

Ethnomedicinal plants used by Primitive Nukha Dora tribes of G. Madugula Mandal, Alluri Sitaramaraju District, Andhra Pradesh, India

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Abstract

An ethnomedicinal survey was carried out from G. Madugula Mandal, Alluri Sitaramaraju District, Andhra Pradesh, India. For documentation of important ethnomedicinal plants and information from the local Nukha Dora primitive community about their medicinal uses. The traditional knowledge of the Nukha Dora primitive tribe's 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 40 plant species belonging to 36 genera and 31 families were identified by a taxonomic description and locally by ethnomedicinal knowledge of people existing in the region.

Keywords: Ethnomedicinal plants; Nukha Dora primitive tribes; G. Madugula Mandal; Alluri Sitaramaraju District; Andhra Pradesh

1. Introduction

India is a treasure of biodiversity which host a large variety of plants and ranks tenth among plant-rich countries of the world and fourth among Asian countries. India is the largest producer of medicinal plants and is rightly called the "Botanical Garden of the World". In India, 45,000 plant species have been identified, out of which about 15, 20,000 plants are of good medicinal value. About 2,500 plant species belonging to more than 1,000 genera are used by traditional healers. Ethnological investigations have led to the documentation of a large number of wild plants used by tribes for meeting their multifarious requirements [1].

In India, an organized study on ethnobotany is of recent origin. Studies on ethnobotany were initiated by Janaki Ammal as an official program in the Economic Botany Section of the Botanical Survey of India (Howrah). She published a paper on the subsistence economy of India [2]. In 1960, Jain started intensive field studies among tribal areas of central India [3-9]. Ramarao Naidu *et al.* [10] dealt with the ethnomedicobotany of the Srikakulam district and reported 25 plant species belonging to 18 families used by the tribals for curing dental disorders. Rao and Reddi [11] reported 35 tuberous medicinal plant species used for a variety of ailments by certain tribal people of the Visakhapatnam district. Pragada *et al.*, [12] reported 40 medicinal plants used for dysentery by tribal people of North Coastal Andhra Pradesh. The main objectives of the present investigation are the collection, identification, and documentation of the plants used by the tribal community, taxonomic analysis, and systematic evaluation of drug-yielding plants.

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2. Material and methods

2.1. Study area

Ethnomedicinal information collected from G. Madugula Mandal, Alluri Sitaramaraju District, Andhra Pradesh, which belongs to the Eastern Ghats are located between 11° 31' and 22° N latitude and 76° 50' and 86° 30' E, longitude in a North-East to South-West strike. The Ghats cover an area of about 75,000 sq. Km within average width of 200 Km in the North and 100 Km in the South. Nukha Dora is divided into several exogamous clans such as Korra, Gemmela, Kakara, Sugara, Kinchoyi, etc. The name of the clan is prefixed to their names. The elders of the Mukha Dora community wear the sacred thread and Tulasi beads. They claim social status just below the Bagatas in the social hierarchy in tribal areas of the Alluri Sitaramaraju district.

2.2. Methodology

The survey was conducted by recording the information obtained from the questionnaires on medicinal plants with their local names, parts used, mode of preparation and administration with the aged farmers and local tribes. Intensive field surveys were carried out during 2021–2022, covering all the seasons. The collected specimens were identified only after a critical examination with the help of different floras like Flora of the Presidency of the Madras [13], Flora of Visakhapatnam District [14], and Flora of Vizianagaram District [15]. The voucher specimens were deposited at the Botany Department Herbarium (BDH), Andhra University, Visakhapatnam. Data on ethnomedicine is arranged alphabetically by botanical names, family names, vernacular names, habits, useful parts, and diseases (**Table 1**).

3. Results and discussion

The present investigation reveals that a total of 40 species belonging to 36 genera and 31 families were used for various purposes (Fig.1). The family-wise analysis of ethnomedicinal data revealed that of the 31 families, the dominant were Caesalpiniaceae represented by 6 species followed by Rubiaceae, Loganiaceae, Fabaceae and Apocynaceae each with 2 species, and remaining 25 families each one has single species (Table 1).

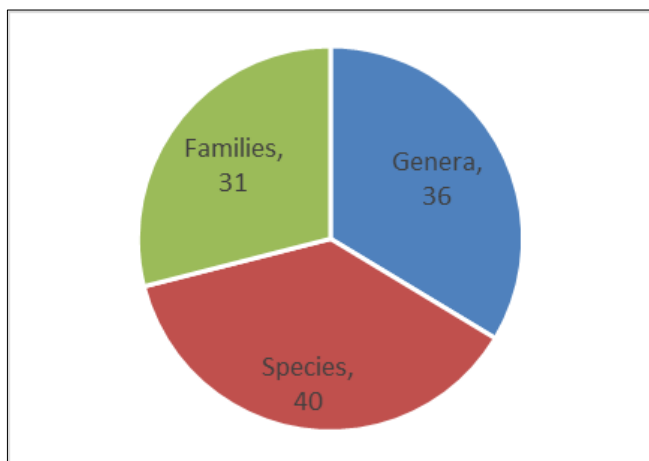


Figure 1 Genera, species and families of EMPs

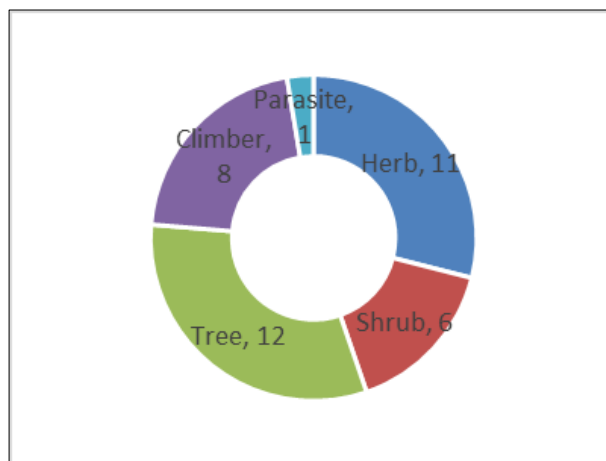


Figure 2 Habit-wise analysis of EMPs

Depending upon the plant part used for medicinal purposes Root constitutes the highest uses (14) followed by stem bark (7), leaf (6), whole plant (4), root bark (3), seed (2), flowers (2), rhizome (1). In the present study, ethnomedicinal plants were used to cure 27 different ailments. The most common ailments are Abortion (1), Anaemia (1), Anthelmintic (1), Antifertility (2), Aphrodisiac (1), Asthma (5), Bloopisia (1), Earache (1), Epilepsy (1), Gonorrhoea (1), Headache (1), HIV (1), Hydroced pressure (2), Boils (2), Burns (1), Chest pain (2), Diarrhoea (2), Dysentery (1), Dyspele (1), Impotency (1), Jaundice (1), Leucorrhoea (1), Respiratory diseases (1), Rheumatism (1), Sterility (1), Stomach pain (1) and Swellings (1). The common diseases prevailing in tribal group habitations are ascertained in consultation with local doctors. A similar type of work done by Sudhakar and Vedavathy (16) reported 67 edible plants belonging to 59 genera and 41 families used by the tribals of the Chittoor district. Rao and Reddy (17) 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 (18) studied about ethnobotany of Pathapatnam Mandal, Srikakulam district. He reported 158 species belonging to 68 genera and 54 families. Padal *et.al* [19] reported 121 tree barks were used for the

ethnomedicinal purpose by tribes of the Paderu division, Alluri Sitaramaraju District, Andhra Pradesh. Previous reports on bark ethnomedicine, *Bauhinia racemosa* Lam. (Caesalpiniaceae) Stembark (10-12gm) paste administered twice a day by Konda Reddis. *Brideliaairy-shawii*P.T.Li (*B.retusa* (L.) Spreng.) (Euphorbiaceae) Stem bark crushed with those of *Terminalia bellerica* (equal proportions) and the prepared is paste administered (of red gram size) once daily for 3 days by Koyas. *Ailanthus excels* Roxb. (Meliaceae) Stem bark extract (50ml) administered once daily for 3 days for diarrhea and dysentery by local Vaidyas [20].

Table 1 Ethnomedicinal plants used by primitive Nukha Dora tribes, G. Madugula Mandal, Alluri Sitaramaraju District, Andhra Pradesh, India

S.No	Family	Plant name	Habit	Parts	Ailments
1	Salvadoraceae	<i>Azima tetracantha</i>	Shrub	Root	Asthma
2	Schrophulariaceae	<i>Bacopa monnieri</i>	Herb	Whole plant	Respiratory diseases
3	Barringtoniaceae	<i>Barringtonia acutangula</i>	Tree	Leaf	Headache
4	Caesalpiniaceae	<i>Bauhinia racemosa</i>	Tree	Stem bark	Asthma
5	Caesalpiniaceae	<i>Bauhinia vahlii</i>	Climber	Root	Dysentery
6	Nyctaginaceae	<i>Boerhavia diffusa</i>	Herb	Whole plant	HIV
7	Bombacaceae	<i>Bombax ceiba</i>	Tree	Leaf	Leucorrhoea
8	Euphorbiaceae	<i>Bridelia retusa</i>	Tree	Stem bark	Chest pain
9	Anacardiaceae	<i>Buchanania lanzan</i>	Tree	Stem bark	Boils
10	Fabaceae	<i>Butea monosperma</i>	Tree	Stem bark	Anti fertility
11	Caesalpiniaceae	<i>Caesalpinia bonduc</i>	Shrub	Seed	Abortion
12	Asclepiadaceae	<i>Calotropis gigantea</i>	Shrub	Root	Stomach pain
13	Fabaceae	<i>Canavalia gladiata</i>	Climber	Root	Diarrhea
14	Capparidaceae	<i>Capparis zeylanica</i>	Shrub	Root bark	Earache
15	Sapindaceae	<i>Cardiospermum halicacabum</i>	Climber	Leaf	Burns
16	Arecaceae	<i>Caryota urens</i>	Tree	Inflorescence	Aphrodisiac
17	Caesalpiniaceae	<i>Cassia absus</i>	Herb	flower	Asthma
18	Caesalpiniaceae	<i>Cassia alata</i>	Herb	flower	Asthma
19	Caesalpiniaceae	<i>Cassia occidentalis</i>	Herb	Root	Anthemic
20	Lauraceae	<i>Cassytha filiformis</i>	Parasite	Whole plant	Hydrocele
21	Celastraceae	<i>Celastrus paniculatus</i>	Climber	Root bark	Leucorrhoea
22	Apiaceae	<i>Centella asiatica</i>	Herb	Leaf	Anaemia
23	Dilleniaceae	<i>Dillenia pentagyna</i>	Tree	Stem bark	Rheumatism
24	Dioscoreaceae	<i>Dioscorea bulbifera</i>	Climber	Root	Sterility
25	Ebenaceae	<i>Diospyros chloroxylon</i>	Tree	Leaf	Diarrhoea
26	Linaceae	<i>Hugonia mystax</i>	Shrub	Root	Swellings
27	Violaceae	<i>Hybanthus ennaespermus</i>	Herb	Whole plant	Impotency
28	Apocynaceae	<i>Ichnocarpus friutescens</i>	Climber	Root	Epilepsy
29	Convolvulaceae	<i>Ipomoea obscura</i>	Climber	Leaf	Rheumatism
30	Rubiaceae	<i>Ixora pavetta</i>	Shrub	Stem bark	Jaundice

31	Apocynaceae	<i>Rauvolfia tetraphylla</i>	Herb	Root bark	Blood pressure
32	Rubiaceae	<i>Rubia cordifolia</i>	Herb	Root	Stomach pain
33	Sterculiaceae	<i>Sterculia urens</i>	Tree	Root	Anti fertility
34	Moraceae	<i>Streblus asper</i>	Tree	Root	Rheumatism
35	Loganiaceae	<i>Strychnos nuxvomica</i>	Tree	Stem bark	Asthma
36	Loganiaceae	<i>Strychnos potatorum</i>	Tree	Seed	Blood pressure
37	Asteraceae	<i>Xanthium strumarium</i>	Herb	Root	Boils
38	Mimosaceae	<i>Xylia xylocarpa</i>	Tree	Root	Gonorrhoea
39	Zingiberaceae	<i>Zingiber officinale</i>	Herb	Rhizome	Dyspepsia
40	Rhamnaceae	<i>Ziziphus oenoplea</i>	Climber	Root	Chest pain

4. Conclusion

The new generation is not very much interested in the indigenous methods of treating diseases. They are even not very concerned about the importance of these herbal plants and their medicinal value. The growing disinterest in the use of folk medicinal plants and their significance among the younger generation of primitive tribals will lead to the disappearance of this practice. 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

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Disclosure of conflict of interest

The authors declare that they hold no competing interests.

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