RESEARCH PAPER

Studies on Indigenous Traditional Knowledge on Tribal Medicine, Tribes of Sileru Forest Range, Alluri Sitarama Raju District of Andhra Pradesh in India

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ABSTRACT
An ethnomedicinal survey conducted through systematic exploration trips and repeated interviews with tribal communities of the previously unstudied Sileru forest range led to the documentation of 100 medicinally valuable plant species, spanning 85 genera and 35 families. These plant species are traditionally utilized by indigenous populations for managing various health conditions; data were collected through Focus Group Discussions across six villages, and voucher specimens were identified and deposited following standard herbarium practice. Family-wise analysis revealed Fabaceae as the most represented family with 9 species, followed by Caesalpiniaceae (7 species), Apocynaceae and Asclepiadaceae (6 species each), and Asteraceae, Euphorbiaceae and Rubiaceae (5 species each); root was the most frequently harvested plant part (30 species), and trees and herbs contributed equally to the recorded flora (37 species each). The ethnomedicinal knowledge gathered reflects the treatment of 43 different diseases, underscoring the cultural and therapeutic significance of traditional plant-based remedies in tribal healthcare systems, and comparison with other Indigenous Knowledge studies from the Alluri Sitarama Raju district confirms the reliability and regional consistency of the present findings while highlighting an urgent need for phytochemical validation and knowledge conservation.
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INTRODUCTION

Indigenous Knowledge (IK) forms an essential part of the culture, civilization, and historical identity of local communities[1], offering unique customs and societal coherence. This localized and experiential knowledge, passed down through generations, enables communities to solve practical problems using available natural resources.[2] Indigenous Knowledge encompasses traditional techniques, skills, and cultural practices of people residing in various geographical regions[3] and is characterized by its long-standing, location-specific application.[4]

It has been estimated that plant-derived remedies form the backbone of primary healthcare for the majority of the population in developing countries, particularly where formal medical infrastructure remains limited[38], and that medicinal plants continue to represent one of the most important reservoirs for the discovery of new therapeutic agents worldwide[39]. India, recognised as one of the world's twelve mega-biodiversity centres, harbours close to 45,000 plant species, of which an estimated 15,000–20,000 possess documented medicinal value, while nearly 2,500 species belonging to more than a thousand genera are used regularly by traditional healers drawn from India's numerous tribal and ethnic communities[40]. This immense botanical wealth, combined with an equally rich diversity of tribal cultures, has made peninsular India — and the Eastern Ghats in particular — one of the most productive regions in the world for the documentation of Indigenous Knowledge relating to plant-based healthcare.

Several ethnomedicinal studies in Andhra Pradesh have highlighted the deep-rooted use of plants among tribal groups, including reports from Paderu and Araku valleys[5], and the use of herbal remedies by Chenchus, Yerukalas, Yanadis, and Sugalis in Cuddapah district.[6] Sugali tribes have also contributed to the ethnomedicinal knowledge in the treatment of paralysis[7] and other studies have explored the medicinal flora of Warangal, Srikakulam, and Northern Andhra Pradesh.[8-21] Ethnobotanical work has also been carried out in the tribal regions of East Godavari district.[22]

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Within the Alluri Sitarama Raju district itself, several recent surveys have begun to document this diversity in progressively finer detail. Eighty species from 70 genera and 21 families were reported from the neighbouring Pedabayalu mandal[42], a related survey of the Kotia tribe of the same mandal documented 69 species from 40 families[43], and a very recent inventory from Chintapalle mandal — within the very same district as the present study — recorded 118 species from 48 families among Southern Eastern Ghats tribal communities, explicitly noting that this landscape remains "floristically diverse but ethnomedicinally poorly explored"[45]. Elsewhere in the wider Eastern Ghats of Andhra Pradesh, inventories ranging from 124 species recorded at Sovva panchayat of Dumbriguda mandal[41] to 336 species across 99 families documented among eight tribal groups of Vizianagaram district[44] further attest to the ethnobotanical richness of this landscape. Despite this expanding regional literature, the Sileru Forest Range — a remote, hydroelectrically important and densely forested tract of Gudem Kotha Veedhi Mandal drained by the Sileru river — had not previously been the subject of a systematic ethnobotanical survey, despite supporting a substantial tribal population with a distinct body of plant-based healthcare practice.

Beyond its scientific value, the systematic documentation of such Indigenous Knowledge also carries an important protective dimension. Traditional knowledge that remains undocumented is vulnerable not only to loss through generational attrition but also to unauthorised commercial appropriation; India's experience with the Traditional Knowledge Digital Library — established specifically to place documented traditional medicinal knowledge into the prior-art domain and thereby deter its misappropriation through patenting — and the Convention on Biological Diversity's recognition of the rights of indigenous and local communities over their traditional knowledge, illustrate the practical importance of rigorous, community-engaged field documentation of exactly the kind undertaken in the present study[46,47].

The present investigation was therefore undertaken with the following specific objectives: to systematically collect, identify and document, for the first time, the medicinal plant species used by the indigenous tribal communities of the Sileru forest range through extensive field exploration, herbarium-based identification and direct Focus Group Discussion-based interaction with tribal healers; to analyse the taxonomic (family- and genus-level), life-form, and plant-part-use composition of the recorded flora; to identify the disease categories that dominate the local ethnomedical repertoire; and to compare the present findings with other ethnomedicinal and Indigenous Knowledge studies from the Alluri Sitarama Raju district and the wider Eastern Ghats, so as to assess the reliability of the data and to identify species and use-reports meriting further pharmacological validation and conservation priority.

MATERIALS & METHODS

Study Area

The present explorative ethnobotanical research was conducted in Alluri Sitarama Raju District, Andhra Pradesh, during the years 2023–2025. The study specifically focused on the Sileru Forest Range, situated within the Gudem Kotha Veedhi Mandal. This region is ecologically significant and culturally rich, known for its dense tribal population and traditional plant-based healthcare practices.

The Sileru River, a prominent geographical feature of the area, flows through this forest range and supports hydroelectric power generation at the Guntawada and Donkarayi reservoirs. The terrain is predominantly hilly, with altitudes generally around 900 metres, and some peaks rising above 1200 metres. The forest type primarily includes moist deciduous and semi-evergreen vegetation, contributing to a high level of biodiversity.

Due to its unique ecological features, the Sileru region serves as an important site for research on biodiversity conservation, traditional ecological knowledge, forest resource management, and ethnomedicinal plant documentation. The remoteness of the terrain and the strong presence of indigenous communities make it an ideal location for ethnobotanical investigations aiming to preserve and validate tribal knowledge systems.

Methodology

Intensive ethnobotanical field surveys were conducted throughout 2024–2025, covering all seasons to ensure comprehensive data collection. Plant specimens were collected during each field visit and processed into herbarium sheets following the standard procedures as outlined by Jain and Rao.[23] Identification of the collected specimens was carried out through critical morphological examination, using standard regional floras such as *Flora of the Presidency of Madras*[24], *Flora of Visakhapatnam District*[25], and *Flora of Vizianagaram District*[26].

The authenticated voucher specimens were deposited in the Botany Department Herbarium (BDH), Andhra University, Visakhapatnam, for future reference. To document indigenous knowledge, Focus Group Discussions (FGDs) were employed as a qualitative research and data collection technique. FGDs involved engaging selected community members in guided discussions facilitated by the researcher. These sessions were held in six villages: Kothapalem, Tajangi, and Kolapari of Gudem Kotha Veedhi Mandal, and Rompula, Assurad, and Jerrala villages.

During each FGD, elderly tribal members, including women, were actively involved to ensure inclusive and culturally accurate documentation of ethnomedicinal practices. Information regarding the use, preparation, dosage, and administration of medicinal plants was recorded using a semi-structured open-ended format. This participatory approach helped capture nuanced and firsthand knowledge related to indigenous healing

practices and plant-based remedies employed by the local tribal communities.

Results

During extensive ethnobotanical exploration in the Sileru forest range of Alluri Sitarama Raju District, a total of 100 plant species belonging to 85 genera and 35 families were recorded for their medicinal uses by local tribal communities. These plants are utilized in traditional healthcare practices to treat a variety of ailments. Family-wise analysis of the ethnomedicinal data revealed the dominance of certain plant families: Fabaceae with 9 species, Caesalpiniaceae with 7 species, Apocynaceae and Asclepiadaceae, each with 6 species, Asteraceae, Euphorbiaceae, and Rubiaceae, each with 5 species, Anacardiaceae and Lamiaceae, each with 4 species, and Acanthaceae, Amaranthaceae, Araceae, Combretaceae, Mimosaceae, Moraceae, Zingiberaceae, and Solanaceae, each represented by 3 species. Together, these families constitute 73.53% of the total plant families recorded in the study area.

Table 1: Ethnomedicinal plants used for Sileru tribes, Alluri Sitarama Raju District, Andhra Pradesh.

S.No	Botanical name	Family	Common name	Habit	Part used	Disease
1	*Achyranthes aspera L.*	Amaranthaceae	Uttareni	Herb	Seed	Mental cases
2	*Acorus calamus L.*	Araceae	Vasa	Herb	Rhizome	Cold
3	*Adiantum lunulatum Burm. f.*	Adiantaceae	Gatumandu	Herb	Leaf	Abortion
4	*Adina cordifolia (Roxb.) Hook. f.*	Rubiaceae	Kambachettu	Tree	Stem bark	Leucorrhoea
5	*Aerva lanata (L.) Juss.*	Amaranthaceae	Pindikura	Herb	Root	Headache
6	*Alangium salviifolium (L.f.) Wangerin*	Alangiaceae	Uduga	Tree	Leaf	Rheumatism
7	*Alstonia venenata R.Br.*	Apocynaceae	Edakulapala	Shrub	Stem bark	Anthelmintic
8	*Amaranthus spinosus L.*	Amaranthaceae	Mullathotakura	Herb	Root	Dyspepsia
9	*Amorphophallus paeoniifolius (Dennst.)*	Araceae	Adavikandha	Herb	Corm	Bone fracture
10	*Andrographis paniculata (Burm.f.) Nees*	Acanthaceae	Neelavemu	Herb	Stem	Asthma
11	*Annona squamosa L.*	Annonaceae	Sitapalam	Tree	Root	Abortion
12	*Arisaema tortuosum (Wall.) Schott*	Araceae	Dhamma saaru	Herb	Tuber	Headache
13	*Aristolochia indica L.*	Aristolochiaceae	Gadidagadapaku	Climber	Root	Diarrhoea
14	*Azadirachta indica A.Juss.*	Mimosaceae	Vepa	Tree	Leaf	Allergy
15	*Barringtonia acutangula (L.) Gaertn.*	Barringtoniaceae	Kadapa Chettu	Tree	Leaf	Headache
16	*Bauhinia racemosa Lam.*	Caesalpiniaceae	Arichettu	Tree	Stem bark	Asthma
17	*Bauhinia vahlii Wight & Arn.*	Caesalpiniaceae	Addaku	Climber	Root	Dysentery
18	*Bombax ceiba L.*	Bombacaceae	Buruga	Tree	Leaf	Leucorrhoea
19	*Buchanania lanzan Spreng.*	Anacardiaceae	Sarepappu	Tree	Stem bark	Boils
20	*Caesalpinia bonduc (L.) Roxb.*	Caesalpiniaceae	Gachakaya	Shrub	Seed	Abortion
21	*Calotropis gigantea (L.) Dryand.*	Asclepiadaceae	Jilledu	Shrub	Root	Stomach pain
22	*Capparis zeylanica L.*	Capparidaceae	Aridonda	Shrub	Root bark	Earache
23	*Caryota urens L.*	Arecaceae	Jeeluga	Tree	Inflorescence	Aphrodisiac
24	*Cassia absus L.*	Caesalpiniaceae	Chanupala	Herb	Flower	Asthma
25	*Cassia alata L.*	Caesalpiniaceae	Tamaramokka	Herb	Flower	Asthma
26	*Cassia occidentalis L.*	Caesalpiniaceae	Kasinta	Herb	Root	Anthelmintic
27	*Cassytha filiformis L.*	Lauraceae	Savaralu	Parasite	Whole plant	Hydrocele
28	*Centella asiatica (L.) Urb.*	Apiaceae	Saraswathi Aku	Herb	Leaf	Anaemia

S.No	Botanical name	Family	Common name	Habit	Part used	Disease
29	*Coldenia procumbens L.*	Boraginaceae	Hamsapadu	Herb	Whole plant	Cuts
30	*Cryptolepis buchananii Roem. & Schult.*	Asclepiadaceae	Palabaddu	Climber	Root	Diarrhoea
31	*Curcuma longa L.*	Zingiberaceae	Pasupu	Herb	Rhizome	Rheumatism
32	*Dalbergia latifolia Roxb.*	Fabaceae	Iridi	Tree	Stem bark	Fever
33	*Datura stramonium L.*	Solanaceae	Ummeta	Shrub	Root	Asthma
34	*Desmodium gangeticum (L.) DC.*	Fabaceae	Seetammajada	Herb	Leaf	Acidity
35	*Dioscorea bulbifera L.*	Dioscoreaceae	Chedhadumpa	Climber	Root	Sterility
36	*Diospyros chloroxylon Roxb.*	Ebenaceae	Bheedi	Tree	Leaf	Diarrhoea
37	*Diospyros melanoxylon Roxb.*	Ebenaceae	Thumiki	Tree	Stem bark	Cold
38	*Eclipta prostrata (L.) L.*	Asteraceae	Guntagalagaraku	Herb	Whole plant	Acidity
39	*Elephantopus scaber L.*	Asteraceae	Nelamarri	Herb	Root	Anthelmintic
40	*Elytraria acaulis (L.f.) Lindau*	Acanthaceae	Kukkapan	Herb	Root	Anasarca
41	*Erythrina suberosa Roxb.*	Fabaceae	Mulla moduga	Tree	Root	Dysentry
42	*Euphorbia hirta L.*	Euphorbiaceae	Pachabottlu	Herb	Leaf	Dysentery
43	*Ficus benghalensis L.*	Moraceae	Marri	Tree	Leaf	Boils
44	*Ficus racemosa L.*	Moraceae	Juvvi	Tree	Stem bark	Diarrhoea
45	*Garuga pinnata Roxb.*	Burseraceae	Kambha	Tree	Stem bark	Stomach pain
46	*Gymnema sylvestre (Retz.) R.Br. ex Sm.*	Asclepiadaceae	Podapatri	Climber	Root	Cobra bite
47	*Helicteres isora L.*	Sterculiaceae	Chamalanara	Shrub	Fruit	Dysentery
48	*Hemidesmus indicus (L.) R. Br. ex Schult.*	Asclepiadaceae	Sugandhipala	Climber	Root	Diarrhoea
49	*Hemionitis arifolia (Burm. f.) T. Moore*	Adiantaceae	Ramabanam	Herb	Plant	Digestive tonic
50	*Holarrhena pubescens Wall. ex G.Don*	Apocynaceae	Palakodisa	Shrub	Bark	Asthma
51	*Ichnocarpus frutescens (L.) W.T.Aiton*	Apocynaceae	Palateega	Climber	Root	Epilepsy
52	*Ixora pavetta Andr.*	Rubiaceae	Ramabanam	Shrub	Stem bark	Jaundice
53	*Jatropha curcas L.*	Euphorbiaceae	Nepalam	Shrub	Latex	Burns
54	*Justicia adhatoda L.*	Acanthaceae	Addasaramu	Shrub	Leaf	Cough
55	*Lannea coromandelica (Houtt.) Merr.*	Anacardiaceae	Gumpena	Tree	Stem bark	Cuts
56	*Leonotis leonurus (L.) R.Br.*	Lamiaceae	Ranabheri	Herb	Inflorescence	Breast pain
57	*Litsea glutinosa (Lour.) C.B.Rob.*	Lauraceae	Naramamidi	Tree	Stem bark	Rheumatism
58	*Mallotus philippensis (Lam.) Müll.Arg.*	Euphorbiaceae	Sindhuram	Tree	Fruit	Anthelmintic
59	*Mangifera indica L.*	Anacardiaceae	Mamidi	Tree	Gum	Boils
60	*Mimosa pudica L.*	Mimosaceae	Nidraganneru	Herb	Root	Epilepsy
61	*Mucuna acuminata Baker*	Fabaceae	Dhulagondi	Climber	Root	Dysmenorrhoea
62	*Naravelia zeylanica (L.) DC.*	Ranunculaceae	Pullabatchala	Climber	Leaf	Cold
63	*Ocimum basilicum L.*	Lamiaceae	Thulasi	Herb	Seed	Diarrhoea
64	*Ocimum tenuiflorum L.*	Lamiaceae	Krishna Tulasi	Herb	Leaf	Conjunctivitis

S.No	Botanical name	Family	Common name	Habit	Part used	Disease
65	*Oroxylum indicum (L.) Kurz*	Bignoniaceae	Pampinacettu	Tree	Root bark	Antifertility
66	*Orthosiphon rubicundus (D.Don) Benth.*	Lamiaceae	Nela tappidi	Herb	Root	Diarrhoea
67	*Pavetta indica L.*	Rubiaceae	Papidi	Shrub	Leaf	Blisters
68	*Pergularia daemia (Forssk.) Chiov.*	Asclepiadaceae	Dustaputeega	Climber	Leaf	Bone fracture
69	*Phoenix sylvestris (L.) Roxb.*	Arecaceae	Chiitieetha	Tree	Root	Asthma
70	*Phyllanthus amarus Schumach. & Thonn.*	Euphorbiaceae	Nelausiri	Herb	Plant	Jaundice
71	*Phyllanthus emblica L.*	Euphorbiaceae	Usirichettu	Tree	Leaf	Bone fracture
72	*Polyalthia cerasoides (Roxb.) Bedd.*	Annonaceae	Asoka	Tree	Gum	Chest pain
73	*Pongamia pinnata (L.) Pierre*	Fabaceae	Kanuga	Tree	Leaf	Cough
74	*Pterocarpus marsupium Roxb.*	Fabaceae	Yegisa	Tree	Stem bark	Conception
75	*Pueraria tuberosa (Willd.) DC.*	Fabaceae	Gummuduteega	Climber	Root	Ulcers
76	*Rauvolfia serpentina (L.) Benth. ex Kurz*	Apocynaceae	Pathalagaridi	Herb	Root	Fever
77	*Rauvolfia tetraphylla L.*	Apocynaceae	Pathalagaridi	Herb	Root bark	Blood pressure
78	*Rubia cordifolia L.*	Rubiaceae	Mangalikatthi	Herb	Root	Stomach pain
79	*Semecarpus anacardium L.f.*	Anacardiaceae	Nalla jeedi	Tree	Seed	Swellings
80	*Solanum surattense Burm. f.*	Solanaceae	Mullavnga	Herb	Root bark	Jaundice
81	*Soymida febrifuga (Roxb.) A. Juss.*	Meliaceae	Somida	Tree	Root	Dysmenorrhoea
82	*Sterculia urens Roxb.*	Sterculiaceae	Kovelachettu	Tree	Root	Antifertility
83	*Streblus asper Lour.*	Moraceae	Rugechettu	Tree	Stem bark	Diarrhoea
84	*Tamarindus indica L.*	Caesalpiniaceae	Chinta	Tree	Bark	Asthma
85	*Tarenna asiatica (L.) Kuntze ex K.Schum.*	Rubiaceae	Kommi	Shrub	Stem bark	Dysentery
86	*Tephrosia hirta Bojer*	Fabaceae	Vempali	Herb	Root	Fever
87	*Terminalia arjuna (Roxb. ex DC.) Wight & Arn.*	Combretaceae	Tellamaddi	Tree	Bark	Asthma
88	*Terminalia bellirica (Gaertn.) Roxb.*	Combretaceae	Thanechettu	Tree	Fruit	Asthma
89	*Terminalia chebula Retz.*	Combretaceae	Karakaya	Tree	Fruit	Cough
90	*Tridax procumbens (L.) L.*	Asteraceae	Gaddichamanthi	Herb	Leaf	Cuts
91	*Tylophora indica (Burm. f.) Merr.*	Asclepiadaceae	Mekameyaniaaku	Climber	Leaf	Asthma
92	*Vernonia cinerea (L.) Less.*	Asteraceae	Sahadevi	Herb	Seed	Leucorrhoea
93	*Wrightia tinctoria R.Br.*	Apocynaceae	Ankudu	Tree	Latex	Asthma
94	*Xanthium strumarium L.*	Asteraceae	Marulamatangi	Herb	Root	Boils
95	*Xylia xylocarpa (Roxb.) Taub.*	Mimosaceae	Kondatangedu	Tree	Root	Gonorrhoea
96	*Zingiber officinale*	Zingiberaceae	Allamu	Herb	Rhizome	Dyspepsia

S.No	Botanical name	Family	Common name	Habit	Part used	Disease
	Roscoe					
97	*Zingiber roseum (Roxb.) Roscoe*	Zingiberaceae	Adaviallum	Herb	Root	Leucorrhoea
98	*Ziziphus abyssinica Hochst. ex A.Rich.*	Rhamnaceae	Parimi	Climber	Root	Chest pain
99	*Ziziphus rugosa Lam.*	Rhamnaceae	Konda Regu	Tree	Leaf	Diabetes
100	*Zornia diphylla (L.) Pers.*	Fabaceae	Malam mokka	Herb	Whole plant	Diarrhoea

DISCUSSION

Intensive surveys and repeated personal interviews with tribal vaidhyas and elders across multiple villages led to the documentation of plant-based treatments for 43 different ailments. These include: digestive tonic, abortion, acidity, allergy, anaemia, anasarca, anthelmintic, antifertility, aphrodisiac, asthma, blisters, blood pressure, boils, bone fracture, breast pain, burns, chest pain, cobra bite, cold, conception issues, conjunctivitis, cough, cuts, diabetes, diarrhoea, dysentery, dysmenorrhoea, dyspepsia, earache, epilepsy, fever, gonorrhoea, among others. Some of the frequently used and culturally significant plants include *Rauvolfia serpentina* (used for snake bites), *Caryota urens* (used to prepare a tea-like beverage), and *Andrographis paniculata* (used for its anti-alcoholic properties). The knowledge of these practices is deeply rooted in oral tradition and intergenerational learning among tribal vaidhyas, representing a rich repository of indigenous healthcare systems. To ensure reliability, the recorded uses and practices were cross-verified with multiple vaidhyas and knowledgeable elders.

The findings are consistent with similar studies from other regions. For instance, Bhattarai[27] reported 48 plant species for diarrhoea and dysentery treatment in Nepal. Mohanty *et al.*[28] documented tribal use of ethnomedicinal plants for diarrhoeal diseases in Ganjam and Phulbani districts of Odisha. Raju and Reddy[29] listed 37 species used by Khammam tribals for dysentery. Pragada *et al.*[30] recorded 40 medicinal plants used for dysentery treatment.

In the present study, the following species were identified as being used for diarrhoea and dysentery by the Sileru tribes: *Aristolochia indica, Cryptolepis buchananii, Hemidesmus indicus, Bauhinia vahlii, Diospyros chloroxylon, Euphorbia hirta, Erythrina suberosa, Zornia diphylla, Ocimum basilicum, Orthosiphon rubicundus, Ficus racemosa, Streblus asper, Tarenna asiatica* and *Helicteres isora*. The predominant use of herbs in the region may be attributed to their accessibility, abundance, and efficacy. This trend is supported by other studies by Singh *et al.*[31] and Tabuti *et al.*[32] and also aligns with research conducted in North Coastal Andhra Pradesh.[33,34] Additionally, previous ethnomedicinal surveys have highlighted 31 species used for leucorrhoea treatment in Srikakulam[15] and 455 medicinal plants used by tribal communities in Visakhapatnam District.[35] The continued relevance of ethnomedicine is underscored by global health statistics, which estimate that nearly 80% of the world's population relies on traditional medicine for their primary healthcare needs.[36,37]

Comparative species and family richness

The present inventory of 100 species from 85 genera and 35 families is among the richer ethnomedicinal surveys reported from the Alluri Sitarama Raju district and adjoining Eastern Ghats tracts of Andhra Pradesh. It exceeds the 80 species (70 genera, 21 families) recorded from the neighbouring Pedabayalu mandal[42], the 69 species (40 families) reported for the Kotia tribe of the same mandal[43], and the 63–68 species documented for the Jatapu and Kondadora Primitive Tribal Groups of Koyyuru mandal[34], while remaining smaller than the 118 species recorded from Chintapalle mandal[45], the 124 species from Sovva panchayat of Dumbriguda mandal[41], and the 336-species inventory compiled across eight tribal groups of Vizianagaram district[44]. This places the Sileru pharmacopoeia broadly in the middle of the range of species richness reported across the district, a pattern that most plausibly reflects differences in survey duration, number of villages and informants covered (six villages and Focus Group Discussions in the present study) rather than any underlying difference in the ethnobotanical richness of the Sileru landscape itself, particularly in view of its extensive moist-deciduous and semi-evergreen forest cover.

Family Dominance

Fabaceae emerged as the single most represented family (9 species), followed by Caesalpiniaceae (7), Apocynaceae and Asclepiadaceae (6 each), and Asteraceae, Euphorbiaceae and Rubiaceae (5 each); together with the remaining moderately represented families, these accounted for nearly three-quarters (73.53%) of all recorded species. This dominance of the Fabaceae–Caesalpiniaceae complex mirrors the pattern reported for Chintapalle mandal, where Fabaceae was likewise identified as the topmost family[45], and is consistent with the broader observation, repeated across numerous Indian ethnomedicinal surveys, that the pan-tropical species richness of this legume complex in Indian deciduous forests — rather than any family-specific pharmacological property — largely explains its recurring dominance in tribal pharmacopoeias across the Eastern Ghats.

Growth form and Plant-Part Use Pattern

Trees and herbs contributed equally to the Sileru pharmacopoeia (37 species each), followed by climbers (13 species) and shrubs (12 species), with a single parasitic species (*Cassytha filiformis*) also recorded — a

more balanced tree–herb profile than that reported for the neighbouring Pedabayalu and Dumbriguda mandals, where trees clearly predominated, but broadly comparable to Chintapalle mandal, where herbs (39%) narrowly outnumbered trees (28%)[45]. With respect to the plant part harvested, root was the most frequently utilised part, employed in 30 of the 100 species, followed by leaf (20 species) and stem bark (14 species), with seed, root bark, whole plant and fruit each contributing smaller shares. This root- and bark-dominant harvesting pattern carries a more serious conservation concern than a leaf-dominant pattern would, since the collection of roots, root bark and stem bark is inherently more destructive and can kill or severely weaken the parent plant, particularly for the 37 tree species recorded here. This underlines the importance of promoting sustainable harvesting practices — such as partial bark or root removal, cultivation of frequently harvested species in home gardens, and rotation of collection sites — among the Sileru tribal healers.

Disease Spectrum

Asthma was the single most frequently treated ailment in the present study, being addressed by 12 species, followed by diarrhoea (9 species), with dysentery, anthelmintic use, boils and leucorrhoea each associated with 4 species. The high representation of respiratory (asthma) and gastrointestinal (diarrhoea/dysentery) remedies is consistent with the disease priorities reported from other tribal surveys of the region and of Odisha, where diarrhoea, dysentery, fever and skin infection consistently rank among the most frequently treated conditions[27-30], and reflects the disproportionate burden of water-borne and respiratory illness among forest-dwelling communities with limited access to formal healthcare.

Taken together with the growing literature documenting Indigenous Knowledge loss and its vulnerability to unauthorised appropriation, the present findings reinforce the case that community-based Focus Group Discussion documentation, of the kind carried out across the six Sileru villages in this study, is not merely an academic exercise but a necessary first step toward both the pharmacological validation and the legal protection of tribal medicinal knowledge, in the spirit of instruments such as India's Traditional Knowledge Digital Library and the Convention on Biological Diversity's recognition of the rights of indigenous and local communities over their traditional knowledge[46,47].

CONCLUSION

The present ethnobotanical investigation clearly highlights that the tribal communities of the Sileru Forest Range in Alluri Sitarama Raju (ASR) District, Andhra Pradesh, rely extensively on traditional medicinal practices rooted in Indigenous Knowledge (IK) systems. These practices, passed down through generations, form a vital part of their primary healthcare and cultural heritage.

Through Focus Group Discussions, a significant volume of Indigenous Knowledge related to the medicinal use of local plant resources was systematically documented. The reliability of this knowledge is further strengthened by its consistent use across different tribal groups and its alignment with ethnobotanical practices reported from other regions of the Alluri Sitarama Raju district and the wider Eastern Ghats, where species richness, dominant families (Fabaceae, Caesalpiniaceae) and disease priorities (respiratory and gastrointestinal ailments) show close correspondence with the present findings[41-45]. These customs provide a scientific foundation for potential research and the development of evidence-based medicinal applications.

To further validate and utilise this traditional wisdom, there is an urgent need to initiate technical research trials on the documented Indigenous practices. Such studies could lead to the development of revised medical modules, or enhanced ethnopharmacological strategies, offering alternatives or supplements to modern medicine.

The importance of preserving this traditional knowledge cannot be overstated. With the threat of industrialisation, urbanisation, deforestation, and the acculturation of tribal societies, much of this valuable ethnomedicinal information is at risk of being lost. Therefore, it is imperative to document, conserve, and, where possible, secure formal protection for this Indigenous Knowledge. The possibility that novel treatments for critical diseases such as cancer and AIDS may reside within these traditional systems underlines the need for urgent biocultural conservation efforts.

In light of these findings, it is recommended that: (i) phytochemical and pharmacological screening be prioritised for species most frequently and independently reported for asthma, diarrhoea and dysentery, both in the present study and in comparable regional surveys; (ii) sustainable harvesting protocols be promoted for root- and bark-yielding species, given the destructive nature of their collection and the predominance of root and bark use recorded here; (iii) the documented Indigenous Knowledge be considered for inclusion in repositories such as India's Traditional Knowledge Digital Library, so as to secure prior-art protection against unauthorised patenting while respecting the community's rights over, and potential benefit-sharing from, this knowledge[46,47]; and (iv) participatory conservation and knowledge-transmission programmes be established in the six surveyed villages — Kothapalem, Tajangi, Kolapari, Rompula, Assurad and Jerrala — to encourage retention of this traditional pharmacopoeia among younger community members.

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