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Ethnomedicinal Plants used by Tribal People of Ganga Raju Madugula, Visakhapatnam District, Andhra Pradesh, India

S. Matya Raju[1], J. Ramalakshmana[1], S. B. Padal[1*]

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

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***Corresponding author:** S. B. Padal
Department of Botany, Andhra University, Visakhapatnam-530003, A. P, India

Abstract | **Original Research Article**

An ethnomedicinal survey was carried out in Gangaraju Madugula Mandalam, Visakhapatnam District, Andhra Pradesh. India. The indigenous knowledge of local traditional uses was collected through questionnaire and personal interviews during field trips. The identification and nomenclature of the listed plants were based on the flora of Andhra Pradesh. A total of 70 plants species were identified by taxonomic description and locally by ethnomedicinal knowledge of people existing in the region. Plant specimens collected, identified, preserved and mounted were deposited in the department of botany, Andhra University, Visakhapatnam for future references.

Keywords: Ethnomedicinal plants, Tribal people, Gangaraju madugula, Visakhapatnam District.

INTRODUCTION

The World Health Organization (WHO) has estimated that as many as 80% of the world population is dependent on traditional medicine for their primary health needs [1]. At present about 65% of Indians are dependent on the traditional system of medicine [2]. Medicinal flora have shown a pivotal part in management of dermatological conditions [3], particularly communities in developing countries local communities depend on traditional medicine for their health care [4]. Ethno botanical studies in the tribal dominated areas of the district have been carried out by Banerjee, Rao *et al.,* [5-7]. Medicinal plants used as antipyretic agents by the traditional healers of Darjeeling Himalayas [8]. Native phytotherapy for fever and malaria from Kurnool district [9]. Medicinal plants for the treatment of fever (*Jvaracikitsa*) in the *Madhavacikitsa* tradition of India [10]. A perusal of literature reveals that there is still an ethnobotanical gap in knowledge. Ethnomedicinal plants used as an antipyretic by the tribal people of Srikakulam district [11]. In view of this, the present work was taken up to make an extensive survey of the medicinal plants, which are used for the treatment of fever. The Ethnomedicinal plants of Andhra Pradesh have been studied for their medicinal uses in herbal and folk remedies by many workers [13, 14].

MATERIAL & METHODS

Study area

The present studies medicinal plants used by rural people of G. Madugula Mandalam, Visakhapatnam district , Visakhapatnam district is one of the North Eastern Coastal district of Andhra Pradesh and it lies between 17^{o} – 15^{1} and 18^{o} - 32^{1} Northern latitude and 18^{o} - 54^{1} and 83^{o} - 30^{1} in Eastern longitudes. Gangaraju Madugula with an area of 544 sq. km. (4.8% of the area of the district) is one of the mandals of the Visakhapatnam district of Andhra Pradesh. From centuries the forests of G. Madugula mandal have been inhabited by a number of tribes who have been maintaining distinct ways of life, beliefs, traditions cultures, customs and myths. In this Mandal the major tribal groups are Bagatha, Valmiki, Kammara, Konda dora, Kotia , Kulia, Malis, Manne dora Muka dora and Gouds where as the primitive tribal group (PTG) comprise Khonds , Gadaba and Porja (Porangi porja These tribes depend on local health practioners or Vaidyas called the gurus for their health care). The gurus rely on indigenous system of medicine using the locally available medicinal plants.

METHODOLOGY

Standard methodologies of field and herbarium techniques were followed. The information was tapped by interviewing repeatedly the tribal people, their medicine men, elder men and women. They were cross checked regularly. Each claim was verified at least 3-4

times. Local names of the plants and doses of administration have been documented. Plant specimens collected during different seasons were identified with the help of local floras and prepared herbarium and kept in the Department of Botany, Andhra University.

RESULT & DISCUSSION

There has been a lot of research done on medicinally useful plant species that are exploited by the tribal's during exploration trips. 70 plant species have been identified and categorized into 65 genera and 40 families. The family wise analysis of ethnomedicinal data revealed that of the 40 families the dominant ones are Fabaceae represented by 6 species followed by Caesalpiniaceae and Apocynaceae with 4 species, Verbenaceae, Rubiaceae, Lythraceae and Asclepiadaceae with 6 species each. Sapindaceae, Rutaceae, Musaceae, Moraceae, Mimosaceae, Lauraceae, Euphorbiaceae and Asteraceae with 2 species each. Remaining 25 families consists single species. Based on this study, it is evident that the local people used trees 29, followed by herbs 19, climbers 10, shrubs 10 parasites 2. A root is the most commonly used plant part for medicinal purposes 19, followed by stem bark 13, leaf 11, tuber 6, fruit 5, whole plant and root bark 4, seed 3, latex 2, gum , inflorescence and flower used single part. Intensive survey and repeated personal interviews in different pockets resulted in coming across 37 diseases in the area. In the present study, 70 different species have been reported to treat 37 different ailments (Table 1). For Dysentery 7 plants were used followed by Diarrhoea and Asthma for each one 5 plants were used, for Epilepsy and Chest pain 4 plants were used, for Leucorrhoea and fever 3 plants were used by local people of tribal area. For instance, bark of *Achyranthes aspera* is used by the people of Gujarat for skin diseases (itching) [16]; root paste of *Cassia fistula* and whole plant extract of *Eclipta prostrata* is used for skin disease by Tribals of Bankura Districts, West Bengal [17]; *Cissampelos pareira* root paste is used by the people of Villupuram district of Tamil Nadu for wound healing and skin disorders [18].

Table 1: Ethnomedicinal plants used by Local people of G. Madugula Mandalam.

S. No	Plant Name	Family	Habit	Part Used	Disease
1	*Aristolochia indica*	Aristolochiaceae	Climber	Root	Diarrhoea
2	*Asparagus racemosus*	Liliaceae	Herb	Tuber	Bronchitis
3	*Azima tetracantha*	Salvadoraceae	Shrub	Root	Asthma
4	*Barringtonia acutangula*	Barringtoniaceae	Tree	Leaf	Headache
5	*Bauhinia racemosa*	Caesalpiniaceae	Tree	Stem bark	Asthma
6	*Bauhinia vahlii*	Caesalpiniaceae	Climber	Root	Dysentery
7	*Boerhavia diffusa*	Nyctaginaceae	Herb	Whole plant	HIV
8	*Bridelia retusa*	Euphorbiaceae	Tree	Stem bark	Chest pain
9	*Caesalpinia bonduc*	Caesalpiniaceae	Shrub	Seed	Abortion
10	*Calotropis gigantea*	Asclepiadaceae	Shrub	Root	Epilepsy
11	*Cassia occidentalis*	Caesalpiniaceae	Herb	Root	Anthelmintic
12	*Cassytha filiformis*	Lauraceae	Parasite	Whole plant	Hydrocele
13	*Celastrus paniculatus*	Celastraceae	Climber	Root bark	Leucorrhoea
14	*Chlorophytum arundinaceum*	Liliaceae	Herb	Tuber	Hydrocele
15	*Cuscuta reflexa*	Cuscutaceae	Parasite	Whole plant	Epilepsy
16	*Cyperus rotundus*	Cyperaceae	Herb	Tuber	Diarrhoea
17	*Dalbergia latifolia*	Fabaceae	Tree	Stem bark	Fever
18	*Dillenia pentagyna*	Dilleniaceae	Tree	Stem bark	Rheumatoid
19	*Dioscorea bulbifera*	Dioscoreaceae	Climber	Tuber	Sterility
20	*Elephantopus scaber*	Asteraceae	Herb	Root	Anthelmintic
21	*Eucalyptus globulus*	Myrtaceae	Tree	Leaf	Antiseptic
22	*Eugenia bracteata*	Myrtaceae	Shrub	Root	Dysentery
23	*Euphorbia hirta*	Euphorbiaceae	Herb	Leaf	Dysentery
24	*Evolvulus alsinoides*	Convolvulaceae	Herb	Leaf	Jaundice
25	*Ficus benghalensis*	Moraceae	Tree	Latex	Boils
26	*Ficus racemosa*	Moraceae	Tree	Stem bark	Diarrhoea
27	*Gmelina arborea*	Verbenaceae	Tree	Stem bark	Chest pain
28	*Gmelina asiatica*	Verbenaceae	Tree	Fruit	Dandruf
29	*Grewia tiliifolia*	Tiliaceae	Tree	Leaf	Lice
30	*Gymnema sylvestre*	Asclepiadaceae	Climber	Root	Snake bite
31	*Haldinia cordifolia*	Rubiaceae	Tree	Stem bark	Leucorrhoea
32	*Helicteris isora*	Sterculiaceae	Shrub	Fruit	Dysentery
33	*Hemidesmus indicus*	Asclepiadaceae	Climber	Root	Diarrhoea
34	*Hybanthus ennaespermus*	Violaceae	Herb	Whole plant	Impotency
35	*Ichnocarpus friutiscens*	Apocynaceae	Climber	Root	Epilepsy
36	*Lagerstroemia parviflora*	Lythraceae	Tree	Leaf	Dysentery
37	*Lannea coromandelica*	Anacardiaceae	Tree	Stem bark	Cuts
38	*Lawsonia inermis*	Lythraceae	Shrub	Leaf	Jaundice

S. No	Plant Name	Family	Habit	Part Used	Disease
39	*Leonotis nepetiifolia*	Lamiaceae	Herb	Inflorescence	Breast pain
40	*Limonia acidissima*	Rutaceae	Tree	Root	Rheumatoid
41	*Litsea glutinosa*	Lauraceae	Tree	Seed	Rheumatism
42	*Manilkara hexandra*	Sapotaceae	Tree	Stem bark	Body pain
43	*Memecylon umbellatum*	Melastomataceae	Tree	Root bark	Leucorrhoea
44	*Mimosa pudica*	Mimosaceae	Herb	Root	Epilepsy
45	*Momordica charantia*	Cucurbitaceae	Climber	Fruit	Diabetes
46	*Moring oleifera*	Moringaceae	Tree	Leaf	Blood pressure
47	*Mucuna pruriense*	Fabaceae	Climber	Root	Dysmenorrhoea
48	*Murraya paniculata*	Rutaceae	Shrub	Root	Anaemia
49	*Musa paradasiaca*	Musaceae	Herb	Leaf	Cough
50	*Polyalthia cerasoides*	Annonaceae	Tree	Gum	Chest pain
51	*Pongamia pinnata*	Fabaceae	Tree	Leaf	Cough
52	*Pterocarpus marsupium*	Fabaceae	Tree	Stem bark	Conception
53	*Pueraria tuberosa*	Fabaceae	Climber	Tuber	Peptic ulcer
54	*Rauvolfia serpentina*	Apocynaceae	Herb	Root	Fever
55	*Rauvolfia tetraphylla*	Apocynaceae	Herb	Root bark	Blood pressure
56	*Rubia cordifolia*	Rubiaceae	Herb	Root	Stomachache
57	*Sapindus emarginatus*	Sapindaceae	Tree	Fruit	Asthma
58	*Schleichera oleosa*	Sapindaceae	Tree	Stem bark	Blood purification
59	*Scoparia dulcis*	Schrophulariaceae	Herb	Root	Dysentery
60	*Semecarpus anacardium*	Anacardiaceae	Tree	Seed	Abdomina swelling
61	*Strycnos nuxvomica*	Loganiaceae	Tree	Stem bark	Asthma
62	*Tarenna asiatica*	Rubiaceae	Shrub	Stem bark	Dysentery
63	*Tephrosia hirta*	Fabaceae	Herb	Root	Fever
64	*Terminalia chebula*	Combretaceae	Tree	Fruit	Cough
65	*Vitex negundo*	Verbenaceae	Shrub	Leaf	Swellings
66	*Woodfordia fruticosa*	Lythraceae	Shrub	Flowers	Diarrhoea
67	*Wrightia tinctoria*	Apocynaceae	Tree	Latex	Asthma
68	*Xanthium strumarium*	Asteraceae	Herb	Root	Boils
69	*Xylia xylocarpa*	Mimosaceae	Tree	Root bark	Gonorrhoea
70	*Zingiber roseum*	Zingiberaceae	Herb	Tuber	Leucoderma

CONCLUSION

The popular use of herbal remedies among the tribal people of Visakhapatnam district reflects the revival of interest in traditional medicine. The scientific validation of these remedies may help in discovering new drugs from the plant species. The information on therapeutic uses of plants may provide a great potential for discovering of new drugs and promoting awareness among the people to use them as remedy in health care system.

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REFERENCE

1. Bannerman, R. H. (1982). Traditional medicine in modern health care, *World Health Forum*, 3(1), 8-13.
2. Bhatt, D. C., Mitaliya, K. D., Patel, N. K., & Ant, H. M. (2002). Herbal remedies for renal calculi. *Adv Plant Sci*, 15(1), 1-3.
3. Saikia, A. P., Ryakala, V. K., Sharma, P., Goswami, P., & Bora, U. (2006). Ethnobotany of medicinal plants used by Assamese people for various skin ailments and cosmetics. *Journal of Ethnopharmacology*, *106*(2), 149-157.
4. Van Wyk, B. E., & Gorelik, B. (2017). The history and ethnobotany of Cape herbal teas. *South African Journal of Botany*, *110*, 18-38.
5. Banerjee, D. K. (1977). Observation on ethnobotany of Araku Valley, Visakhapatnam district. *J Sci Club Andhra Pradesh*, 33, 14-21.
6. Rao, B. T., Lakshmi, B. B., Rao, L. M., Ramaneshwari, K., & Hymavathi, V. (2000). Medicinal plants of Paderu forest division in the Eastern Ghats of Visakhapatnam. *Asian Journal of Microbiology, Biotechnology and Environmental Sciences*, *2*, 67-80.
7. Rao, V. L. N., Busi, B. R., Rao, B. D., Rao, C. S., Bharathi, K., & Venkaiah, M. (2006). Ethnomedicinal practices among Khonds of Visakhapatnam district, Andhra Pradesh. *Indian J Trad Knowl*, 5, 217-219.
8. Chhetri, D. R. (2004). Medicinal plants used as antipyretic agents by the traditional healers of Darjeeling Himalayas. *Indian J Trad Knowl Sikkim*, 271-275.
9. Goud, P. S. P., Pullaiah, T., & Murthy, K. S. R. (1999). Native phytotherapy for fever and malaria from Kurnool district Andhra Pradesh, *Journ Eco Tax Bot*.

10. Mishra, D. N. (2009). Medicinal plants for the treatment of fever (Jvaracikitsā) in the Mâdhavacikitsâ tradition of India. *Indian J Trad Knowl*, 8, 352-361.
11. Naidu, B. V. A. R., Seetharami Reddi, T. V. V., & Prasanthi, S. (2009). Ethnomedicinal plants used as an antipyretic by the tribal people of Srikakulam district Andhra Pradesh. *J Non-Timber Forest Products*, 16, 55-60.
12. Rao, B. T., Lakshmi, B. B., & Rao, L. M. (2001). Medico-Ethnology and Conservation of Medicinal Plants of Paderu Forest Division-Visakhapatnam. *Ecology Environment and Conservation*, *7*, 117-131.
13. Singh, K. K., & Kumar, K. (1999). Ethnotherapeutics of some medicinal plants used as antipyretic agents among the tribals of India. *Journal of Economic and Taxonomic Botany*, *23*(1), 135-141.
14. Tomar, A. (2007). Some medicinal plants used as an antipyretic among the rural and common people in Meerut district. *J. Non-Timber Forest Products Estern Uttar Pradesh*, *14*, 215-218.
15. Vedavathy, S., & Rao, K. N. (1991). Antipyretic activity of six indigenous medicinal plants of Tirumala Hills, Andhra Pradesh, India. *Journal of ethnopharmacology*, *33*(1-2), 193-196.
16. Patel, R., Mahato, A. R., Kumar, V. V., & Asari, R. V. (2013). Status of the medicinal plants in Tharawada-Gandher Reserve Forest of Kachchh, Gujarat and the ethno-medicinal practices of local community. *Journal of Medicinal Plants*, *1*(4), 1-10.
17. Sinhababu, A., & Banerjee, A. (2013). Ethno-botanical study of medicinal plants used by tribals of Bankura district, West Bengal, India. *J Med Plants Stud*, *1*(3), 98-104.
18. Sankaranarayanan, S., Bama, P., Ramach, J., Kalaichelvan, P. T., Deccaraman, M., Vijayalakshimi, M., ... & Bama, S. S. (2010). Ethnobotanical study of medicinal plants used by traditional users in Villupuram district of Tamil Nadu, India. *Journal of Medicinal Plants Research*, *4*(12), 1089-1101.