

Ethnomedicinal plants used by Mali tribes of Ananthagiri Mandal, Alluri Sitaramaraju District, A.P, India

Jelani Bhasha ¹, K. Prabhakara Rao ¹, J. Prema Kumari ¹, R. Prameela ¹ and S. B. Padal ^{2,*}

¹ Department of Botany, St' Ann's Womens Degree College, Visakhapatnam, Andhra Pradesh, India.

² Department of Botany, Andhra University, Visakhapatnam-530003, A.P, India.

World Journal of Biology Pharmacy and Health Sciences, 2023, 14(03), 188–193

Publication history: Received on 25 April 2023; revised on 10 June 2023; accepted on 13 June 2023

Article DOI: <https://doi.org/10.30574/wjbphs.2023.14.3.0243>

Abstract

An ethnomedicinal survey was carried out in Ananthagiri Mandal, Alluri Sitaramaraju District, Andhra Pradesh, India. For documentation of important ethnomedicinal plants and information from the local Mali community about their medicinal uses. The traditional knowledge of primitive Mali tribe traditional uses was collected through questionnaires 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 60 plant species belong to 53 genera and 37 families were identified by taxonomic description and locally by ethnomedicinal knowledge of people existing in the region.

Keywords: Ethnomedicinal practice; Mali primitive tribal communities; Ananthagiri Mandal; Alluri Sitaramaraju district

1. Introduction

India has a century-old tradition of using medicinal plants and herbal medicines for the alleviation of various diseases and ailments, as well as for the promotion of health and happiness. Majumdar [1] had done scrutiny of literature on Indian medicine. Kirtikar and Basu [2] and Chopra *et al.* [3-5] published well-established documents on Indian medicinal plants, which were worthy of reference today. Janaki Ammal [6] stressed the need for seeking the help of the aboriginals in the tribal regions of Assam, the Himalayas, Andaman and Nicobar Islands, and the Western Ghats for ethnobotanical findings. This plant-based traditional knowledge has become a recognised tool in the search for new sources of drugs and Nutraceuticals[7]. Some work on medicinal plants about their utilization and conservation has been conducted in many parts of India [8-11]. Ethnomedicinal plants are generally used for curing various ailments like diabetes, dysentery, typhoid, and jaundice. Different parts of the plant, including roots, leaves, fruits, and flowers, are used for the treatment of jaundice. Furthermore, jaundice is not just a disease but rather a sign of a disease that occurs in the liver, which indicates impairment of liver functioning [12-14]. The aim of the present work was an investigation and documentation of medicinal plants used by Mali tribes of Ananthagiri Mandal, Alluri Sitaramaraju District, Andhra Pradesh.

2. Material and methods

2.1. Study area

Ananthagiri Mandal of Alluri Sitaramaraju District, Andhra Pradesh, is the higher altitude zone in the hilly tracts of the Eastern Ghats of Andhra Pradesh. It has the second-highest tribal population in Andhra Pradesh. It lies in between latitudes 17°-50' and 18° - 35' north and longitude 82°-17' and 83°-11' East with a total geographical area of 3, 24,965

* Corresponding author: S. B. Padal

Hector (Figure. 1). Mali tribes are chiefly residing in the densely wooded hill slopes in the scheduled areas of Alluri Sitaramaraju districts of Andhra Pradesh. They are experts in Podu cultivation. They grow millets like Ragi, Sama and Korra and Oil seeds like niger, castor and pulses like red gram in podu fields.

2.2. Methodology

Information on the use of medicinal plants was collected during the year 2022 - 2023 through field surveys in different interior villages of the Ananthagiri Mandal, Alluri Sitaramaraju district. The questionnaires were devised to identify the indigenous knowledge of plant-based remedies from primitive Khondu people. Information was gathered through semi-structured interviews that were held with selected knowledgeable men and women in Mali tribes. At the end of each interview, the plant specimens were collected, dried by using the routine botanical collection and herbarium techniques, and identified and preserved [15]. The representative taxa were collected and identified with the help of floras [16-17] and made into a herbarium. The voucher specimens were housed in the Botany Department Herbarium (BDH), Department of Botany, Andhra University, Visakhapatnam.

3. Results and discussion

During exploration trips, medicinally useful information have been recorded on 60 plant species belonging to 53 genera and 37 families were recorded which are exploited by the Mali tribes for their healthcare (Fig.1). The family-wise analysis of ethnomedicinal data revealed that out of 37 families the dominant ones are Fabaceae represented by 5 species followed by Moraceae and Liliaceae each with 4 species, Caesalpiniaceae and Apocynaceae each with 3 species Verbenaceae, Solanaceae, Sapindaceae, Myrtaceae, Euphorbiaceae, Convolvulaceae, Araceae, Annonaceae and Acanthaceae with 2 species each, remaining 23 families were single species.

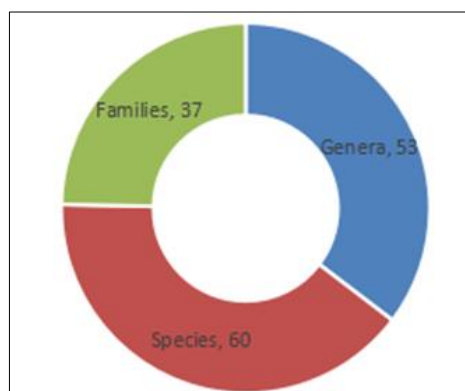


Figure 1 Genera, species and families of EMP's

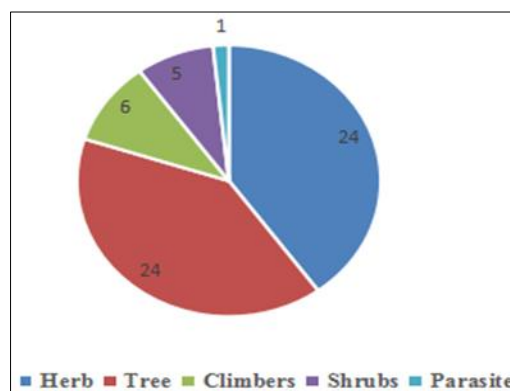


Figure 2 Habit-wise analysis of EMP's

From the present study, it is evident that the local people used herbs and trees (24) each, followed by Climbers (6) Shrubs (5) and parasites (1) (Fig 2. Table. 1). Depending upon the plant part used for medicinal purposes root and leaf constitutes the highest percentage (13) each followed by stem bark (9), tubers (6), whole plant, fruit, flower and Root bark (3) each, stem (2), remaining were single species. Intensive surveys and repeated personal interviews in different pockets resulted in coming across 39 diseases in the area. A total of 60 species reported in the present study are used in curing 39 different ailments are Abdominal disorders (1), Abortion (1), Anasarca (1), Anthelmintic (2), Asthma (6), Backache (1), Body pains (1), Body swelling (1), Boils and Blisters (3), Boils and Sores (1), Boils and Wounds (1), Bone fracture (4), Brain tonic (1), Bronchitis (1), Bruises (1), Burns (1), Cancer (1), Carbuncle (1), Centipede bite (1), Cholera (1), Chronic ulcers (1), Chicken pox (1), Constipation (1), Contraction of uterus (1), Cooling effect (2), Cough (2), Cuts (2), Cuts and wounds (4), Debilis and syphilis (1), Diabetes (3), Diarrhoea (3), Dysentery (8), Dyspepsia (1), Earache (1), Eczema (1), Epilepsy (3), Eyesight (1), Fever (2), Fits (1), Gastric trouble (1), Gonorrhoea (1), Hemorrhage (1), Impotency (1), Insect repellent (4), Jaundice (2), Joint pains (1), Leprosy (1), Leucoderma (10), Loss of appetite (1), Malaria (1), Menstrual disorders (3), Muscle pain (1), Nervous weakness (1), Oedema (1), Ophthalmic diseases (1), Pains (1), Paralysis (1), Pimples and complexion (1), Psoriasis (1), Purgatives (1), Rheumatism (3), Ringworm (1), Scabies (2), Scorpion sting (1), Scrofula (1), Skin diseases (4), Snake bite (5), Stomach pain (2), Syphilis (1), Tooth ache (3), Tumour (1), Tympanites (1), Ulcers and Wounds (3), Whooping cough (1) and Wounds (3). The most commonly treated disease was dysentery 8 plants were used by local Mali tribal people of Ananthagiri Mandal, Visakhapatnam District.

Among the different plant parts, the leaves (35) are the most frequently used for the treatment of diseases followed by stem bark (26), root (22), stem (8), root bark (7), fruit (5), whole plant, tuber, seed and rhizome with (4), flower (3), bark (2) and gum, inflorescence, latex and resin were consist single (1) species. There is no standardized measure on the dose for most of the ethnomedicines in the study area. The dose depends on the traditional healer that prepares the herbs for medicinal purposes or it may also depend upon the disease severity [18]. The mode of preparation and uses of plants mostly form of Paste (80, 67%) followed by powder (22, 18%), decoction (12, 10%), juice, milk, paste, pills and sap combined (5, 4%). Most of the ethnomedicines are prepared using a single plant in the region while some others are prepared by mixing parts of more than one plant. Sudhakar and Vedavathy [19] reported 67 edible plants belonging to 59 genera and 41 families used by the tribals of the Chittoor district. Rao and Reddy [20] studied traditional medicine for the treatment of bone fractures for human beings and cattle with the paste of leaves of *Pupalia lappacea* in Ranga Reddy district. Shanmukha Rao [21] studied about ethnobotany of Pathapatnam Mandal, Srikakulam district. He reported 158 species belonging to 68 genera and 54 families.

Table 1 Ethnomedicinal plants used by Mali tribes of Ananthagiri Mandal, Alluri Sitaramaraju District

S.No	Family	Plant Name	Habit	Part Used	Disease
1	Alangiaceae	<i>Alangium salvifolium</i>	Tree	Leaf	Rheumatoid
2	Liliaceae	<i>Aloe vera</i>	Tree	Leaf	Boils
3	Apocynaceae	<i>Alstonia venenata</i>	Shrub	Stem bark	Anthelmintic
4	Amaranthaceae	<i>Amaranthus spinosus</i>	Herb	Root	Dyspepsis
5	Araceae	<i>Amarphophallus paeoniifolius</i>	Herb	Corm	Bone fractures
6	Acanthaceae	<i>Andrographis paniculata</i>	Herb	Stem	Asthma
7	Annonaceae	<i>Annona squamosa</i>	Tree	Root	Abortion
8	Convolvulaceae	<i>Argyreia nervosa</i>	Climber	Leaf	Boils
9	Araceae	<i>Arisaema tortuosum</i>	Herb	Tuber	Headache
10	Aristolochiaceae	<i>Aristolochia indica</i>	Climber	Root	Diarrhea
11	Moraceae	<i>Artocarpus heterophyllus</i>	Tree	Leaf	Skin disease
12	Liliaceae	<i>Asparagus racemosus</i>	Herb	Tuber	Bronchitis
13	Mimosaceae	<i>Azadirachta indica</i>	Tree	Leaf	Allergy
14	Salvadoraceae	<i>Azima tetracantha</i>	Shrub	Root	Asthma
15	Arecaceae	<i>Caryota urens</i>	Tree	Inflorescence	Aphrodisiac
16	Caesalpiniaceae	<i>Cassia absus</i>	Herb	Flowers	Asthma
17	Caesalpiniaceae	<i>Cassia alata</i>	Herb	Flowers	Asthma
18	Caesalpiniaceae	<i>Cassia occidentalis</i>	Herb	Root	Anthelmintic
19	Lauraceae	<i>Cassytha filiformis</i>	Parasite	Whole plant	Hydrocele
20	Celastraceae	<i>Celastrus paniculatus</i>	Climber	Root bark	Leucorrhoea
21	Apiaceae	<i>Centella asiatica</i>	Herb	Leaf	Anaemia
22	Liliaceae	<i>Chlorophytum arundinaceum</i>	Herb	Tuber	Hydrocele
23	Flindersiaceae	<i>Chloroxylon swietenia</i>	Tree	Stem bark	Cold
24	Vitaceae	<i>Cissus quadrangularis</i>	Herb	Stem	Fever
25	Euphorbiaceae	<i>Cleistanthus collinus</i>	Tree	Stem bark	Leucorrhoea
26	Menispermaceae	<i>Cocculus hirsutus</i>	Climber	Root	Rheumatoid
27	Boraginaceae	<i>Coldenia procumbens</i>	Herb	Whole plant	Cuts

28	Acanthaceae	<i>Elytraria acaulis</i>	Herb	Tuber	Anasarca
29	Fabaceae	<i>Erythrina suberosa</i>	Tree	Root	Dysentery
30	Myrtaceae	<i>Eucalyptus globulus</i>	Tree	Leaf	Antiseptic
31	Myrtaceae	<i>Eugenia bracteata</i>	Shrub	Root	Dysentery
32	Euphorbiaceae	<i>Euphorbia hirta</i>	Herb	Leaf	Dysentery
33	Convolvulaceae	<i>Evolvulus alsinoides</i>	Herb	Leaf	Jaundice
34	Moraceae	<i>Ficus benghalensis</i>	Tree	Latex	Boils
35	Moraceae	<i>Ficus racemosa</i>	Tree	Stem bark	Diarrhoea
36	Moraceae	<i>Ficus religiosa</i>	Tree	Stem bark	Diarrhoea
37	Flacourtiaceae	<i>Flacourtia indica</i>	Shrub	Root	Bronchial allergy
38	Burseraceae	<i>Garuga pinnata</i>	Tree	Stem bark	Stomachache
39	Liliaceae	<i>Gloriosa superba</i>	Herb	Leaf	Asthma
40	Rutaceae	<i>Glycosmis pentaphylla</i>	Shrub	Fruit	Conjunctivitis
41	Verbenaceae	<i>Gmelina arborea</i>	Tree	Stem bark	Chest pain
42	Verbenaceae	<i>Gmelina asiatica</i>	Tree	Fruit	Dandruff
43	Tiliaceae	<i>Grewia tiliifolia</i>	Tree	Leaf	Lice
44	Annonaceae	<i>Polyalthia cerasoides</i>	Tree	Gum	Chest pain
45	Fabaceae	<i>Pongamia pinnata</i>	Tree	Leaf	Cough
46	Fabaceae	<i>Pterocarpus marsupium</i>	Tree	Stem bark	Conception
47	Fabaceae	<i>Pueraria tuberosa</i>	Climber	Tuber	Peptic ulcer
48	Apocynaceae	<i>Rauvolfia serpentina</i>	Herb	Root	Fever
49	Apocynaceae	<i>Rauvolfia tetraphylla</i>	Herb	Root bark	Blood pressure
50	Rubiaceae	<i>Rubia cordifolia</i>	Herb	Root	Stomachache
51	Sapindaceae	<i>Sapindus emarginatus</i>	Tree	Fruit	Asthma
52	Sapindaceae	<i>Schleichera oleosa</i>	Tree	Stem bark	Blood purification
53	Schrophulariaceae	<i>Scoparia dulcis</i>	Herb	Root	Dysentery
54	Anacardiaceae	<i>Semecarpus anacardium</i>	Tree	Seed	Abdomina
55	Malvaceae	<i>Sida acuta</i>	Herb	Root	Wounds
56	Smilacaceae	<i>Smilax zeylanica</i>	Climber	Tuber	Paralysis
57	Solanaceae	<i>Solanum nigrum</i>	Herb	Whole plant	Gonorrhoea
58	Solanaceae	<i>Solanum surattense</i>	Herb	Root bark	Jaundice
59	Rhamnaceae	<i>Ziziphus rugosa</i>	Tree	Leaf	Diabetes
60	Fabaceae	<i>Zornia diphylla</i>	Herb	Flowers	Diarrhoea

4. Conclusion

The ethnomedicinal plants demonstrated the presence of several phytochemicals in them and displayed phenolic and flavonoid compounds with hepatoprotective properties in most of the experimental studies performed with these plants. Nevertheless, very few studies are carried out on the scientific validation of medicinal plants utilizing biochemical, clinical, and pharmacological screening to validate the healing folklore medicine. In the future, it is,

therefore, very important to pursue steps that do not deviate from shifting the view of tribal people toward their indigenous belief in the treatment of healing to develop successful drugs or to discover new potential sources of drugs.

Compliance with ethical standards

Acknowledgments

The authors are thankful to the local people for their cooperation during the study period.

Disclosure of conflict of interest

The authors declare that they hold no competing interests.

References

- [1] Majumdar, G. P., 1927. Vanaspathi, Plants and Plant Life as in Indian Treatises and Traditions. Calcutta.
- [2] Kirtikar, K. R. and B. D., Basu, 1935. Indian Medicinal Plants. Vol. I - IV, Basu, L.M. Allahabad.
- [3] Kirtikar, K. R. and B. D. Basu, 1975. Indian Medicinal Plants (Rep. Edn.) Periodical Experts, Delhi.
- [4] Chopra, R. N., S. L. Nayar and I. C. Chopra, 1956. Glossary of Indian Medicinal Plants. CSIR, New Delhi.
- [5] Chopra, R. L., I. C. Chopra, K. L. Handa and L. D. Kapur, 1958. Chopra's Indigenous drugs of India. U. N. Dhur & Sons Pvt. Ltd., Calcutta.
- [6] Chopra, R. N., I. C. Chopra and Verma, B. S., 1969. Supplement to Glossary of Indian Medicinal Plants. CSIR, New Delhi.
- [7] Janaki Ammal, E. K., 1954. The Scope and functions of the reorganized Botanical Survey of India. Sci. and Cul., 20: 275-280.
- [8] Sharma, P. P. & Mujumdar, A. M., 2003. Traditional knowledge on plants from Toranmal Plateau of Maharashtra. Indian Journal of Traditional Knowledge. 2: 292-296.
- [9] Padhye, M. D., Deshmukh, V. K. & Tiwari, V. J., 1992. Ethnobotanical study of Korku tribe of Amravati District, Maharashtra State, India. International Journal of Pharmacognosy. 30: 17-20.
- [10] Bhogaonkar, P. Y. & Devarkar, V. D., 2002. Some unique ethnomedicinal plants of Korkus of Melghat Tiger Reserve (Maharashtra). Ethnobotany. 14: 16-19.
- [11] Chaudhari, U. S. & Hutke, V., 2002. Ethno-medico-botanical information on some plants used by Melghat tribes of Amravati District, Maharashtra. Ethnobotany. 14: 100-102.
- [12] Khumbangmayum, A. D., Khan, M. L. & Tripathi, R. S., 2005. Ethnomedicinal plants in the sacred groves of Manipur. Indian Journal of Traditional Knowledge. 4 (1): 21-32.
- [13] Abbasi, A.M.; Khan, M.A.; Ahmad, M.; Zafar, M.; Khan, H.; Muhammad, N.; Sultana, S. Medicinal plants used for the treatment of jaundice and hepatitis based on socio-economic documentation. Afr. J. Biotechnol. 2009, 8, 1644–1650.
- [14] Janghel, V.; Patel, P.; Chandel, S.S. Plants used for the treatment of icterus (jaundice) in central India: A review. Ann. Hepatol. 2019, 18, 658–672.
- [15] Jain, S. K. & Rao, R. R., 1977. A handbook of field and herbarium methods; Today and Tomorrows Printers and Publishers, New Delhi.
- [16] Pullaiah, T., & Ramamurthy, K.S. (2002). Flora of Eastern Ghats: Hill ranges of South East India (Vol. 2). New Delhi: Regency Publications.
- [17] Pullaiah, T., Ramamurthy, K.S., & Karuppusamy, S. (2007). Flora of Eastern Ghats: Hill ranges of South East India (Vol. 3). New Delhi: Regency Publications
- [18] Sakina Mussarat, Nasser M. AbdEl-Salam, Akash Tariq, Sultan Mehmood Wazir, Riaz Ullah, and Muhammad Adnan 2014. Evidence-Based Complementary and Alternative Medicine Volume 2014, Article ID 212634, 14 pages

- [19] Sudhakar, A., & S. Vedavathy. (1999). Wild edible plants used by the tribals of Chittor District (Andhra Pradesh), India. *J. Econ. Tax. Bot.*, 23(2): 321-329.
- [20] Rao, P. P., & R. Reddy (1999). A note on folklore treatment of bone fractures from Rangareddy District, Andhra Pradesh. *Ethnobotany*, 11: 107-108.
- [21] Shanmukha Rao, V. (2004). *Ethnobotany of Pathapatnam Mandal Srikakulam District, Andhra Pradesh*. M.Phil. Dissertation, Andhra University, Visakhapatnam.