



## Traditional knowledge on medicinal plants utilized by the indigenous inhabitants of Mangalagiri Mandal, Guntur district, Andhra Pradesh, India

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### Abstract

In this study, 12 villagers from Mangalagiri mandal, Guntur district, Andhra Pradesh state, shared information about the ethnomedicinal plant species they utilize. During 2022–2023, a series of intense field expeditions lasting two to three weeks were conducted to gather data on the species of ethnobotanical and ethnomedicinal plants used by the locals to cure a variety of ailments in their traditional healing practices. The 55 plant species are divided into 32 families. These medicinal plants use to cure 111 types of ailments. The most common family is Euphorbiaceae, which has five species. Other families that are followed in order of prevalence include, Rubiaceae (3sp), Rutaceae (3sp), Amaranthaceae (3sp), Mimosoideace (3sp), and Caesalpinoideae (3sp).

**Keywords:** Traditional practices, ethnomedicines, ethnobotanical leads, Mangalagiri mandal villages, and ethnic groups

### Introduction

In underdeveloped nations with rural communities, specifically, 80% of the population primarily uses herbal medicine, according to the WHO. Herbalists learn a great deal about therapeutic plants that have been used to cure a wide range of human illnesses via experience and practice (WHO, 2000). The classical indigenous systems of Indian medicine recommend 10,000 nominated formulations used in folk medicine (Padal and Vijaykumar, 2013 [4]; Padal *et al.*, 2013) [4]. Folk medicine uses the majority of plant parts and their extracts to treat a variety of human illnesses (Kumar and Bhattacharya, 2006) [1].

Plants have long been used for therapeutic purposes in human civilization, and the acceptance of these uses can result in the successful and widespread use of plant medicines (Pattanayak 2021 [6], Pradhan *et al.* 2021 [7], Pattel *et al.* 2022). The primary goals of the current study are to gather, identify, and record the plants that the Mangalagiri mandal villagers utilize (Table – 1).

### Material and methods

#### Study Area

Mangalagiri (Fig.1) is one of the 18 mandals of the Indian state of Andhra Pradesh, located in the Guntur district. The headquarters of Tenali Revenue Division, which oversees it, are at Mangalagiri Town, which is a part of Mangalagiri-Tadepalli Municipal Corporation. A section of the mandal is located on the banks of the Krishna River, and it is bordered by the mandals of Thullur, Tadepalle, Tadikonda, Pedakakani, and Duggirala.

Mangalagiri's geographical co-ordinates are 16.43°N 80.55°E. It is situated at an average height of 29.08 meters (95.4 feet). Mangalagiri experiences a tropical climate. The months of March through May are the warmest, and December through January are the coldest. It is situated at an average height of 29.08 meters (95.4 feet). It's 22 km (14 mi) northeast of Guntur, the district headquarters; it's just 15 km (9.3 mi) south-west of Vijayawada; it's also 30 km (19

mi) northwest of Tenali by road. It is situated in a steep area.

Between 2022 and 2023, the following villages (Table 1) in Mangalagiri mandal, Guntur District, Andhra Pradesh, India, were the sites of the current study: (1) Atmakuru Village; (2) Chinakakani Village; (3) Chinavadlapudi Village; (4) Yerrabalem Village; (5) Kaza Village; (6) Krishnayapalem Village; (7) Kuragallu Village; (8) Nidamaru Village; (9) Nowlur Village; (10) Nutakki Village; (10) Pedavadlapudi Village; and (12) Ramachandrapuram Village.

### Methodology

#### Data Collection

The information gathered from 12 village (table 1), physicians and verified for improved application as medication. Furthermore, information on the several ways that plants and their parts can be used medicinally from different experts in the field. The information on medicinal values was contributed by the men and women of the village who took part in panel discussions, one-on-one interviews, and consultations with local doctors and elders. All of the plants were identified to the species level using floras and literature (Pullaiah, T. 1997 [9, 10], Pullaiah, T, & Alimoulali, D. 1997). Next, every plant was added to (table 2), together with information on its habit, family, administration readiness, etc.

### Results & discussion

In the Amaravathi capital region of the state of Andhra Pradesh, there is a significant mandal called Mangalagiri. With 495 taxa and 891 species, the Guntur area has a significant floral diversity (Pullaiah *et al.*, 2000) [8]. The ethnomedicinal plants of Guntur district were studied by (Muralidhar Rao and Pullaiah in 2001) [2]. There has been a great deal of ethnobotanical study conducted in the state of Andhra Pradesh, but not much in the Guntur region, which excludes the Mandal Villages of Mangalagiri.

The current study details the 55 medicinal plant species that the people in Mangalagiri mandal (Guntur district, Andhra Pradesh) employ in their traditional healing methods to treat various illnesses (Table 2). There are 32 families among the 55 plant species. These medicinal plants use to cure 111 types of ailments. Out of the 111 ailments, three are of veterinary diseases and 108 are human ailments. With five species the Euphorbiaceae family is the most prevalent, followed by the Faboideae (3sp), Euphorbiaceae (5sp),

Rubiaceae (3sp), Rutaceae (3sp), Amaranthaceae (3sp), Mimosoideae (3sp), and Caesalpinioideae (3sp).

There are two species in each of the families Acanthaceae, Liliaceae, Asclepiadaceae, Convolvulaceae, and Moraceae. One species each represents twenty families. Numerous herbs examined in this study are used to treat multiple illnesses. The herb *Alternanthera sessilis* is used to treat anemia, dyspepsia, constipation, bug and snake bites. Likewise, *Carica papaya* and *Annona squamosa* are both used to cure five distinct conditions.

**Table 1:** Mangalagiri mandal Villages & population (2011 census)

	Villages	Mandal	Population
1	Atmakuru	Mangalagiri	6,103
2	Chinakakani	Mangalagiri	7,040
3	Chinavdlapudi	Mangalagiri	433
4	Yerrabalem	Mangalagiri	2,464
5	Kaza	Mangalagiri	10,148
6	Krishnayapalem	Mangalagiri	1,560
7	Kuragallu	Mangalagiri	4,340
8	Nidamaru	Mangalagiri	6,196
9	Nowlur	Mangalagiri	12,431
10	Nutakki	Mangalagiri	9,236
11	Pedavdlapudi	Mangalagiri	13,076
12	Ramachandrapuram	Mangalagiri	1,077

**Table 2:** Enumeration of Ethnomedicinal Plants utilized by the inhabitants of Mangalagiri Mandal villagers, Guntur District (AP), India.

S. No	Plant name	Plant Local Name	Family	Ailment treated	Plant components utilized in medication production and delivery system
1.	<i>Acacia intsia</i>	Korinda Teega	Mimosoideae	1. Whooping cough	The plant's fiber is worn as a necklace around the neck to treat whooping cough.
2.	<i>Acacia leucophloea</i> (Rosob.) Willd	Thella Thumma	Mimosoideae	2. Dental Problems	The plant <i>Pentaptera arjuna</i> is used to make a decoction whose bark is gargled with dried ginger.
				3. Leucorrhea	Grind the bark with sugar and consume it orally.
3.	<i>Acacia catechu</i>	Nalla thumma	Mimosoideae	4. Bone fractures	Applying sesame ( <i>Sesamum indicum</i> ) oil to the bruised region allows the leaves and blossoms to be pulverized and rubbed.
4.	<i>Achyranthes aspera</i> . L	Uttareni	Amaranthaceae	5. Eye infection in* cattle	Cattle's eyes are treated with a paste comprised of butter milk and table salt.
5.	<i>Aegle marmelos</i> Corr.Serr.	Maredu	Rutaceae	6. Diarrhoea 7. Dysentery 8. Fevers	To recover from these conditions, half-ripe fruit is consumed.
6.	<i>Aerva lanata</i> (L.)	Kondapindi	Amaranthaceae	9. Kidney Stones	The leaves are prepared with jaggery and consumed to provide relief.
7.	<i>Aloe vera</i> (L.) Burm.f.	Kalabanda	Liliaceae	10. Diabetes	Oral administration of the leaf gel is used.
				11. Burns	Burns are treated externally using the gel.
				12. Purgative Abortifacient	The gel works well as a purgative. It acts as an abortifacient in greater doses and relieves constipation in smaller ones.
8.	<i>Alternanthera sessilis</i> (L.) R.Br.Ex.Dc	Ponnaganti kura	Amaranthaceae	13. Insect bites 14. Snake bites 15. Dyspepsia 16. Anaemia 17. Constipation	To achieve relief, take an oral dose of the leaf juice.
9.	<i>Andrographis paniculata</i> (Burm.f) Wallich Ex Ness	Nallavemu	Acanthaceae	18. Stomach ache	Honey is combined with leaf paste and given.
10.	<i>Annona squamosa</i> l.	Seethaphalm	Annonaceae	19. Abortifacient	Pregnant women who consume too much fruit end up having abortions.
				20. Insect repellent	Leaves act as insect repellents
				21. Lice Killer 22. Sores 23. Boils	Putting seed paste on hair kills lice. Boils and sores: leaf paste is applied to the area.
				24. Round worms	The plant juice is used orally to eradicate stomach worms.
11.	<i>Asparagus racemosus</i> Willd.	Pillipeechara	Liliaceae	25. Impotency	For the treatment of impotency, dried bulb powder is utilized.

12.	<i>Balanites egyptiaca</i> (L.) Del	Gara chettu	Balanitaceae	26. Leprosy	The affected areas receive an external application of the leaf paste.
				27. Sperm production	Consuming leaf juice increases sperm production.
13.	<i>Bauhinia racemosa</i>	Are chettu	Caesalpinioideae	28. Fevers	The liquid mixture of powdered dried flowers that is ingested to treat fevers.
14.	<i>Biophytum nervifolium</i> Th.w	Attapathi	Oxalidaceae	29. Impotency	To treat impotence, the leaves of this plant and the fruits of the banyan tree are ground into a paste and given orally with sugar.
15.	<i>Butea monosperma</i> (Roxb.) Taubert.	Moduga	Fabaceae	30. Snake bite	This tree's wood is mashed with ginger and used as a snakebite remedy.
				31. Sperm Production	The plant's gum is consumed orally to increase sperm count.
				32. Skin diseases Gonorrhea	The leaf juice is administered orally to cure gonorrhea and applied topically to manage skin disorders.
16.	<i>Calatropis gigantia</i> (L.) Ait.t.	Tella jilledu	Asclepiadaceae	33. Snake bite	The leaf paste is orally applied on the place of snake bite.
				34. Sores	The latex of the plant is applied externally.
				35. Boils 36. Skin diseases	The leaf paste controls skin diseases
17.	<i>Capparis zeylanica</i> L.	Are donda	Capparaceae	37. Bone fractures	Bandages for shattered bones are made from a mixture made of leaves and castor oil.
				38. Piles	Applying leaf paste as a treatment to piles
18.	<i>Carica papaya</i> L.	Boppayi	Caricaceae	39. Abortifacient	Fruit induces abortion in pregnant woman
				40. Laxative	Un-ripe fruit is a laxative.
				41. Dyspepsia	Consuming ripe fruit helps manage dyspepsia.
				42. Piles	Apply a leaf poultice to the piles.
43. Galactagogue	Mothers can enhance the amount of milk they secrete by applying the plant's latex on their breasts.				
19	<i>Cassia fistula</i> L.	Rela	Caesalpinioideae	44. Haemorrhoea 45. Rheumatis	The leaf juice is used physically to treat rheumatism and taken orally to treat hemorrhage.
20	<i>Catunaregam spinosa</i> (Thunb.)	Manga chettu	Rutaceae	46. Headache	To relieve headaches, apply root paste to the forehead.
21	<i>Chloroxylon swietenia</i> DC	Billudu	Rutaceae	47. Numbness Haughtiness	The body is rubbed with leaf juice to alleviate various diseases.
22	<i>Cissus quadrangularis</i> L.	Nalleru	Vitaceae	48. Diabetes 49. Stomach disorders 50. Paralysis	The plant is eaten with honey after being dried and powdered.
23	<i>Coculus hirsutus</i> (L.) Diels	Duseti teega	Menispermaceae	51. Gout	The leaf juice is taken orally together with sugar, curd, and other ingredients.
24	<i>Corchorus aestuans</i> L.	Kalasukua	Tiliaceae	52. Sores	Leaf paste is locally applied on sores
				53. Rinderpest* 54. Tympanites*	The leaves are crushed in butter milk and orally given to cattle to control veterinary diseases (Rinderpest Tympanitis) in cattle.
25.	<i>Cymbopogon colaratus</i> (Nees) stapf.	Bodagaddi	Poaceae	55. Menstrual pains	Menstrual pain is managed by oral administration of leaf juice.
				56. Fertility restorer	This plant's leaves are ground into a paste and used orally to help women become fertile again. It also contains garlic and pepper seeds.
26	<i>Datura stramonium</i> L.	Tella ummetha	Solanaceae	57. Asthma	To relieve asthma, breathe in the smoke of dried flowers.
27.	<i>Diospyros chloroxylon</i> (Roxb.)	Ullinda	Ebenaceae	58. Urinary problem	Dried flower powder is dissolved in water and taken orally.
				59. Ulcers	Leaf paste is used topically on ulcers.
28	<i>Elytraria acaulis</i> (L.f) Lindau	Nelamarri	Convolvulaceae	60. Wounds 61. Boils	Boils and wounds are externally treated using leaf paste.
29.	<i>Ficus mollis</i> Vahl.	Banda Junsi	Moraceae	62. Easy delivery of women	This plant's gum is given to women to facilitate easy delivery by mixing it with hot water.
30.	<i>Gardenia gummifera</i> L.f.	Bikki chettu	Rubiaceae	63. Sciatica 64. Rheumatism	The leaf juice is consumed orally.
31.	<i>Givotia moluccana</i> (L.) Seemann.	Ponki/ Poliki	Euphorbiaceae	65. Eczema 66. Skin diseases	Dried seed powder combined with coconut oil and administered externally to affected areas
32.	<i>Gymnema</i>	Podapatri	Asclepiadaceae	67. Jaundice	Leaf juice is administered orally to manage diabetes and

	<i>sylvestre</i> (Retz.) R. Br.			68.Diabetes	jaundice.
33.	<i>Helicteres isora</i> L.	Gubathada	Stereuliaceae	69.Gout 70.Dyspepsia	Gout and dyspepsia can be treated orally using the plant's leaf juice.
34.	<i>Indigofera tinctoria</i> L.	Neeli mokka	Faboideae	71.Dental pain	Chewing on the leaves might provide pain alleviation.
35.	<i>Ipomoea mauritiana</i> Jacq.	Bellapaku	Convolvulaceae	72.Bone Fractures	The portion of the shattered bone is externally treated with a leaf paste mixture including egg yolk.
36.	<i>Jatropha glandulifera</i> (Roxb.) Red	dundiga	Euphorbiaceae	73.Pimples	Turmeric powder and warm water are combined to make leaf paste, which is administered externally.
37.	<i>J.glandulifera</i> (Roxb.) White	Tella dundiga	Euphorbiaceae	74.Mouth Ulcers 75.Tonsilitis	To get relief, gargle with a solution of leaf juice and water.
38.	<i>Kydia calycina</i> Roxb.	Kondapathi	Malvaceae	76.Atrabilis 77.Gout	Paste prepared with leaves of this plant and Cassia auriculata mixed with dates is orally given to get relief.
39.	<i>Lawsonia inermis</i> L.	Gorintaku	Lythraceae	78.Ulcers 79.Boils 80.Wounds	Leaf paste is externally applied on effected parts.
40.	<i>Mitragyna Parvifolia</i> (Roxb.) Korth.	Battaganapu	Rubiaceae	81.Burns:	After being ground into a powder and combined with coconut oil, the leaves are applied on burns that have feathers.
41.	<i>Moringa oleifera</i> Lam	Munaga	Moringaceae	82.Fractures 83.Anaemia	Boil the leaves and apply a poultice to the fractures. The juice from the leaves is used orally to cure anemia.
42.	<i>Pergularia daemia</i> (Forsik.) Chior.	Juttupaku	Asclepiadaceae	84.Sciatica 85.Rheumatic 86.Pains 87.Asthma	Leaf paste is externally applied. Leaf paste is massaged over the affected parts. Leaf juice is used orally to manage asthma
43.	<i>Phyllanthus amarus</i> Schum &Thonn.	Nela usiri	Euphorbiaceae	88.Jaundice 89.Menstrual pains	Leaf juice is orally administered to cure Jaundice. Oral administration of butter milk-based leaf paste is used to relieve menstruation discomfort.
44.	<i>Phyllanthus reticulatus</i> Poir.	Nallaplichera	Euphorbiaceae	90.Carminative 91.Neuralgic	The leaf juice has neuralgic and carminative properties.
45.	<i>Piper betle</i> L	Tamalapaku	Piperaceae	92.Pyorrhea 93.Dyspepsi 94.Expectorant	Chewing on fresh leaves can alleviate symptoms like dyspepsia and pyorrhea.
46.	<i>Pterospermum, xylocarpum</i> (Garrner).	Tada Chettu	Sterculiaceae	95.Haughtines 96.Gout 97.Dyspepsia	This plant's leaves, together with those of Cassia lanceolata, Helicteres isora, and Butea frondosa seeds, are combined with palm sugar to form a paste. Oral administration is used to alleviate haughtiness, gout, and dyspepsia.
47.	<i>Senna occidentalis</i> (L.) Link	Kasinda	Caesalpinioideae	98.Skin diseases 99.Paralysis	Skin conditions are treated externally with the leaf paste. After combining the leaf mixture with butter, the afflicted areas are rubbed.
48.	<i>Strebulus aspera</i> Lour.	Palabarinka	Moraceae	100.Leprosy 101.Skin diseases	Leprosy is treated by administering the bark and dried leaf decoction orally. Skin disorders are controlled by the leaf juice.
49.	<i>Striga gesnerioides</i>	Nakkapetaku	Acanthaceae	102.Piles	The leaf paste is externally applied to cure piles.
50.	<i>Strychnos potatorum</i> L.f.	Chilla chettu	Loganiaceae	103.Spermatorrhoea	To cure spermatorrhoea, seeds are steeped in cow's milk for 12 hours and then consumed.
51.	<i>Tabernaemontana divaricata</i> (L.) R.Br.	Nandivardhanam	Apocynaceae	104.Toothache Conjunctivitis	Leaf juice (milky) treats conjunctivitis; chewed bark relieves toothache.
52.	<i>Tarenna asiatica</i> (L.) Kuntze ex Schum	Komi	Rubiaceae	105.Stomach ulcers	The leaf juice controls stomach ulcers.
53.	<i>Tephrosia pupurea</i> (L) pers.	Vempali	Faboideae	106.Stomach ache 107.Antihelminthic	When combined with hot water, the powdered dried roots is used orally to relieve stomachaches and has antihelminthic properties.
54.	<i>Tribulus terrestris</i> L.	Palleru	Zygophyllaceae	108.Kidney problems 109.Impotency	The leaf juice is taken orally to treat impotence and manage renal issues.
55.	<i>Tridax procumbens</i>	Gaddi chamanthi	Asteraceae	110.Wounds 111.Boils	The juice is given externally on boils and sores.

\*Veterinary diseases



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