

LOOKING THROUGH THE LENS OF A CONSERVATION BIOLOGIST: LIFE OF MEDICINAL PLANTS IN THE EASTERN GHATS OF ANDHRA PRADESH, INDIA

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Abstract

Plants have been used by people to fulfil their spiritual, cultural, emotional and materialistic needs. In quest of using plants, man has forgotten the implications of overexploitation of these resources. Hence the question of restoring the balance has long been intriguing the conservation biologists. In this review we focus on the struggle of medicinal plants in the Eastern Ghats (EGs) of Andhra Pradesh (AP) in the changing scenario of overexploitation and destruction of natural habitats. Here we concentrate on a sum total of 267 medicinal plant taxa from these regions with due emphasis on their utility as leading herbal medicines. Endemic flora and the threat status of medicinal plants from this area are highlighted in this paper. Andhra Pradesh, so far, has been successful in having one biosphere reserve, six national parks and twenty one wildlife sanctuaries with over 13,000 sq km of forest cover, but there have been no proper scientific studies undertaken till date to evaluate the working and maintenance of these protected areas. As EGs of AP have received less attention from the Government and NGOs, the analysis of past research reports in this review gives a clarion call for a much awaited coordinated effort for conservation and management of plants in these areas. Furthermore, we stress on having a formal system to monitor the local pockets of these hilly ranges for a better coordinated conservation mechanism. This review is a humble attempt to give a wakeup call to all the policy makers, managers and other government officials working with protected areas and forest departments. The diversity of medicinal flora, uses and conservation priorities of Eastern Ghats of Andhra Pradesh form the subject matter for this review.

Keywords: Medicinal Plants; Threat Status; Conservation; Ethnomedicine; Aboriginals; Eastern Ghats

Introduction

India is bestowed with rich forest endowment. Some of the most important forests of India are concentrated at various topogeographical levels in the Eastern Ghats. Right from West Bengal in the North, Orissa and Andhra Pradesh in the center, to Tamil Nadu in the South, Eastern Ghats are a series of discontinuous mountain ranges adjacent to Eastern coast of India [1]. The mountain ranges contain rich array of tropical forests (extensive terrestrial biome)

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forming rich repositories of biological diversity [2-4]. More than 70,000 plant species have been used in traditional and modern medicine [5]. It is estimated that around 70 to 80% of human population depend on traditional herbal medicines of which majority being the tribal and village folk [2, 3, 6, 7]. Eastern Ghats of Andhra Pradesh comprise inhabitants of 33 Schedule Tribes [8]. Tens and thousands of these people have been using big chunk of plant products for their primary health care. Since the knowledge of these medicinal plants and their usage has been dwindling in the recent times due to rapid cultural and climatic changes [3, 9, 10], here in this article we present a comprehensive understanding of recent ethnomedicinal studies of Eastern Ghats of Andhra Pradesh that are relatively overlooked in the country.

Topogeography of Eastern Ghats of Andhra Pradesh

EGs of AP (Fig. 1) are geographically situated between 12°37' N and 19°54' N latitude and 76°46' E and 84°46' E longitude with highest hill tops at an altitude of 1300-1680m [8].

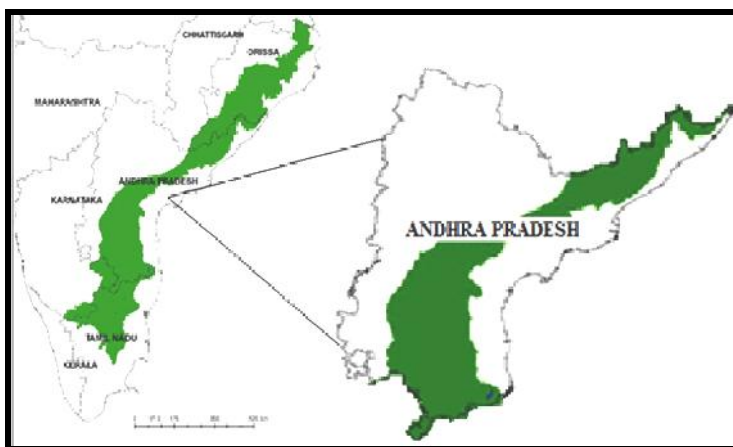


Fig. 1. Physical map of Eastern Ghats of Andhra Pradesh

Diversity of medicinal plants in the Eastern Ghats of Andhra Pradesh

Richness of endemic flora

EGs of AP are home to several endemic species. For instance *Crotalaria shevaroyensis* [11], *Decaschistia cuddapahensis*, *Cycas beddomei*, *Pimpinella tirupatiensis*, *Pterocarpus santalinus*, *Terminalia pallida*, *Syzygium alternifolium* and *Rhynchosia beddomei* are endemic to some pockets of EGs of AP [8, 12-14]. The plants *Peperomia dindigulensis*, *Vaccinium neilgherrense*, *Litsea oleoides*, *Neolitsea scrobiculata*, *Curcuma neilgherrensis*, *Shorea talura*, *S.tumbaggaia*, *Eranthemum capense*, *Dolichandra hamiltonii*, *Jasminum trichotomum*, *Ixora notoniane*, *Pavetta blanda*, *Psychotria octosulcata*, *Randia candolleana* and *Pamburus missionis* are some of the regionally available endemic plants of EGs of AP [4, 8, 11, 14]. These hilly ranges also harbor some medicinal plants that are endemic to South India viz. *Albizia thompsoni*, *Ceropegia spiralis*, *Cocculus hirsutus*, *Habenaria roxburghii*, *Phyllanthus indofischeri*, *Oryza granulata*, *O. Sativa* and *O. Malamphuzhaensis* [8, 12, 14].

Diversity in medicinal flora based on habit

Around 70 species of herbs, 50 species of shrubs, 100 species of trees, 7 species of epiphytes, parasites and hydrophytes, 40 species of climbers, twidders and vines, put together a sum total of 267 species are presented in Table 1 to 20 of this article.

Ethnomedicinal importance

Right from the inception of life, interdependence is the prime characteristic of organisms. It has been a beautiful saga of relationship that history has witnessed between man and plants [15-20]. The folk herbal usage of various medicinal plants of EGs of AP listed in Table 1 to 20 stands as testimony to this fact. Given the medicinal significance of plants in EGs, are we not overexploiting these resources? Are not these plants put to threat at various levels? Yes we are finding serious negative implications of loss of biodiversity in the recent times due to the over exploitation of medicinal plants.

Conservation

Is the situation so bad?

Our food and energy security and so does our exposure to natural endangerment depends on plant biodiversity. Biodiversity loss has got negative implications on our health, material wealth and largely limits our freedom of choice [5]. Excessive human usage of land and water contribute to 80% of threat to plant biodiversity [21]. To counter this situation, several thousands of protected forest areas [22] have been established and strict legislations are already in place to conserve the regional biodiversity, but ironically the rate of deforestation continues unabated both within and without the protected areas in tropical forests; questioning the effectiveness of conservation strategies [4, 11, 23]. Habitat degradation and destruction in many parts of EGs have been assessed by various authors and found EGs are most neglected regions in India [10, 11, 24]. There are about 14 protected areas encompassing 15% of the land area which is threatened due to increasing demands of herbal industry and local inhabitants. On one hand, places like Gudem Maripakhala Sanctuary that has been seriously threatened due to slash and burn cultivation while on the other hand Srisailam Nagarjuna Sagar Tiger Reserve Forest with least threat show disproportionate conservation mechanisms [4].

More than just indicators: Threat status of medicinal plants in the Eastern Ghats of Andhra Pradesh

Medicinal plant genetic resources (MPGRs) are fast depleting on global and regional scales [5, 25, 26]. Eastern Ghats without any exception fall under the category of worst hit. Threat status of MPGRs of EGs is given in Table 1. These are some of the illustrations to indicate the predicament of some potentially unattended rare species that have been facing extinction in anonymity since their taxonomic status is misconceived or unnoted [26-29]. It will be too late if we do not give a serious thought at least now to save these medicinal plants before we lose them forever.

Challenges for conservation of medicinal plants

The loss of plant biodiversity is essentially related to the consumption of ecological goods by the growing human population [22, 30, 31]. Habitat loss and fragmentation have increased the pace of desertification across the tropical forests [21, 32]. Large gaps in covering critical areas, anthropogenic threats and financial constraints are responsible to a great extent for the failure of existing mechanisms on conservation [22]. In addition, overexploitation of medicinal plants and their knowledge from aboriginal people drew the situation to worse. Some of these problems have been tackled by Governmental bodies (*like ENVIS [33], EPTRI, Centre for Ecological Sciences, Indian Institute of Science, Botanical Survey of India – Forest Research Institute*) and Non Governmental Organizations (*like FRLHT which has been designated as National Centre for Excellence for Medicinal Plants and Traditional Knowledge [34], and GrACE under the council for Green Revolution; an environment action group based in Hyderabad [35, 36]*). However, there has been significant need for coordination between Governmental and NGO groups. Andhra Pradesh has been so far successful in getting one biosphere reserve, six national parks, twenty one wildlife sanctuaries with over 13,000 sq km of

forest area [37], but there has been no proper scientific study undertaken till date to evaluate the working and maintenance of these protected areas. Further more, the so called unprotected areas do harbour lot of medicinal plants which are fading away in the wild due to aforesaid reasons [38, 39].

New perspectives for old problems

At the outset habitat protection must be prioritized improving and increasing the quality and size of PAs [11]. Carefully planned field studies involving exploration of new sites and undocumented medicinal taxa would help spotting the rare and threatened taxa. As suggested by Hooper, considering the biology of plants under threat is essential for prioritizing their conservation mechanisms [21, 40]. High quality planting stocks for conservation efforts could be obtained from *in situ* (on site) and *ex situ* (off site) methods. *In situ* and *ex situ* methods should be complemented for successful conservation of medicinal plants [3, 21, 41]. Recovering medicinal plants under endangered species act would be more helpful in accelerating the conservation mechanisms [42]. Since indigenous people are the custodians of these resources, they must be given the ownership to lead projects and share equity for an improved long term management of conservation strategies [21, 43]. Sustainable harvest practices combined with *ex situ* programmes to stop overexploitation of these resources should be considered by the policy makers [3, 44]. Recent policies grounded in scientific knowledge proposed by international bodies should be kept in mind by the conservation officials during customized policy making [2, 5, 45]. We strongly support the view points of Hooper, Balaguru et. al. and Uprety et. al., in achieving the goals of conservation in the changing world and reiterate the dire need for collaborative effort involving the indigenous people and various other stake holders of these regions [3, 11, 21, 46]. After all it is Man who directly reaps the benefit from plants, and it is he who has to restore its lost glory. In the end it would be apt to ponder on the message that Mahatma Gandhi has left for us - "Earth provides enough to satisfy every man's need, but not any man's greed" [47].

Conclusions

Use of plants by aboriginals for medicinal purposes has a lengthy record. Here we have presented a sum total of 267 medicinal plant taxa from Eastern Ghats of Andhra Pradesh, highlighting the recent threat status and ethnomedicinal uses. To our knowledge, this is a comprehensive review to date on medicinal plants of these areas and their conservation priorities. We recommend an integrated approach to medicinal plant conservation based on sound scientific rationale. Since these areas have received less attention, research should be focused on protection before many more plant species reach the verge of extinction.

Abbreviations

EG: Eastern Ghats;

AP: Andhra Pradesh;

ENVIS: Environmental Information System, Ministry of Environment and Forests;

EPTRI: Environmental Protection Training and Research Institute;

FRLHT: Foundation for Revitalization of local Health Tradition, a public charitable trust;

GrACE: Green Alliance for Conservation of Eastern Ghats;

PAs: Protected areas.

Acknowledgements

The authors offer their heartfelt gratitude to Bhagawan Sri Sathya Sai Baba, the Founder Chancellor of Sri Sathya Sai Institute of Higher Learning for providing inspiration to take up

this task. The authors extend deep sense of appreciation to the tribal communities for sharing their valuable information for the betterment of mankind. Dr. R.S. Sai Murali wishes to extend sincere thanks to the administrators of Lovely Professional University for encouragement and facilities for drafting this article.

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Received: June 04, 2016

Accepted: May 28, 2017

Table 1. Floristic, ethnomedicinal and threat status of Medicinal Plants in the Eastern Ghats of Andhra Pradesh

Plant Name	Local name	Ethnomedicinal use	Parts used	T S *	Ref.
<i>Abrus precatorious</i> L. (Fabaceae)	Gurivinda, Guruginja	Cold, Cough, Joint pains, Neuro disorders, family planning	Root, seeds	N A	[48-50]
<i>Abutilon indicum</i> (L.) Sweet. (Malvaceae)	Tuturbenda	Boils, itching, piles, scabies, urinary problems, rheumatism	Leaves, seeds, tender parts	N A	[48, 49]
<i>Acacia chundra</i> (Roxb.ex.Rottl.) Willd. (Mimosaceae)	Sandra, Kachu	Blisters, Boils, dysentery	Leaves, stem bark	N A	[48]
<i>Acacia nilotica</i> (L.) Willd. Ex Del. (Mimosaceae)	Nalla thumma	Urinary problems	Pods	N A	[48]
<i>Acacia torta</i> (Roxb.) Craib. (Mimosaceae)	Korinti	Cough	Stem bark, leaves	N A	[48, 51]
<i>Acalypha indica</i> L. (Euphorbiaceae)	Muripindi	Jaundice	Leaves	N A	[48]
<i>Acanthospermum hispidum</i> DC (Asteraceae)	Guntakala garaku	Jaundice	Leaves	N A	[48]
<i>Achyranthes aspera</i> L. (Amaranthaceae)	Duschina, Uttareni	Boils, dysentery, jaundice, piles, skin diseases, tooth ache, delivery, paralysis, filariasis, antidote, odontalgic	Whole plant, tender leaves	N A	[48, 51, 52]
<i>Acorus calamus</i> L. (Araceae)	Bacha	Indigestion	Rhizome	E N	[34, 53-55]
<i>Adiantum lunulatum</i> Burm. (Polypodiaceae)	Gatumandu, Kusti	Diabetes, epilepsy, herpes, antidote for scorpion sting and centipede bite	Rhizome, rhizome	N A	[48, 52]

Table 2. Floristic, ethnomedicinal and threat status of Medicinal Plants in the Eastern Ghats of Andhra Pradesh

Plant Name	Local name	Ethnomedicinal use	Parts used	T S *	Ref.
<i>Aegle marmelos</i> (L.) Correa. (Rutaceae)	Maredu, bilva	Diarrhoea, eye diseases, cholera, asthma	Fruit pulp, stem bark	V U	[34, 48, 51, 53, 54, 56, 57]
<i>Aerva lanata</i> (L.) Juss. (Amaranthaceae)	Pindikura	Kidney stones	Whole plant	N A	[48, 51]
<i>Ageratum conyzoides</i> L. (Asteraceae)	Pumpulla	Dysentery, skin diseases, cuts	Whole plant, roots	N A	[48, 51]
<i>Alangium salvifolium</i> (L.f.) Wanger. (Alangiaceae)	Uduga chettu, Vooduga	Facial paralysis, skin problems	Stem bark	N A	[48, 51, 56]
<i>Albizia lebeck</i> (L.) Benth. (Mimosaceae)	Dirisanamu	Boils, eruptions, gum infections, night blindness	Flowers, tender shoots, leaves	N A	[48, 56]
<i>Albizia odoratissima</i> (L.f.) Benth. (Mimosaceae)	Chinduga	Bronchitis, diabetes, leprosy, ulcers	Stem bark, stem bark	N A	[48]
<i>Albizia thompsonii</i> Brandis (Mimosaceae)	Velugu chinta	Skin diseases and ulcers	Stem bark, leaves	V U	[12, 13, 34, 53, 54]
<i>Alternanthera sessilis</i> (L.) R. Br. (Amaranthaceae)	Ponnaganti	Diarrhoea, dysopia	Whole plant,	N A	[48]
<i>Amaranthus gangeticus</i> L. (Amaranthaceae)	Thota kura	Dysentery	Whole plant	N A	[48]
<i>Amaranthus spinosus</i> L. (Amaranthaceae)	Mulla thota kuura	Liver disorders, spleen problems	Roots	N A	[48]
<i>Amorphophallus paeoniifolius</i> (Dennst.) Nicolson (Araceae)	Sirikanda	Bone fracture	Cornplete plant	N A	[58]
<i>Anacardium occidentale</i> L. (Anacardaceae)	Seedi, Jidi mamidi	Cracks, skin diseases	Seeds, stem bark	N A	[48, 52]

Table 3. Floristic, ethnomedicinal and threat status of Medicinal Plants in the Eastern Ghats of Andhra Pradesh

Plant Name	Local name	Ethnomedicinal use	Parts used	TS *	Ref.
<i>Andrographis paniculata</i> (Burm. f.) Wall. Ex Nees (Acanthaceae)	Nelavemu, Resa, Kambarapadde	Diabetes, small pox, leprosy, fever, cancer, intestinal worms	Leaves, whole plant, roots	N A	[48, 49, 52]
<i>Angiopteris evecta</i> (Forst.) Hoffin. (Marattiaceae)	Davanamu	Heart problems	Rhizome	E N	[13, 34, 48, 53]
<i>Anisomeles indica</i> L. (Lamiaceae)	Ada beera	Epilepsy, astringent, stimulant, urinary disorders	Whole plant	N A	[48, 51]
<i>Annona reticulate</i> L. (Annonaceae)	Ramaphalam	Scabies, blood purifier	Leaves, fruits	N A	[52, 56]
<i>Annona squmosa</i> L. (Annonaceae)	Seetaphalam	Bronchitis, ulcers	Bark, leaves	N A	[48, 56]

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<i>Anogeissus acuminata</i> Wall. Ex Bedd. (Combretaceae)	Pachi manu	Dysentery, urinary problems	Stem bark, gum	N A	[48]
<i>Anogeissus latifolia</i> (Roxb. ex DC.) Wall. ex Bedd. (Combretaceae)	Thirmanu	Cough, external application for scorpion bite	Stem bark	N A	[48, 59]
<i>Argemone mexicana</i> L. (Papaveraceae)	Balu rakkisa	Leprosy, psoriasis, scabies	Seeds, leaves	N A	[48, 50]
<i>Argyrea nervosa</i> (Burm.f.) Boj. (Convolvulaceae)	Samudra pala, Chandrapoda	Blisters, boils, rheumatism, hydrocele	Leaves, roots	N A	[48, 49, 60]
<i>Aristolochia bracteolata</i> Lamk. (Aristolochiaceae)	Gadidagadapaaku	Eczema, skin diseases	Leaves	N A	[48]
<i>Aristolochia indica</i> L. (Aristolochiaceae)	Nalleswari	Infant diarrhoea, antidote for scorpion sting, ring worm, eczema, psoriasis	Roots, whole plant, leaves	N A	[48, 49, 52]
<i>Artemisia vulgaris</i> L. (Asteraceae)	Davanamu	Dysentery, skin diseases	leaves	N A	[48]

Table 4. Floristic, ethnomedicinal and threat status of Medicinal Plants in the Eastern Ghats of Andhra Pradesh

Plant Name	Local name	Ethnomedicinal use	Parts used	T S*	Ref.
<i>Artocarpus heterophyllus</i> Lam. (Moraceae)	Panasa chettu	Dysentery, dysentery	Stem bark, roots	N A	[48, 56]
<i>Asparagus recemosus</i> Willd. (Liliaceae)	Pilli teegalu, kalla gadda	dysentery	roots	N A	[48]
<i>Atlantia monophylla</i> (Roxb.) DC. (Rutaceae)	Gaja nimma, adavinimma	Paralysis, eczema,	Seed oil, roots, leaves	N A	[48, 56, 60]
<i>Azadirachta indica</i> A. Juss. (Meliaceae)	Vepachettu, konda vepa, turaka vepa	Diarrhoea, jaundice, skin diseases, small pox, chickenpox, malaria	Stem bark, leaves, seed oil	N A	[48, 51, 58]
<i>Atlantia monophylla</i> (Roxb.) DC. (Rutaceae)	Gaja nimma, adavinimma	Paralysis, eczema,	Seed oil, roots, leaves	N A	[48, 56, 60]
<i>Azadirachta indica</i> A. Juss. (Meliaceae)	Vepachettu, konda vepa, turaka vepa	Diarrhoea, jaundice, skin diseases, small pox, chickenpox, malaria	Stem bark, leaves, seed oil	N A	[48, 51, 58]
<i>Bacopa monnieri</i> (L.) Wettstein. (Scrophulariaceae)	Samvani mokka, sambrani chettu, brahmi	Cooling effect, epilepsy, memory power	Whole plant	N A	[48]
<i>Bambusa arundinacea</i> Retz. Willd. (Bambusaceae)	Veduru	Piles	Inner membrane of the culm	N A	[52]
<i>Barleria prionitis</i> L. (Acanthaceae)	Mulla gorinta	Cough, jaundice, tooth pain, throat ulcers	Leaves, roots	N A	[48, 52, 56]
<i>Barlaria strigosa</i> Willd. (Acanthaceae)	Neelambaram	Tuberculosis	roots	N A	[48, 58]
<i>Bauhinia purpurea</i> L. (Fabaceae)	Pachari	Dysentery	Stem bark	N A	[48]

Table 5. Floristic, ethnomedicinal and threat status of Medicinal Plants in the Eastern Ghats of Andhra Pradesh

Plant Name	Local name	Ethnomedicinal use	Parts used	TS*	Ref.
<i>Bauhinia racemosa</i> Lam. (Fabaceae)	Bodantamkura, chinnare	Diarrhoea, epilepsy, eye infections, sticky motions	Root bark, stem bark, leaves	N A	[48, 51, 52, 60]
<i>Bauhinia vahlii</i> Wt & Am. (Fabaceae)	Addakulu	Dysentery, syphilis	roots	N A	[48, 52]
<i>Bidens pilosa</i> L. (Asteraceae)	Japra, jafra	Cold, cough, ear pain, tooth ache, fever	Whole plant, leaves, roots	N A	[48, 52]
<i>Biophytum nervifolium</i> Thw. (Oxalidaceae)	Pushpajalam	Chest pain, Rheumatoid arthritis	Whole plant	N A	[48, 58]
<i>Bixa orellana</i> L. (Bixaceae)	Jabarukaya	Dysentery, jaundice, throat infections	Leaves	N A	[48]
<i>Boerhavia diffusa</i> L. (Nyctaginaceae)	Kannekomari, attamamidi	Aphrodisiac, discutient	Tubers	N A	[51]
<i>Bombax ceiba</i> L. (Bombacaceae)	Tellaburuga, adaviburuga	Chicken pox, contraception, menstrual problems, blisters	Flowers, stem bark, root bark	N A	[48, 51]
<i>Borassus flabellifer</i> L. (Arecaceae)	Thati chettu	Intestinal worms, skin diseases, laxative	Fruits	N A	[48, 56]
<i>Boswellia serrata</i> Roxb. (Bursaceae)	Anduga, anthuka	Diarrhoea, dysentery, skin diseases, general weakness, antidote for scorpion sting	Stem bark, gum,	N A	[48, 60]
<i>Boswellia ovalifoliolata</i> Balakr. & Henry (Bursaceae)	Guggilum	Antidote for scorpion sting, Children's diseases	Resin and gum	E N	[12, 13, 34, 53, 54, 57]
<i>Bridelia retusa</i> (L.) Spr. (Phyllanthaceae)	Koramanu	Chest pain, jaundice	Stem bark	N A	[48, 56]

Table. 6. Floristic, ethnomedicinal and threat status of Medicinal Plants in the Eastern Ghats of Andhra Pradesh

Plant Name	Local name	Ethnomedicinal use	Parts used	T S*	Ref.
<i>Buchanania lanzan</i> Spr. (Anacardaceae)	Chinnamurli, sara	Boils, chest pain, infant diarrhoea, ulcers	Stem bark	L R	[13, 34, 48, 53, 54, 57, 58]
<i>Butea monosperma</i> (Lamak.) (Fabaceae)	Moduga	Herpes, antihelmintic , antifertility	Seeds , root bark	E N	[13, 34, 49, 52-54, 57]
<i>Butea superba</i> Roxb. (Fabaceae)	Teega modugu	Eczema, piles	Roots, shoots	N A	[48, 56]
<i>Bytneria herbacea</i> Roxb. (Sterculiaceae)	Rudraksha	Asthma	Roots	N A	[58]
<i>Dalbergia latifolia</i> Roxb. (Fabaceae)	Irugudu chettu	Leprosy	Stem bark & leaves	N A	[48]
<i>Dalbergia sissoo</i> Roxb. (Fabaceae)	Yerra sissoo , simsupa	Dysentery, eye diseases, scabies	Roots, leaves, wood	N A	[48]
<i>Datura metal</i> L. (Solanaceae)	Nalla ummetta	Scabies and other skin diseases, controlling excessive lactation	Leaves	N A	[52, 56]
<i>Decalepis hamiltonii</i> Wight. & Arn. (Asclepiadaceae)	Nannari, neemam teega, maredu geddalu	Rejuvenation (tonic), cooling agent	Roots	E N	[12, 13, 34, 53, 54, 57]
<i>Decaschistia cuddapahensis</i> Paul & Nayar (Malvaceae)	Magasiri Gadda	Aphrodisiac	Roots	N A	[12]
<i>Delonix regia</i> (Boi.ex Hook.) Rat. (Cesalpiniaceae)	Turayi	Dysmenorrhoea,	Flowers,	N A	[48, 61]
<i>Desmodium gangeticum</i> (L.) DC (Fabaceae)	Bhumi ippa, gittanaramu	Blisters, boils, skin diseases, whooping cough	Leaves	N A	[48, 51, 56]

Table. 7. Floristic, ethnomedicinal and threat status of Medicinal Plants in the Eastern Ghats of Andhra Pradesh

Plant Name	Local name	Ethnomedicinal use	Parts used	T S*	Ref.
<i>Desmodium triflorum</i> (L.) DC. (Fabaceae)	Muntha mandhu	Fractures, malaria, dysentery diarrhoea	Whole plant	N A	[48, 56]
<i>Dichrostachys cinerea</i> (L.) Wt. (Araceae)	Veluturu chettu	Chicken pox, fractures, paralysis	Roots, root bark, tubers	N A	[48, 56]
<i>Dioscorea oppositifolia</i> L. (Dioscoreaceae)	Paralagaddalu	Fractures, antidote for scorpion and snake bite	Tubers, roots	N A	[48, 50, 59]
<i>Dioscorea pentaphylla</i> L. (Dioscoreaceae)	Aarekateegalu	Fractures, cold and cough	Tubers, roots	N A	[48, 52]
<i>Diospyros melanoxylon</i> Roxb. (Ebenaceae)	Thummika	Chest pain, cold, Diarrhoea	Roots,Stem bark, leaves, fruits	N A	[48, 52, 58]
<i>Eclipta prostrata</i> L. (Asteraceae)	Guntagalijaraku	Jaundice, elephantiasis, antidepilatory	Leaves, whole plant	N A	[51]
<i>Emilia sonchifolia</i> DC. (Asteraceae)	Tella nelanthu	diarrhoea	Roots	N A	[48]
<i>Encostema axillare</i> (Lam.) Raynal. (Gentianaceae)	Gulvidi, chevvu kurti	Blood Purification	Whole plant	N A	[48]
<i>Entada pursaetha</i> D.C (Mimosae)	Gillteega	Herpes, intestinal worms, Rheumatoid arthritis	Kernel, cotyledons	E N	[13, 34, 48, 53, 54, 57, 58]
<i>Erythrina variegata</i> L. (Fabaceae)	Badita chettu, modugu	Cold, cough in children, aphrodisiac, leucorrhoea	Leaves, flowers, stem bark	N A	[48, 52]
<i>Euphorbia hirta</i> L. (Euphorbiaceae)	Pacchabottu mokka, alumu, reddinanabrolu	Dysentery, kidney stones, rheumatoid arthritis, warts, cuts	Leaves & roots, whole plant, latex	N A	[48, 51, 56, 58]

Table. 8. Floristic, ethnomedicinal and threat status of Medicinal Plants in the Eastern Ghats of Andhra Pradesh

Plant Name	Local name	Ethnomedicinal use	Parts used	TS*	Ref.
<i>Euphorbia thymifolia</i> L. (Euphorbiaceae)	Reddi-vari manubala	Tooth ache, urinary problems	Whole plant	N A	[48]
<i>Ficus benghalensis</i> L. (Moraceae)	Marri	Eye diseases	latex	N A	[48, 56]
<i>Ficus hispida</i> L.f. (Moraceae)	Bemmidi	Boils, ulcers	Leaves, stem bark	N A	[48, 51]
<i>Ficus racemosa</i> L. (Moraceae)	Medichettu, athi	Diabetes, piles, Diarrhoea	Fruits, latex, Stem bark	N A	[48, 51, 58]
<i>Ficus religiosa</i> L. (Moraceae)	Raavi	Paralysis	Bark	N A	[51]
<i>Glochidion tomentosum</i> Dalz. (Phyllanthaceae)	Pageri	Wounds	Leaves	N A	[12]
<i>Gloriosa superba</i> L. (Liliaceae)	Adavinaabhi, potti dumpa, kalappa	Cuts, dysopia, stomach problems, asthma	Tubers, stem bark, leaves	V U	[13, 34, 48, 53, 54, 57, 58]

MEDICINAL PLANTS IN THE EASTERN GHATS OF ANDHRA PRADESH, INDIA

			gadda			58]
<i>Gmelina arborea</i> (Lamiaceae)	Roxb.	Gummidi		Gonorrhoea, antidote for scorpion sting	Leaves	N [48, 59] A
<i>Gmelina asiatica</i> (Lamiaceae)	L.	China gummidi		Dandruff, tooth ache, Swellings, leprosy	Fruits, leaves, stem bark, roots	N [48, 58] A
<i>Grewia tilifolia</i> (Tiliaceae)	Vahl.	Charachis		dysentary	Stem bark	N [56] A
<i>Gymnema sylvestre</i> (Retz.) R. Br. (Asclepiadaceae)	ex Roem & Schult.	Podapatri		Diabetes, diarrhoea, dysentery, tumors in stomach, antidote for snake bite, diuretic	Leaves, roots	V [13, 34, 48, 53, 54, 56-58] U
<i>Gyrocarpus americanus</i> (Hernandiaceae)	Jacq.	Poliki, puniki		Spider bite, cancer	Stem bark	N [49, 59, 60] A

Table. 9. Floristic, ethnomedicinal and threat status of Medicinal Plants in the Eastern Ghats of Andhra Pradesh

Plant Name	Local name	Ethnomedicinal use	Parts used	T S*	Ref.
<i>Habenaria roxburghii</i> (Orchidaceae)	(Pers.) R.Br.	Malle Leena Gadda	Wounds, antidote for snake bite	Tubers	N [12] A
<i>Haldina cordifolia</i> (Rubiaceae)	(Roxb.) Ridsdale	Bandari, pasupukadam ba	Stomach ache	Stem bark	N [56] A
<i>Helicteres isora</i> (Sterculiaceae)	L.	Chamalli, nulitada	Dysentery, antidote for snake bite, diabetes, antidote for rabies	Fruits, roots, seeds	N [48, 49, 52, 58] A
<i>Heliotropium indicum</i> (Boraginaceae)	L.	Nagadanthi, nagadanti	Ulcers, antidote for snake bite	leaves	N [48, 56] A
<i>Hemidesmus indicus</i> (Asclepiadaceae)	(L.) R. Br.	Sugandhi pala	Cooling effect, dysentery, herpes, rheumatism	Roots	V [13, 34, 48, 53, 54, 56, 57] U
<i>Heterostemma deccanense</i> (Swarup. & Mangaly)	(Talb.) (Asclepiadaceae)	Pedda Joola pala	Stomach ailments	Stem bark	E [12, 13, 34, 53, 54] N
<i>Hibiscus rosa-sinensis</i> (Malvaceae)	L.	Mandaara	Boils, Bronchitis, dandruff, gastric problems	leaves, flowers,	N [48] A
<i>Hildegardia populifolia</i> (Sterculiaceae)	(Roxb.) Schott. & Endl.	Gali Budda	Antidote for dog bite, malaria	Stem bark	E [12, 13, 34, 53, 54, 57] N
<i>Holarrhena antidysentrica</i> (Apocyanaceae)	Wall Ex Don.	Aakupala, pala kodaga	Amoebic dysentery, diarrhoea	Stem bark	N [56] A
<i>Holarrhena pubescens</i> (Apocyanaceae)	Wall. Ex Don.	Palakodisa	Dysentery, stomach ache, Asthma	Stem bark, roots	N [48, 58] A
<i>Holoptela integrifolia</i> (Ulmaceae)	(Roxb.) Planch.	Tharisa	Vulnerary	Stem bark	N [51] A
<i>Hugonia mystax</i> (Linaceae)	L.	Kakibeera, pisang	diabetes	roots	N [48] A

Table. 10. Floristic, ethnomedicinal and threat status of Medicinal Plants in the Eastern Ghats of Andhra Pradesh

Plant Name	Local name	Ethnomedicinal use	Parts used	T S*	Ref.
<i>Hyptis suaveolens</i> (Lamiaceae)	(L.) Poit.	Seema tulasi, godrundal	Fever, ulcers, joint pains	Roots, seeds, seed oil	N [52, 58] A
<i>Ichnocarpus frutescens</i> (Apocyanaceae)	(L.) R. Br.	Illukatte, palatega	Blood purification	Roots	N [48] A
<i>Indigofera tinctoria</i> (Fabaceae)	L.	Neela, kondaneela	Bronchitis, tooth ache	Root, tender shoots	N [48] A
<i>Ipomea nil</i> (Convolvulaceae)	L.	Jiriki, kollivithulu	ulcers	Whole plant	N [48] A
<i>Ixora pavetta</i> (Rubiaceae)	Andrews.	Kolimichettu, korivi pala	Chest pain, hepatic disorders, jaundice	Leaves, stem bark,	N [48] A [58]
<i>Jatropha curcas</i> (Euphorbiaceae)	L.	Nepalamu, adavi aamidamu	Dysentery, gum bleeding, tooth ache	Roots, tender shoots	N [48] A
<i>Jatropha gossypifolia</i> (Euphorbiaceae)	L.	Seema nepalam	Eczema, paralysis, bonefracture	Leaves, roots	N [48, 58] A
<i>Justicia adhatoda</i> (Acanthaceae)	L.	Addasaramu	Diarrhoea, expectorant, bronchitis, asthma, tuberculosis	Leaves, inflorescence	N [52, 58] A
<i>Kalanchoe pinnata</i> (Crassulaceae)	Lam.	Gallarapaku	Cough & diarrhoea	leaves	N [58] A
<i>Lantana camara</i> (Verbenaceae)	L.	Deva ganneru, pulikampa	Burns, body pains	Leaves, roots	N [48, 56] A
<i>Lawsonia inermis</i> (Lythraceae)	L.	Gorinta	Dysentery, gynecological problems	Seeds, leaves	N [60] A
<i>Leonotis nepatiifolia</i> (Lamiaceae)	(L.) R. Br.	Ranabheri	Skin diseases, breast pain, fever	Leaves, inflorescence	N [48, 51, 58] A

Table 11. Floristic, ethnomedicinal and threat status of Medicinal Plants in the Eastern Ghats of Andhra Pradesh

Plant Name	Local name	Ethnomedicinal use	Parts used	T S*	Ref.
<i>Leptadenia reticulata</i> (Retz.) Wt. & Arn. (Asclepiadaceae)	Mukku thummudu	Ear pain, eczema, scabies	Whole plant	N A	[48, 56]
<i>Litsea glutinosa</i> (Lour.) C.B. Robinson (Lauraceae)	Pangiachinna	Fractures, chest pain	Stem bark	C N	[13, 34, 48, 53, 54, 57, 58]
<i>Lygodium flexuosum</i> L. (Lygodiaceae)	Khorothi	Jaundice	Leaves	N A	[58]
<i>Lantana camara</i> L. (Verbenaceae)	Deva ganneru, pulikampa	Burns, body pains	Leaves, roots	N A	[48, 56]
<i>Lawsonia inermis</i> L. (Lythraceae)	Gorinta	Dysentery, gynecological problems	Seeds, leaves	N A	[60]
<i>Leonotis nepatiifolia</i> (L.) R. Br. (Lamiaceae)	Ranabheri	Skin diseases, breast pain, fever	Leaves, inflorescence	N A	[48, 51, 58]
<i>Leptadenia reticulata</i> (Retz.) Wt. & Arn. (Asclepiadaceae)	Mukku thummudu	Ear pain, eczema, scabies	Whole plant	N A	[48, 56]
<i>Litsea glutinosa</i> (Lour.) C.B. Robinson (Lauraceae)	Pangiachinna	Fractures, chest pain	Stem bark	C N	[13, 34, 48, 53, 54, 57, 58]
<i>Lygodium flexuosum</i> L. (Lygodiaceae)	Khorothi	Jaundice	Leaves	N A	[58]
<i>Macrotyloma uniflorum</i> (Lamk.) Verd. (Fabaceae)	Ulavalu	Rheumatic pains, kidney stones	Seeds	N A	[52]
<i>Madhuca indica</i> J. F. Gmel. (Sapotaceae)	Ippa	Asthma	Flowers	N A	[58]

Table 12. Floristic, ethnomedicinal and threat status of Medicinal Plants in the Eastern Ghats of Andhra Pradesh

Plant Name	Local name	Ethnomedicinal use	Parts used	T S*	Ref.
<i>Madhuca longifolia</i> (Sapotaceae)	Koeng. Vippachettu	Burns, Dysmenorrhoea, tooth and ear aches	Leaves, roots, stem bark, root bark	N A	[48, 52]
<i>Mallotus philippensis</i> (Lamk.) Muell- Arg. (Euphorbiaceae)	Kumkumachettu	Bladder stones, tape worms, round worms	Fruit epicarp, total fruit	N A	[52]
<i>Mangifera indica</i> (Anacardaceae)	L. Mamidi	Leprosy, tuberculosis, diarrhoea	Stem bark,	N A	[48, 56]
<i>Marselia quadrifolia</i> (Marseliaceae)	L. Ciklinthakura	Insomnia	Leaves	N A	[58]
<i>Memecylon umbellatum</i> Burm. f. (Memecylaceae)	Kukkali, midalli	Gynaecological problems	Root bark	N A	[48]
<i>Merremia gangetica</i> (Convolvulaceae)	L. Yelukacheviyaaku	Antidote for snake bite	Root tubers	N A	[58]
<i>Mimosa pudica</i> L. (Mimosaceae)	Attipatti, pimasalongi	Malaria, anti-inflammatory, kidney stones	Leaves, stem	N A	[52, 58, 60]
<i>Momordica charantia</i> (Cucurbitaceae)	L. Kakara chettu	Spleen problems, Liver problems	leaves	N A	[48]
<i>Momordica dioca</i> (Cucurbitaceae)	L. Agaara	Burns, diabetes, heart pain, ring worm and scabies	Leaves, fruits, rhizome	N A	[48, 52]
<i>Monochoria vaginalis</i> (Pontederiaceae)	Burm. Nirkancha, neetichamanthi, kappa	Cooling effect	roots	N A	[48]
<i>Morinda pubescens</i> (Rubiaceae)	Smith Maddi	Jaundice	Stem bark	N A	[51]

Table 13. Floristic, ethnomedicinal and threat status of Medicinal Plants in the Eastern Ghats of Andhra Pradesh

Plant Name	Local name	Ethnomedicinal use	Parts used	T S*	Ref.
<i>Moringa pterygosperma</i> Gaertn. (Moringaceae)	Muluga, munaga	Cold, wounds and cuts	Stem bark, gum roots	N A	[52]
<i>Murraya koenigii</i> (L.) Spr. (Rutaceae)	Karivepaaku	dysentery	roots	N A	[48]
<i>Musa paradisiaca</i> Linn. (Musaceae)	Arati	Gonorrhoea	Roots	N A	[52]
<i>Naravelia zeylanica</i> (L.) DC (Ranunculaceae)	Pullabatchala	Chest pain, cold	Stem bark, whole plant	V U	[13, 34, 48, 53, 57, 58]
<i>Naringi crenulata</i> (Roxb.) Nicolson. (Rutaceae)	Torravelaga, verrivelaga	Dysentery, intestinal worms, antidote for snake bite	Leaves, fruits, stem bark	N A	[48, 51, 58]
<i>Nelumbo nucifera</i> Gaerth. (Nymphaeaceae)	Kamalam, taamara	erradiarrhoea	Whole plant	N A	[48]
<i>Ocimum basilicum</i> L.	Bhutulasi, rudrajada,	Chronic dysentery, diarrhoea,	Seeds, leaves	N	[48, 52]

MEDICINAL PLANTS IN THE EASTERN GHATS OF ANDHRA PRADESH, INDIA

(Lamiaceae)	vepudupaccha	ear pain, piles and gout		A	
<i>Ocimum gratissimum</i> L.	Nimma tulasi, rama tulasi	paralysis	Roots	N	[48]
(Lamiaceae)				A	
<i>Ocimum sanctum</i> L.	Manchi tulasi, Krishna tulasi, brynda	Malaria, bronchitis, fits	Roots, leaves	N	[52, 58]
(Lamiaceae)				A	
<i>Opuntia dilleenii</i> (Ker-Gawl)	Nagajemudu	Antidote for snake bite	Phyllode	N	[56]
Haw (Cactaceae)				A	
<i>Orthosiphon rubicundus</i> (D.Don) Benth. (Lamiaceae)	Nelatappidi	Piles	Root tubers	N	[58]
				A	

Table 14. Floristic, ethnomedicinal and threat status of Medicinal Plants in the Eastern Ghats of Andhra Pradesh

Plant Name	Local name	Ethnomedicinal use	Parts used	T S *	Ref.
<i>Oroxylum indicum</i> (L.) Vent. (Bignoniaceae)	Pampini chettu	Diarrhoea, dysentery, tuberculosis	Root bark, roots	V U	[13, 34, 48, 52-54, 57]
<i>Oxalis corniculata</i> L. (Oxaliaceae)	Puli chinta	Urinary problems, laxative	Whole plant	N A	[48, 52]
<i>Pedaliium morex</i> L. (Pedaliaceae)	Yenugupalleru	Gonorrhoea	Whole plant	N A	[58]
<i>Phyllanthus reticulata</i> Poir. (Euphorbiaceae)	Pindipulla, Nalla pulcheru, poolaguvva Pippallu	Gum infections, eye infections, loose motions, piles, sores	Tender shoots	N A	[48, 52, 60]
<i>Piper longum</i> L. (Piperaceae)		Delivery, caraminative	Stem, fruits	N A	[52]
<i>Pimpinella tirupatiensis</i> Balakr. & Subram. (Apiaceae)	Konda kottimeera	Antidote for scorpion sting	Roots	E N	[48]
<i>Pithecellobium dulce</i> (Roxb.) Benth. (Fabaceae)	Sema chinta	dysentery	Stem bark	N A	[13, 34, 48, 53, 54, 57]
<i>Plumbago zeylanica</i> L. (Plumbaginaceae)	Tellachitramoolam	Dysmenorrhoea, skin diseases, rheumatism, Dental problems	Roots, stem, oil	E N	[13, 34, 48, 50, 53, 54, 56, 57, 60]
<i>Plumeria alba</i> L. (Apocyanaceae)	Nooru varahalu	scabies	latex	N A	[56]
<i>Pogostemon benghalensis</i> (Burm. f.) O. Ktze. (Lamiaceae)	Kokala	Indigestion, fever	Roots, leaves	N A	[48, 58]
<i>Pseudarthria viscida</i> (L.) Wt. & Arn. (Fabaceae)	Mayakuponna, muyakuponna	Excessive heat, heart problems	Roots, roots	L R	[13, 34, 48, 53, 54, 57]

Table 15. Floristic, ethnomedicinal and threat status of Medicinal Plants in the Eastern Ghats of Andhra Pradesh

Plant Name	Local name	Ethnomedicinal use	Parts used	T S *	Ref.
<i>Psidium guajava</i> L. (Myrtaceae)	Jaama, goyya, tella jama	dysentery	Stem bark	N A	[48]
<i>Pterocarpus marsupium</i> Roxb. (Fabaceae)	Yegichettu, asana	Diarrhoea, dysentery, skin diseases, leucoderma	Gums, root bark, leaves, heart wood	N A	[48, 49]
<i>Pterocarpus santalinus</i> L.f. (Fabaceae)	Erra chandanamu, Rakta chandanamu	Diabetes	Stem bark	C E	[12]
<i>Pterolobium hexapetalum</i> (Roth.) Sant. & Wagh (Caesalpinaceae)		Cough in children	Stem bark	N A	[48]
<i>Pterospermum xylocarpum</i> (Gaertn.) Sant. & Wagh (Malvaceae)	Tada chettu, lolugu chettu	Dandruff, stomach ache	Leaves, stem bark	N A	[48, 52, 60]
<i>Pueraria tuberosa</i> Roxb. (Fabaceae)	Dari gummadi	cough	Roots	N T	[13, 34, 48, 53, 54, 57]
<i>Quisqualis indica</i> L. (Combretaceae)	Tiga ganneru	Helmintheasis	Seeds	N A	[56]
<i>Rauvolfia serpentina</i> (L.) Benth. Ex Kurz. (Apocyanaceae)	Patalgaruda, pathalagandhi, sarpagandhi	Heart problems, high blood pressure, antidote for snake bite	Roots, root bark,	C E	[13, 34, 48, 53, 54, 57, 58]
<i>Rauvolfia tetraphylla</i> L. (Apocyanaceae)	Papitaku,	High blood pressure, antidote for snake bite and scorpion sting, stomach ache	Roots	N A	[52, 58]
<i>Rhynchosia beddomei</i> Baker (Fabaceae)	Adavi kandhi	Abortifacient	Leaves	N A	[12]

Table 16. Floristic, ethnomedicinal and threat status of Medicinal Plants in the Eastern Ghats of Andhra Pradesh

Plant Name	Local name	Ethnomedicinal use	Parts used	T S*	Ref.
<i>Rivea hypocrateriformis</i> (Desr.) Choisy (Convolvulaceae)	Bodditheega	Diarrhoea, Rheumatoid arthritis	Whole plant	N A	[48, 58]
<i>Rubia cordifolia</i> L. (Rubiaceae)	Khuamadu	Stomach ache	Roots	C E	[53]
<i>Rungia pectinata</i> (L.) Nees (Acanthaceae)		Cooling effect, small pox	leaves	N A	[13, 34, 48, 53, 54, 57]
<i>Santalum album</i> L. (Santalaceae)	Siri gandhamu	Skin diseases, gonorrhoea	Roots, stem bark	E N	[13, 34, 50, 53, 54, 57]
<i>Sapindus emarginatus</i> Vahl. (Sapindaceae)	Kunkudu	Centipede bite, asthma, paralysis	Endosperm, fruits	L R	[13, 34, 53, 54, 56, 57, 59]
<i>Saraca asoca</i> (Roxb.) de Wilde. (Caesalpiniaceae)	Asoka chettu	Syphilis	Flowers	E N	[13, 34, 53, 54, 57, 58]
<i>Sarcostemma acidum</i> (Roxb.) Voigt. (Asclepiadaceae)	Gundupaala teega	Cooling effect, emetic, ear pain, antidote for mad dog bite	Whole plant, stem	N A	[48, 60]
<i>Schleichera oleosa</i> (Lour.) Oken. (Sapindaceae)	Pusugu	Blood purification, antidote for snake bite	Stem bark, root bark	N A	[48, 58]
<i>Semecarpus anacardium</i> L. (Anacardiaceae)	Nalla jeedi	Cuts, leprosy, nervous disorders	Pericarp, gum	N A	[48, 56]
<i>Setaria italica</i> L. (Poaceae)	Korallu	Cooling effect	leaves	N A	[48, 52]
<i>Shorea tumbuggaia</i> Roxb. (Dipterocarpaceae)	Thamba Jalari, guggilamu	Ear pain	Leaf juice	E N	[12, 13, 34, 53, 54, 57]

Table 17. Floristic, ethnomedicinal and threat status of Medicinal Plants in the Eastern Ghats of Andhra Pradesh

Plant Name	Local name	Ethnomedicinal use	Parts used	T S*	Ref.
<i>Sida cordata</i> (Burm.f.) Borssum. (Malvaceae)	Gayapaaku	Diarrhoea, dysentery, paralysis	Whole plant, stem bark, roots	N A	[48]
<i>Sida cordifolia</i> L. (Malvaceae)	Tella antisa	Dysentery, dysmenorrhoea, gonorrhoea, ulcers, testis hydrocele, paralysis	Gum, seeds, seeds, leaves	N A	[48, 51, 52]
<i>Smilax zeylanica</i> L. (Smilacaceae)	Konda guriva teega	Sperm production	Root tuber	V U	[13, 34, 48, 53, 54, 57]
<i>Solanum surtense</i> Burm.f. (Solanaceae)	Verumulaka	Jaundice	Root bark	N A	[58]
<i>Solanum trilobatum</i> L. (Solanaceae)	Tella vuste, mundalmuste	Chronic bronchitis	Whole plant	N A	[48]
<i>Soymida febrifuga</i> (Roxb.) A. Juss. (Meliaceae)	Somati	Diarrhoea, dysentery, indigestion and stomach problems	Flowers, leaves, stem bark	N A	[48, 52]
<i>Stemona tuberosa</i> Lour. (Stemonaceae)	Konda Tamara	Gynaecological problems	Tubers	V U	[13, 34, 53, 54, 57]
<i>Sireblus aspera</i> Lour. (Moraceae)	Barinki	Lactation, pyorrhoea, dysentery, diarrhoea and malaria, eczema	Leaves, twigs, stem bark	N A	[48, 52, 56, 60]
<i>Strychnos nux-vomica</i> L. (Loganiaceae)	Mushidi, musti	Diabetes, dysentery	Wood, stem bark	N A	[48, 58]

Table 18. Floristic, ethnomedicinal and threat status of Medicinal Plants in the Eastern Ghats of Andhra Pradesh

Plant Name	Local name	Ethnomedicinal use	Parts used	T S*	Ref.
<i>Strychnos potatorum</i> L.f. (Loganiaceae)	Chilla ginjalu, indipikkalu	High blood pressure, antidote for scorpion sting and snake bite, asthma	Seeds, root bark	N A	[48, 51, 52, 59]
<i>Syzygium alternifolium</i> (Wight) Walp. (Myrtaceae)	Thamba Jalari, Mogi	Diabetes, dry cough	Fruits, leaves	E N	[12, 13, 34, 53, 54, 57]
<i>Tabernaemontana divaricata</i> L. (Apocyanaceae)	Nandivardanamu	Tooth ache, skin diseases	Roots, flowers	N A	[48]
<i>Tacca lentopetaloides</i> L. (Taccaceae)	Dhoi, pedda kandha gadda, kanda	Body Pains	Tubers, leaves	N T	[13, 34, 53, 54, 57]
<i>Tamarindus indica</i> L. (Caesalpiniaceae)	Chinta chettu	Burns, laxative, abortifacient	Seeds, fruit pulp, leaves	N A	[48, 51, 56]
<i>Tephrosia purpurea</i> (L.) Pers. (Fabaceae)	Vempali	Joint pains, diarrhoea, rheumatism and asthma	Roots	N A	[48, 56]
<i>Tephrosia villosa</i> (L.) Pers. (Fabaceae)	Nugu vempali	Dysentery, health tonic	Whole plant, roots	N A	[48, 52]
<i>Teramnus labialis</i> (L.f.) Spr. (Fabaceae)	Masha parni	Nervous disorder	Pods	N A	[48]
<i>Terminalia arjuna</i> (DC.) Wt. & Arn. (Combretaceae)	Tellamaddi	Diabetes, bone fractures	Stem bark	L R	[13, 34, 52, 53, 57, 58]

MEDICINAL PLANTS IN THE EASTERN GHATS OF ANDHRA PRADESH, INDIA

<i>Terminalia chebula</i> L. (Combretaceae)	Karakkaya	Bronchitis, dysopia, throat infection, tuberculosis	Fruit, rhizome, fruits	N A	[48, 52]
<i>Terminalia pallida</i> Brandis (Combretaceae)	Tella Karakkaya	Dysentary, piles	Fruits	E N	[12, 13, 34, 53, 54, 57]

Table 19. Floristic, ethnomedicinal and threat status of Medicinal Plants in the Eastern Ghats of Andhra Pradesh

Plant Name	Local name	Ethnomedicinal use	Parts used	TS*	Ref.
<i>Thespesia lampas</i> (Cv.) Dalz & Gibs (Malvaceae)	Adavi benda	tuberculosis	Roots, seeds	NA	[48, 58]
<i>Tinospora cordifolia</i> Miers (Tiliaceae)	Thippateega, jevantica	Jaundice, chronic fever, antidote for snake bite, high blood pressure, jaundice, diarrhoea and dysentery	Stem, roots, leaves	NA	[49, 50, 52]
<i>Toddalia asiatica</i> (L.) Lam. (Rutaceae)	Konda kaasinth	Dysentery, antidote for mad dog bite	Stem bark, root bark	NA	[48, 58]
<i>Torenia indica</i> Saldanha (Scrophulariaceae)	Chinna mogakura	Ear pain	Leaves	NA	[12, 53]
<i>Trianthema portulacastrum</i> L. (Aizoaceae)	Ambati maanu, yerra galijeru Palleru	Kidney stones	Leaves	NA	[48]
<i>Tribulus terrestris</i> L. (Zygophyllaceae)	Palleru	Urinary disorders	Whole plant	NA	[58]
<i>Tylophora indica</i> (Burm. t.) Merr. (Asclepiadaceae)	Verripala, mekameyani aaku	Diarrhoea, dysentery, asthma	Roots	NA	[48, 56]
<i>Urena lobata</i> L. (Malvaceae)	Pedda benda	Cuts, dandruff, diuretic	Leaves, roots	NA	[48, 56]
<i>Urginea indica</i> (Roxb.) Kanth. (Liliaceae)	Adavi vulli	Diuretic, leucorrhoea	Bulb	NA	[52]
<i>Vanda tessellata</i> (Roxb.) Hook. f. ex. G. Don. (Orchidaceae)	Saga, badanika	Fractures, skin diseases	Aerial roots, leaves	NA	[48, 51, 52]
<i>Vernonia cinerea</i> (L.) Less. (Asteraceae)	Sahadevi, garitikamma	malaria	Leaves, roots	NA	[48, 58]
<i>Viscum articulatum</i> Bunn. Fl. (Loranthaceae)	Kaada badanika	Fractures, joint pains	Stem	NA	[48]

Table 20. Floristic, ethnomedicinal and threat status of Medicinal Plants in the Eastern Ghats of Andhra Pradesh

Plant Name	Local name	Ethnomedicinal use	Parts used	T S*	Ref.
<i>Vitex negundo</i> L. (Verbenaceae)	Vavilli, nallivavioli	Rheumatic pains, epilepsy, paralysis	Leaves	N A	[48] [52, 58]
<i>Vetiveria zizanioides</i> L. (Poaceae)	Vattiveru	Allergy	Roots	N A	[58]
<i>Waltheria americana</i> L. (Malvaceae)	Nalla benda	Ulcers, intestinal haemorrhages	Whole plant	N A	[48, 56]
<i>Wattakaka volubilis</i> (L.f.) Stapf (Asclepiadaceae)	Diddipala, pedda gurja	Cold, eye diseases, antidote for snake bite	Leaves, whole plant, roots	N A	[48, 49, 58]
<i>Woodfordia fruticosa</i> (L.) Kurz. (Lythraceae)	Jaji	Diarrhoea, menorrhoea	Stem bark, flowers	N A	[48, 56]
<i>Wrightia arborea</i> (Dennst.) Maberly (Apocyanaceae)	Adavi ankudu	Tooth ache, antidote for snake bite	Leaves, root bark	N A	[48, 58]
<i>Wrightia tinctoria</i> (Roxb.) R. Br. (Apocyanaceae)	Doddipala, palvareni	Purgative, rheumatism, piles, mouth ulcers	Root bark, leaves, stem bark, latex	N A	[51, 52]
<i>Xanthium indicum</i> Koenig in Roxb. (Asteraceae)	shankeswari	Boils, ulcers, diabetes	Roots	N A	[48, 49]
<i>Ximenia americana</i> L. (Olacaceae)	Billa	Tooth ache	Roots	N A	[48]
<i>Xylia xylocarpa</i> Roxb. (Mimosae)	Konda tangedu	Gonorrhoea	Root bark	N A	[48]
<i>Zanthoxylum rhesta</i> (Roxb.) DC. (Rutaceae)	Racha	Dysentery	Flowers	E N	[13, 34, 53, 54, 57]
<i>Zingiber roseum</i> Roxb. (Zingiberaceae)	Rajula gadda, adavi allamu	Skin diseases, stimulant, rheumatoid arthritis	rhizome	E N	[13, 34, 48, 53, 54, 57, 58]
<i>Ziziphus oenoplia</i> (L.) Mill. (Rhamnaceae)	Parimi	Herpes	Roots	N A	[48, 58]
<i>Ziziphus zlopyrus</i> (Retx.) Willd. (Rhamnaceae)	Gottichettu	Pimples, boils, cholera	Leaves, stem bark	N A	[51, 52]

Threat Status (TS*): CE (Critically Endangered); EN (Endanger); NT (Near Threatened); VU (Vulnerable)