not only for its potential contribution to drug development and market values but also for the healthcare professionals.

Enhancing the sustainable use and conservation of indigenous knowledge of useful and medicinal plants may benefit and improve the living standards of poor people and requires further research on isolation of active ingredients from all parts of the plant species. This study offers basic information to the pharmaceutical industries for further research in the treatment and control of ailments effectively.

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