

## Ethnomedicinal Plants Used by Primitive Porja Tribes of Koyyuru Mandalam, Visakhapatnam District, Andhra Pradesh, India

R. Venumadhav<sup>1</sup>, K. Mallikarjuna<sup>1</sup>, S. B. Padal<sup>2\*</sup><sup>1</sup>Department of Botany & Microbiology, Acharya Nagaruna University, Guntur, A. P, India<sup>2</sup>Department of Botany, Andhra University, Visakhapatnam-530003, A. P, IndiaDOI: [10.36347/sajb.2022.v10i07.001](https://doi.org/10.36347/sajb.2022.v10i07.001)

| Received: 09.06.2022 | Accepted: 14.07.2022 | Published: 16.07.2022

\*Corresponding author: S. B. Padal

Department of Botany, Andhra University, Visakhapatnam-530003, A. P, India

## Abstract

## Original Research Article

The paper enumerates 70 medicinal plant species belonging to 61 genera and 40 families used for ethnomedicinal purposes by the Porja primitive tribe of Koyyuru mandalam Visakhapatnam district, Andhra Pradesh. Many elderly persons of the village are also aware about the importance and use of such herbal medicines. A review of the available scientific literature suggests that many of the medicinal plants used by the tribals can be validated scientifically in their traditional uses based on reported pharmacological activities present in those plants.

**Keywords:** Ethnomedicinal practice, porja tribal people, Koyyuru mandalam, Visakhapatnam District.

**Copyright © 2022 The Author(s):** This is an open-access article distributed under the terms of the Creative Commons Attribution 4.0 International License (CC BY-NC 4.0) which permits unrestricted use, distribution, and reproduction in any medium for non-commercial use provided the original author and source are credited.

### INTRODUCTION

The world is endowed with a rich wealth of medicinal plants. These plants are a local heritage with global importance. It is estimated that around 70,000 plant species from lichens to flowering trees, have been used at one time or other for medicinal purposes. It is estimated that 64-84% of world's population depends on traditional medicine [1]. The World Health Organization (WHO) estimates that 80% of the people in developing countries of the world rely on traditional medicine for their primary health care needs, and about 85% of traditional medicine involves the use of plant extract. Wealth of indigenous knowledge is often overlooked by modern medicine practitioners, resulting in gradual erosion of precious life saving information [2]. Knowledge obtained from indigenous people can be vital for human health development programmes as well as for local population. The resources can be harnessed for the pharmacological investigations in the modern system of medicine [3]. Some notable work on ethnomedicine in Andhra Pradesh includes the ethno medico-botanical studies of Paderu and Araku valley reported [4] and some ethnomedicinal plants used by the Chenchus, Yerukalas, Yanadis, and Sugalis for fevers and anthrax in cattle in hills of Cuddaph district [5] and also Some recent notable contribution on ethnomedicine of north coastal Andhra Pradesh [6, 7]. The main objectives of the present investigation are collection, identification and documentation of the plants used by porja primitive

tribal community. Taxonomic analysis and systematic evaluation of drug yielding plants used by primitive porja tribes.

### MATERIAL AND METHODS

#### Study area

Koyyuru Mandal located between a Latitude and Longitude of 17°40'00"N and 82°14'00"E in the part of Eastern Ghats in Visakhapatnam District in South India. Vegetation of this area is a tropical dry deciduous forest [8] with an enormous ethnomedicinal plants species practicing by local tribes. The porja primitive tribes are the oldest inhabitants of their native place. They live in confined, restricted, remote and unfriendly areas such as hills and forests. Their source of revenue is based on primitive cultivation, low level of the closed financial system with a near to the ground rank of technology.

### METHODOLOGY

The data which was collected from the local tribal doctors of different villages were cross-checked and validated for the better utilization as medicine. Also, the information on different ways of using the plants and their parts as medicine from different experts in the study region. This information related to medicinal values was collected from tribal doctors, village elders, personal interviews, and group discussions included men and women of porja primitive tribal. All the plants were identified up to species level using floras and literature

[9, 10] and all the plants were provided in Table 1 with their habit, family, preparation of mode of administration, etc. Some of the important species were prepared herbarium and deposited in Andhra University Herbarium (AUH).

## RESULT AND DISCUSSION

A total number of 70 plants belonging to 61 genera and 40 families were recorded (Table 1). Mimosaceae has the highest number of species (7 species) followed by Rutaceae, Rubiaceae, Fabaceae and Combretaceae with each one has (5 species), Zingiberaceae, Rhamnaceae, Menispermaceae, Loganiaceae, Asclepiadaceae, Apocyanaceae, Amaranthaceae and Aizoaceae each one with (2species) and rest of the families contain single species each. Among the total plant species, trees are highest in number (27) followed by herbs (17), Shrubs and Climbers (12), Lianas and parasites were single species. With regard to the frequency of plant parts used in preparations, leaves were mostly often used followed by roots, stem bark, seed, stem, fruits, whole plant, and tubers etc. The primitive porja tribes of Koyyuru Mandal, Visakhapatnam district, 70 plants were used for 74 diseases viz. Abortion, Anasarca, Anemia, Antiemetics, Aphrodisiac, Appetiser, Bed sores, Blisters, Blood purification, Boils and blisters, Bone fracture, Bone pains, Breast cancer, Bronchitis, Burns, Carbuncle, Caries of teeth, Chicken pox, Cold and Cough, Contraceptives, Cooling effect, Cough, Cough

and Fever, Cuts and wounds, Dandruff, Diabetes, Diarrhea, Digestive disorders, Dog bite, Dysentery, Dyspepsia, Earache, Eczema, Epilepsy, Fever, Fits, Food poisoning, Heel cracks, Helminthiasis, Hemorrhage, Hemorrhoids, Intermittent fever, Jaundice, Kidney stones, kidney troubles, Leprosy, Leucoderma, Leucorrhoea, Menorrhagia, Mosquito repellent, Mumps, Muscle pain, Nerving tonic, Night blindness, Phlegm, Pimples, Psoriasis, Rheumatism, Rheumatoid arthritis, Ring worm, Scabies, Scorpion sting, Skin diseases, Snake bite, Sprains, Stomach disorders, Stomach pain, Stomach problems, Stomachache, Ulcers, Urinary problems, Uterus cancer, Viper bite ulcers and Wounds. Mode of preparation and uses of plants mostly form of Paste followed by powder, decoction juice, milk, paste, pills and sap. Most of the ethnomedicines are prepared using single plant in the region while some others are prepared by the mixing parts of more than one plant. Some reports revealed that more than 80% of the world populations rely on herbal and traditional medicine [11, 12]. It was estimated that 2 500 plant species have been utilized for medicinal purposes and more than 6 000 plants are widely used in folk and herbal medicine [13]. Indigenous knowledge plays a central role in disease diagnosis and healthcare practices in traditional medication systems [14]. Use of 52 medicinal plants by the *Khasia* tribes of Sylhet [15]; 38 species used by *Bagata* tribe for snake bite of Visakhapatnam [16] and 95 species were used for endemic diseases by tribes in Muchingiputtu mandal, Visakhapatnam [17].

**Table 1: Ethnomedicinal plants used by Primitive Porja tribes, Koyyuru mandalam**

S. No	Botanical Name	Family	Habit	Ailment	Parts	Uses
1	<i>Acacia chundra</i>	Mimosaceae	Tree	Boils and blisters	Leaf	Paste
				Intermittent fever	Stem bark	Decoction
2	<i>Acacia concinna</i>	Mimosaceae	Shrub	Dandruff	Seed	Paste
3	<i>Achyranthes asprea</i>	Amaranthaceae	Herb	Burns	Leaf	
4	<i>Acorus calamus</i>	Araceae	Herb	Fever	Rhizome	Paste
				Fits	Rhizome	Powder
				Stomachache	Rhizome	Paste
5	<i>Aegle marmelos</i>	Rutaceae	Tree	Cooling effect	Fruit	Paste
				Diarrhoea	Fruit	Juice
6	<i>Aerva lanata</i>	Amaranthaceae	Herb	Abortion	Root	
7	<i>Albizia amara</i>	Mimosaceae	Tree	Anasarca	Leaf	Paste
8	<i>Albizia lebeck</i>	Mimosaceae	Tree	Viper bite ulcers	Leaf	Paste
				Night blindness	Leaf	Paste
				Sprains	Root Bark	Paste
9	<i>Alpinia galanga</i>	Zingiberaceae	Herb	Fever	Rhizome	Paste
10	<i>Anogeissus acuminata</i>	Combretaceae	Tree	Dysentery	Stem bark	Decoction
11	<i>Anogeissus latifolia</i>	Combretaceae	Tree	Intermittent fever	Stem bark	Decoction
				Scorpion sting	Leaf	Juice
12	<i>Neolamarkia cadamba</i>	Rubiaceae	Tree	Cough	Stem bark	Juice
				Stomach pain	Leaf	Juice
13	<i>Argemone mexicana</i>	Papaveraceae	Herb	Food poisoning	Seed	Decoction
				Eczema	Root	Paste
				Ring worm	Latex	
14	<i>Argyrea nervosa</i>	Convolvulaceae	Climber	Boils and blisters	Leaf	Water
				Bronchitis	Leaf	Paste
15	<i>Atylosia scarabaeoides</i>	Fabaceae	Climber	Menorrhagia	Root	Paste
16	<i>Azima tetracantha</i>	Salvadoraceae	Shrub	Rheumatism	Root	Paste
				Mosquito repellent	Leaf	Powder
17	<i>Bambusa arundinacea</i>	Poaceae	Shrub	Diabetes	Root	Paste

S. No	Botanical Name	Family	Habit	Ailment	Parts	Uses
				Leucoderma	Leaf	Paste
18	<i>Barleria prionitis</i>	Acanthaceae	Shrub	Cuts and wounds	Leaf	Juice
				Heel cracks	Leaf	Paste
				Pimples	Leaf	Paste
19	<i>Barringtonia acutangula</i>	Barringtoniaceae	Tree	Cough	Fruit	Juice
				Diarrhoea	Leaf	Juice
20	<i>Bauhinia racemosa</i>	Caesalpiniaceae	Tree	Kidney stones	Root bark	Powder
				Diarrhoea	Root	Juice
21	<i>Bixa orellana</i>	Bixaceae	Tree	Intermittent fever	Root Bark	Paste
				Mosquito repellent	Seed	Paste
22	<i>Canavalia africana</i>	Fabaceae	Climber	Aphrodisiac	Fruit	Juice
				Appetiser	Leaf	Decoction
23	<i>Canavalia gladiata</i>	Fabaceae	Climber	Fever	Seed	Powder
				Uterus cancer	Whole Plant	Powder
24	<i>Caralluma umbellata</i>	Asclepiadaceae	Herb	Scabies	Stem	Paste
				Urinary problems	Stem	Juice
				Stomach disorders	Stem	Paste
25	<i>Cardiospermum halicacabum</i>	Sapindaceae	Climber	Menstrual disorder	Root	Paste
				Rheumatism	Whole Plant	Powder
26	<i>Carissa carandas</i>	Apocyanaceae	Shrub	Dysentery	Fruit	Paste
				Helminthiasis	Root	Paste
27	<i>Cassytha filiformis</i>	Lauraceae	Climber	Leucorrhoea	Stem	Juice
				Muscle pain	Stem	Paste
28	<i>Catumaregam spinosa</i>	Rubiaceae	Tree	Abortion	Stem bark	Paste
				Fever	Root	Paste
				Bone pains	Stem	Paste
29	<i>Celastrus paniculatus</i>	Celastraceae	Climber	Abortion	Stem bark	Paste
				Carbuncle	Seed	Oil
				Rheumatoid arthritis	seed	Oil
				Wounds	Leaf	Paste
30	<i>Centella asiatica</i>	Apiaceae	Herb	Blood purification	Leaf	Decoction
				Diarrhoea	Whole Plant	Powder
31	<i>Cocculus hirsutus</i>	Menispermaceae	Climber	Diabetes	Leaf	Paste
33	<i>Coldenia procumbens</i>	Boraginaceae	Herb	Cuts and wounds	Whole Plant	Powder
				Muscle pain	Leaf	Paste
				Ulcers	Leaf	Juice
34	<i>Commiphora caudata</i>	Burseraceae	Tree	Asthma	Whole Plant	Decoction
				Cold and Cough	Stem bark	Powder
				Fever	Gum	Smoke
35	<i>Decalepis hamiltonii</i>	Asclepiadaceae	Climber	Bronchitis	Root	Juice
				Hemorrhage	Root	Paste
36	<i>Dendrophthoe falcata</i>	Loranthaceae	Parasite	Menstrual pain	Root	Decoction
37	<i>Dichrostachys cinerea</i>	Mimosaceae	Shrub	Skin diseases	Leaf	Paste
				Rheumatism	Root	Paste
38	<i>Entada rheedii</i>	Mimosaceae	Liana	Helminthiasis	Seed	Powder
39	<i>Erythroxylum monogynum</i>	Erythroxylaceae	Shrub	Jaundice	Leaf	Juice
				Helminthiasis	Leaf	Decoction
40	<i>Ficus religiosa</i>	Moraceae	Tree	Bed sores	Stem bark	Paste
				Bone fracture	Stem bark	Paste
				Breast cancer	Stem bark	Juice
41	<i>Gloriosa superba</i>	Liliaceae	Herb	Abortion	Root	Paste
				Chicken pox	Tubers	Paste
				Contraceptives	Tubers	Paste
				Leprosy	Tubers	Paste
42	<i>Glycosmis mauritiana</i>	Rutaceae	Shrub	Fever	Root	Decoction
				Anemia	Root bark	Powder
43	<i>Mitragyna parviflora</i>	Rubiaceae	Tree	Jaundice	Leaf	Juice
				Stomach problems	Bark	Decoction
44	<i>Morinda pubescens</i>	Rubiaceae	Tree	Fever	Root	Powder
				Wounds	Leaf	Paste
45	<i>Mucuna pruriens</i>	Fabaceae	Climber	Aphrodisiac	Seed	Paste
				Nerving tonic	Root	Powder
46	<i>Murraya koenigii</i>	Rutaceae	Shrub	Diarrhea	Leaf	Juice

S. No	Botanical Name	Family	Habit	Ailment	Parts	Uses
				Stomach pain	Leaf	Decoction
47	<i>Musa rosacea</i>	Musaceae	Herb	Dysentery	Rhizome	Juice
				Abortion	Leaf	Sap
48	<i>Naringi crenulata</i>	Rutaceae	Tree	Dysentery	Stem bark	Decoction
49	<i>Opuntia dillenii</i>	Cactaceae		Cough	Stem	Latex
				Mumps	Stem	Paste
50	<i>Oroxylum indicum</i>	Bignoniaceae	Tree	Epilepsy	Stem bark	Decoction
				Jaundice	Stem bark	Decoction
51	<i>Pachygone ovata</i>	Menispermaceae	Climber	Diarrhoea	Root	Decoction
52	<i>Pandanus odoratissimus</i>	Pandanaceae	Shrub	skin diseases	Leaf	Paste
53	<i>Pavetta indica</i>	Rubiaceae	Tree	Ulcers	Leaf	Paste
54	<i>Strychnos nux-vomica</i>	Loganiaceae	Tree	Scabies	Root bark	Paste
				Digestive disorders	Stem bark	Paste
55	<i>Strychnos potatorum</i>	Loganiaceae	Tree	Asthama	Stem	Devotion
				Dog bite	Seed	Paste
				Phlegm	Seed	Powder
56	<i>Syzygium cumini</i>	Myrtaceae	Tree	Diabetes	Fruit	Powder
				Kidney stones	Seed	Powder
57	<i>Tephrosia villosa</i>	Fabaceae	Herb	Caries of teeth	Root	Paste
				Diabetes	Leaf	Juice
				Stomach pain	Root	Paste
58	<i>Terminalia alata</i>	Combretaceae	Tree	Dysentery	Stem bark	Powder
				Hemorrhoids	Stem bark	Powder
59	<i>Terminalia arjuna</i>	Combretaceae	Tree	Diabetes	Stem bark	Paste
60	<i>Terminalia bellerica</i>	Combretaceae	Tree	Antiemetics	Stem bark	Paste
				Asthma	Seed	Powder
61	<i>Trianthema decandra</i>	Aizoaceae	Herb	Jaundice	Leaf	Paste
62	<i>Trianthema portulacastrum</i>	Aizoaceae	Herb	Bone fracture	Leaf	Paste
				kidney troubles	Leaf	Decoction
63	<i>Tribulus terrestris</i>	Zygophyllaceae	Herb	Stomach pain	Root	Juice
				Wounds and Boils	Root	Paste
64	<i>Trichosanthes dioica</i>	Cucurbitaceae	Climber	Cough and Fever	Fruit	Paste
				Earache	Seed	Oil
65	<i>Vanda tessellata</i>	Orchidaceae	Herb	Bone fracture	Whole Plant	Paste
				Dyspepsia	Leaf	Paste
66	<i>Wrightia tinctoria</i>	Apocynaceae	Tree	Psoriasis	Leaf	Paste
67	<i>Zanthoxylum armatum</i>	Rutaceae	Tree	Scabies	Leaf	Paste
68	<i>Zingiber zerumbet</i>	Zingiberaceae	Herb	Fever	Rhizome	Paste
69	<i>Zizyphus mauritiana</i>	Rhamnaceae	Tree	Cooling effect	Fruit	Paste
				Diarrhoea	Fruit	Paste
70	<i>Zizyphus oenoplia</i>	Rhamnaceae	Shrub	Blisters	Root	Paste
				Snake bite	Stem	Paste

## CONCLUSION

Due to constant association with the forest environment, they have evolved knowledge by trial and error and have developed their own way of diagnosis and treatment for different ailments. The ethnic drug formulations need clinical tests to prove their efficacy and also to develop new herbal drugs for the effective treatment. This data provides basic source for further studies aimed at conservation, cultivation, improvement of ethnic traditional medicine and economic welfare of rural and tribal population of the region. The traditional botanical knowledge will provide secure livelihood to the native tribes that minimize the resource depletion, environmental degradation, cultural disruption and social instability. The new generation is not very much interested in the indigenous methods of treating diseases. They are even not very concern about the importance of these herbal plants and its medicinal value. The growing

disinterest in the use of the folk medicinal plants and its significance among the younger generation of the primitive tribals will lead to the disappearance of this practice.

## ACKNOWLEDGEMENT

The authors are thankful to the notified and denotified adivasis groups, their v aids, ojhas, bhopas etc. and forest officials who provided valuable information on this subject.

## REFERENCE

1. Augustine, J., & Sivadasan, M. (2004). Ethnomedicinal plants of Periyar tiger reserve, Kerala, India. *Ethnobotany*, 16, 40-43.
2. Gill, L. S., Idu, M., & Ogbor, D. N. (1997). Folk Medicinal plants: Practice and beliefs of the Bini people in Nigeria. *Ethnobotany*, 9(1), 1-5.

3. Idu, M., Gill, L. S., Omonhinmin, C. A., & Ejale, A. (2006). Ethnomedicinal uses of trees among Bachama tribe of Adamawa State, Nigeria. *Indian Journal of Traditional Knowledge*, 5(2), 273-278.
4. Gupta, V. C., Hussain, S. J., & Imam, S. (1997). Medico-ethnobotanical survey at Paderu forests of Araku valley, Andhra Pradesh, India. *Fitoterapia (Milano)*, 68(1), 45-48.
5. Reddy, R. V., LAKSHMI, N. N., & Venkata Raju, R. R. (1998). Folk veterinary medicinal plants in Cuddapah hills of Andhra Pradesh, India. *Fitoterapia (Milano)*, 69(4), 322-328.
6. Satyavathi, K., Sandhyadeepika, D., & Padal, S. B. (2014a). Ethnomedicinal plants used by Bagata tribe of Paderu forest Division, Andhra Pradesh, India. *Int J Adv Res Sci Technol*, 3(2), 36-39
7. Satyavathi, K., Satyavani, S., Padal, T. S. N., & Padal, S. B. (2014b). Ethnomedicinal Plants used by Primitive Tribal of Pedabayalu Mandalam, Visakhapatnam District, A.P, India. *Int J Ethnobot*, 1(1), 1-7.
8. Champion, H. G., & Seth, S. K. (1968). *A revised survey of the forest types of India*. Manager of publications.
9. Pullaiah, T. (1997). *Flora of Andhra Pradesh*. Vol. I. Jodhpur, India: Scientific Publishers.
10. Pullaiah, T., & Alimoulali, D. (1997). *Flora of Andhra Pradesh*. Vol. II. Jodhpur, India: Scientific Publishers.
11. Sushil, K. (1994). *Medicinal plants in skin care*. Lucknow, India: Central Institute of Medicinal and Aromatic Plants; pp. 425-504.
12. Akerele, O. (1992). WHO guidance for assessment of herbal medicines. *Fitoterapia*, 63, 99-118.
13. Huxley, A. J. (1984). *Green inheritance: The world wild life fund book of India*. Harvel, London: Ilin.
14. Chowdhury, M. S. H., Koike, M., Muhammed, N., Halim, M. A., Saha, N., & Kobayashi, H. (2009). Use of plants in healthcare: a traditional ethno-medicinal practice in rural areas of southeastern Bangladesh. *International Journal of Biodiversity Science & Management*, 5(1), 41-51.
15. Rahman, M. A. (1997). Ethno-medico-botanical knowledge among tribes of Bangladesh. *J Econ Taxon*, 2, 41-49.
16. Sri, B. S., & Reddi, T. S. (2011). Traditional phyto-antidotes used for snakebite by Bagata tribe of Eastern Ghats of Visakhapatnam district, Andhra Pradesh. *International Multidisciplinary Research Journal*, 1(6), 42-45.
17. Padal, S. B., Ramakrishna, H., & Devender, R. (2012). Ethnomedicinal studies for endemic diseases by the tribes of Munchingiputtu Mandal, Visakhapatnam district, Andhra Pradesh, India. *International Journal of Medicinal and Aromatic Plants*, 2(3), 453-459.