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Review Article

Ethno-botanico-medicine for common human ailments in Nalgonda and Warangal districts of Telangana, Andhra Pradesh, India

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Abstract: The paper deals with 249 taxa which are used as ethno-botanico-medicine for common human ailments including injuries, bites, stings, etc. by the local people in Nalgonda and Warangal districts of Andhra Pradesh. The sources of plant medicine comprise four ferns and 245 angiosperms (220 Magnoliopsida and 25 Liliopsida) representing 199 genera of 89 families. Majority (87.5%) of these are from the wild, native forest species and arboreal. The plant parts used are leaf (32.9%) stem bark (20.9%), root (11.4%), whole plant (8.4%), fruit (7.5%), tuber/bulb/rhizome (6.8%), flower (5.5%), seed (3.3%) and stem (3.3%). The species used for treating human ailments (66) are grouped into 15 categories. The plant medicines used are mostly one species against a disease (142 species), or two (45), three (44), four (13), and to a maximum of five (5). As many as 29 species are used for a single health problem, i.e. boils while there is only one (not the same) plant species is used for 11 diseases. Of the two districts, Warangal is not only rich in area under forest cover, plant diversity and the ethnic people but also has more in reserve as traditional botanical knowledge over Nalgonda.

Keywords: Traditional medicine, Koyas, Chenchus, India

Introduction

Local Knowledge Systems (LKS) comprise the knowledge, beliefs, traditions, practices, institutions and worldviews developed and sustained by indigenous and local communities[1]. These systems represent the adaptive strategy to the environment in which the communities live. However, the adaptive nature, applicability and value of LKS need to be empirically tested and validated by sciences[2]. The potential and real values of LKS to address the local and global issues need to be investigated. However, the importance of LKS for community healthcare has been clearly demonstrated in the ethnobiological literature[1]. The state of Andhra Pradesh in southern India is known for its cultural people and their traditional knowledge systems[3]. The state has 35 ethnic tribes under the scheduled category.

The ethnic people include Koyas, Gonds, Naikpods, Chenchus, Yerukalas, Lambadis, etc. The ethnic populations constitute 10% and 14.10% of the total population of Nalgonda and Warangal districts, respectively. The people are known for their ability to use local plants to fight the common ailments[3,4]. To review the district-wise publications in this regard: (i) *Nalgonda*: Rao *et al.,* (1995)[5] published the ethnomedical therapy practiced by the Chenchus of Nallamalais. The ethnomedicine for cuts, wounds and boils as used by Chenchus of Nagarjunasagar-Srisailam Tiger Reserve was documented by Reddy *et al.,* (2003)[6]. Reddy (2008)[7] listed the bio-fencing plants that are used to cure the diseases among Lambadis whereas Sudharani *et al.,* (2007)[8] made a ethnobotanical survey of the district and Prasad *et al.,* (2010)[9] noted the medicinal plants used by five traditional practitioners from five mandals in the district; and (ii) *Warangal*: Ramarao (1988)[10], who did his doctoral thesis work on the Ethnobotany of Eastern Ghats in Andhra Pradesh, visited Rangapur and Thupakulagudem villages and interacted with Koyas and Lambadis. Hemadri (1990)[11] provided a list of medicinal plants of Karimnagar and Warangal districts. Reddy *et al.,* (1998)[12] reported the ethnoveterinary medicine from the district. Later Reddy *et al.,* (2007)[13] published an account of the phytotherapy practiced by Gonds in the district while Murthy *et al.,* (2007)[14] reported the ethnoveterinary practices by Koyas in Pakhal wildlife sanctuary. Conversely, the available literature on the ethno-botanico-medicine in the two districts concerned a tribe, an aspect or ailment, or just a cursory survey. Therefore, it is attempted to provide a

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comprehensive inventory of the ethno-botanico-medicines used by traditionally and culturally different local people inhabiting the two contiguous districts of northern (Warangal) and southern (Nalgonda) Telangana, Andhra Pradesh, India.

The present article is intended to establish: (i) the ability of the local people to classify the common ailments as well the use of the locally available plants as medicines for their cure; (ii) how diverse are the medicinal plants they explored; (iii) each plant species is put to use to how many ailments; and (iv) what are the plant parts and with what frequency they are used as crude drugs.

Materials and Methods

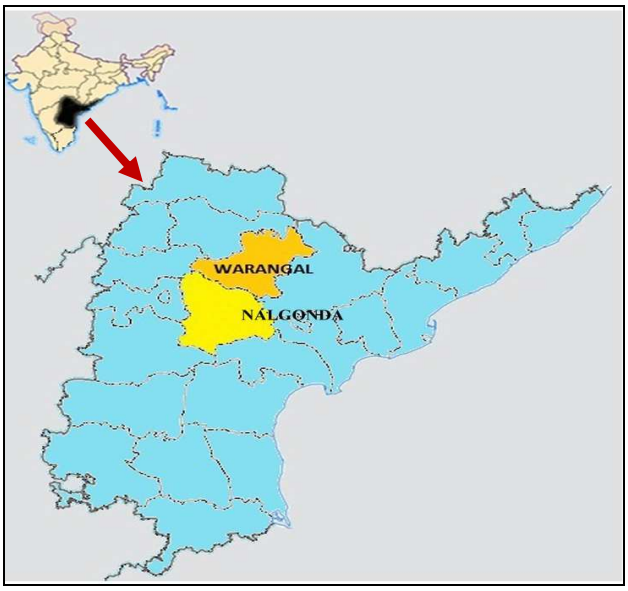

Figure.1: The study area: Nalgonda and Warangal districts.

Study area description:

(a) Physical environment: Nalgonda district lies in between 16°25′ and 17°50′N latitude and 78°40′ and 80°05′E longitude in southern Telangana of Andhra Pradesh. It is bounded on the north by Warangal, on the east by Khammam and Krishna districts, on the south by Guntur, south-west by Mahabubnagar district, on the west by Ranga Reddy district and the northwest by Medak district. The total geographical area of the district is 14,240 sq km. The rainfall is spare (753 mm) and the temperature is generally very hot (30 to 47ºC). The soils are mainly red earths comprising clay loams, loamy sands, sandy loams and sandy-clay loams. Warangal district is part of northern Telangana. It lies in between 17°19′ and 18°36′N latitudes and 78°49′ and 80°43′E longitudes. It is bounded on the north by Karimnagar district and Chattisgarh state, on the east and southeast by Khammam district, on the south by Nalgonda district, and on the west by Medak district.

(b) Biotic environment: Nalgonda district has a population of 34, 83, 648 of which 10% are ethnic. The density of population is 245 per sq km[15]. The literacy rate is 65.05%. Chenchu, Yerukala and Lambadi are the three major ethnic groups in the district. Palaeo-micro and megalithic culture are evident geologically. Nagarjunasagar-Srisailam Tiger Reserve is the prime plant resource. The forest cover occupies an area of 513 sq km; the natural vegetation is mostly of tropical thorny type[16]. Rao *et al.,* (2001)[16] reported 511 Angiosperm taxa, representing 334 genera and 101 families, from Nalgonda district. Warangal district occupies an area of 12,847 sq km, with the population density of 274 per sq km. The total population of the district is 35, 22, 644. The district is the abode for the major aboriginal local tribe Koyas. The other ethnic tribes are Gonds, Naikpods, Yerukalas and the exotic Lambadis. The ethnic people constitute 14.10% of the total population[15]. The forest cover occupies an area of 3,223 sq km, i.e. 25.09% of the geographical area. Reddy (2001)[4] documented, for the district, 1216 plant taxa belonging to 614 genera and 143 families aside 15 species of 11 genera of Pteridophytes.

The available information shows that a majority of the populace in the two districts yet has no full access to modern healthcare facilities and, therefore, still depends to an extent on the traditional knowledge for primary healthcare.

Field trips and Botanical collections:

Twenty field expeditions of four days each were made in ethnic and rural villages based on stratified sampling. In the process, 90 ethnic tribe and 110 non-tribe resource persons were interviewed in the two districts for their traditional botanical knowledge (TBK)[3]. The voucher specimens of the ethno-botanico-medicinal plants are housed in Kakatiya University Herbarium (KUW), Warangal, Andhra Pradesh.

Prior informed content (PIC):

It is one the most important concerns that underscore the philosophical and political

environment of bioprospecting research. The scientific approach towards TBK holders began in Kakatiya University when the Government of India, through UGC, New Delhi, has approved in 2004 a Special Assistance Programme (SAP). The thrust area assigned was 'ethno-directed survey of under-exploited economic species for sustainable development in northern Telangana. In compliance with CBD, PIC was arrived at after relevant discussions by the university authority with the tribal communities around about the nature of use of their knowledge. The mutual understanding was that any benefit derived out the research pursued after their medicinal plant knowledge shall belong to them.

Results and Discussion

In many Asian countries, Traditional Medicine is widely used even though Western Medicine is often readily available. In fact, Traditional Medicine is gaining more respect by national governments and health providers[17]. An inventory of plant drugs used by the ethnic people in Warangal and Nalgonda districts was made during 2007-2009. In comparison, Warangal district has greater geographical area under forests and the ethnic people are more knowledgeable and still practice healthcare measures based on traditional knowledge[3,4,13,18]. Although the local people use phytomedicines for their pet animals also[12,14], the ethno-botanico-human-medicine is only discussed here. The plants used to cure under magico-religious-beliefs[3] are deliberately left out.

i. Medicinal Plants:

(a) ***Plant parts used:*** A total of 249 plant species from the two districts formed the source of drugs (Table 1). The medicines are prepared from root (11%), stem (vegetative and reproductive parts – 80%) or whole plant (9%). To provide further details, most of the drugs are obtained from the leaf (101 species; 32.26%), followed by stem bark (63; 20.12%), root (35; 11.18%), whole plant (26; 8.30%), fruit (23; 7.34%), tuber/bulb/rhizome (21; 6.71%), flower (17; 5.43%), seed and stem (10 each; 3.19%), latex (7; 2.24%) and shoots (6; 1.92%) (Figure 2).

Table 1: Ethnomedicinal plants from Nalgonda and Warangal districts of Andhra Pradesh.

	Scientific Name	Vernacular name	Family	Growth form	Wild / Cult / Otherwise	Plant Part Used	Use
	Ferns						
1	*Ceratopteris thalictroides*	Medha	Parkeriaceae	Herb/I	Wild	Whole	Memory
2	*Cyclosorus unitus*	Hamsapadi	Thelypteridaceae	Climber/I	Wild	Whole	Scorpion sting
3	*Lygodium flexuosum*	Meka sannu	Lygodiaceae	Herb/I	Wild	Leaf	Skin disease, Fertility
4	*Selaginella bryopteris*	Pitta kalu	Selaginellaceae	Herb/I	Wild	Whole	Infant disease, Leucorrhoea
	Magnoliopsida						
5	*Abelmoschus moschatus*	Kasturi benda	Malvaceae	Herb/I	Wild	Fruit	Abdominal pain
6	*Abrus precatorius*	Tella gurija	Papilionaceae	Shrub/I	Wild	Leaf/Whole	Snake, Insect bite, Retained placenta
7	*Abutilon indicum*	Tutturu benda	Malvaceae	Shrub/I	Wild	Leaf	Dysentery, Helminthiasis, Insect bite
8	*Acacia chundra*	Sandra	Mimosaceae	Tree/I	Wild	Bark	Asthma, Wounds, Fever
9	*Acacia farnesiana*	Muriki tumma	Mimosaceae	Shrub/I	Wild	Fruit	Dog bite
10	*Acacia leucophloea*	Tella tumma	Mimosaceae	Tree/I	Wild	Bark	Boils, Wounds, Ephemeral fever
11	*Acacia nilotica*	Nalla tumma	Mimosaceae	Tree/ Introduced	Wild	Bark	Burns
12	*Acacia pennata*	Korinda	Mimosaceae	Shrub/I	Wild	Bark	Fits
13	*Acacia torta*	Konda korinda	Mimosaceae	Shrub/I	Wild	Bark	Labour pain
14	*Acalypha indica*	Pippi	Euphorbiaceae	Herb/I	Wild	Leaf	Skin disease
15	*Achyranthes aspera*	Uttareni	Amaranthaceae	Herb/I	Wild	Leaf/Root/ Whole	Insect bite, Wounds, Boils
16	*Aegle marmelos*	Maredu	Rutaceae	Tree/I	Wild	Fruit/Leaf	Dysentery, Corneal opacity, Impaction
17	*Aerva lanata*	Pindi kura	Amaranthaceae	Herb/I	Wild	Leaf	Ear ache
18	*Ailanthus excelsa*	Pedda vepa	Simaroubaceae	Tree/I	Wild	Bark	Piles, Anorexia, Tympany
19	*Alangium salvifolium*	Ooduga	Alangiaceae	Tree/I	Wild	Bark/Root	Snake bite, Oedema, Bone fracture
20	*Ampelocissus latifolia*	Dobba teega	Vitaceae	Climber/I	Wild	Stem	Anorexia
21	*Ampelocissus tomentosa*	Atukula baddu	Vitaceae	Shrub/I	Wild	Leaf/Root	Bone fracture, Insect bite
22	*Andrographis paniculata*	Nela vemu	Acanthaceae	Herb/I	Wild	Leaf/Root	Ephemeral fever, Snake bite
23	*Anisomeles indica*	Dayyam marri	Lamiaceae	Herb/I	Wild	Leaf	Ephemeral fever
24	*Annona squamosa*	Sheeta phalam	Annonaceae	Shrub/E	Planted/ wild	Leaf	Ephemeral fever
25	*Anodendron paniculatum*	Atukudu teega	Apocynaceae	Climber/I	Wild	Whole	Bone fracture
26	*Anogeissus latifolia*	Thiruman	Combretaceae	Tree/I	Wild	Bark	Insect bite, Asthma
27	*Argemone mexicana*	Brahma dandi	Papavaraceae	Tree/E	Wild	Latex	Skin disease
28	*Argyreia nervosa*	Chandra podi	Convolvulaceae	Herb/I	Wild	Leaf	Tympany
29	*Aristolochia bracteolata*	Gadida garapa	Aristolochiaceae	Herb/I	Wild	Root/Leaf	Wounds, Insect bite
30	*Aristolochia indica*	Nalla usiri	Aristolochiaceae	Climber/I	Wild	Root	Ear ache, Hemiplegia (Partial paralysis), Snake bite
31	*Azadirachta indica*	Vepa	Meliaceae	Tree/E	Planted / wild	Bark/Shoots	Ephemeral fever
32	*Azima tetracantha*	Tella uppi	Salvadoraceae	Shrub/I	Wild	Bark	Infant diseases, Rheumatism
33	*Balanites roxburghii*	Gare	Balanitaceae	Tree/I	Wild	Flower/Fruit	Pertussis, Corneal opacity, Ephemeral fever
34	*Barringtonia acutangula*	Nir kanki	Barringtoniaceae	Tree/I	Wild	Bark	Rheumatism
35	*Bauhinia malabarica*	Puli are	Caesalpiniaceae	Tree/I	Wild	Bark	Ephemeral fever
36	*Bauhinia racemosa*	Aare/aari	Caesalpiniaceae	Tree/I	Wild	Bark/Flower	Dysentery
37	*Bauhinia semla*	Goddeti are	Caesalpiniaceae	Tree/I	Wild	Bark	Tonsils, Neck pain

38	*Bauhinia vahli*	Addaku	Caesalpiniaceae	Tree/I	Wild	Seed	Indigestion
39	*Biophytum sensitivum*	Atti patti	Oxalidaceae	Herb/I	Wild	Leaf	Boils, Blisters, Cuts
40	*Blepharis repens*	Nela pariki	Acanthaceae	Herb/I	Wild	Root	Heat and Summer stroke
41	*Blumea mollis*	Kukka pogaku	Asteraceae	Herb/E	Wild	Leaf	Cough
42	*Bombax ceiba*	Buruga	Bombacaceae	Tree/I	Wild	Bark/Seed	Fertility, Dysentery, Retained placenta
43	*Boswellia serrata*	Anduga	Burseraceae	Tree/I	Wild	Bark	Rheumatism, Dog bite, Scorpion sting
44	*Boucerosia umbellata*	Kundeti kommu	Asclepiadaceae	Herb/I	Wild	Shoots	Burns
45	*Breynia retusa*	Tella pulicheru	Euphorbiaceae	Shrub/I	Wild	Leaf	Cough
46	*Bridelia montana*	Panchotkam	Euphorbiaceae	Tree/I	Wild	Leaf/Bark	Boils, Blisters, Cuts
47	*Buchanania axillaris*	Pedda morli	Anacardiaceae	Tree/I	Wild	Flower	Wounds
48	*Buchanania lanzan*	Chinna morli	Anacardiaceae	Tree/I	Wild	Flower/Fruit	Chest pain
49	*Butea superba*	Teega moduga	Papilionaceae	Liana/I	Wild	Flower	Labour pains
50	*Byttneria herbacea*	Erra teega	Sterculiaceae	Herb/I	Wild	Leaf	Dysentery, Impaction
51	*Cadaba fruticosa*	Vutharasi chettu	Capparaceae	Shrub/I	Wild	Bark	Boils, Blisters, Cuts
52	*Caesalpinia bonduc*	Gatchikai	Caesalpiniaceae	Climber/I	Wild	Seed/Leaf	Ephemeral fever, Rheumatism, Hydrocele
53	*Cajanus cajan*	Kandulu	Papilionaceae	Shrub/I	Cult	Seed	Contraceptive
54	*Calotropis gigantea*	Tella jilledu	Asclepiadaceae	Shrub/E	Naturalized	Flower/Latex	Ear ache, Fever, Rheumatism, Constipation
55	*Canavalia gladiata*	Advi chemma	Papilionaceae	Climber/I	Wild	Leaf	Rheumatism
56	*Canavalia virosa*	Adavi chemma	Papilionaceae	Climber/I	Wild	Root	Venereal diseases
57	*Canthium parviflorum*	Balusu	Rubiaceae	Shrub/I	Wild	Bark/Fruit	Insect bite
58	*Capparis sepiaria*	Nalla uppi	Capparaceae	Climber/I	Wild	Bark/Fruit	Contraceptive, Rheumatism
59	*Capparis zeylanica*	Adonda	Capparaceae	Shrub/I	Wild	Bark/Fruit	Impaction, Diabetes
60	*Cardiospermum halicacabum*	Budda kakara	Sapindaceae	Climber/I	Wild	Leaf/Root	Hydrocele, Ephemeral fever
61	*Careya arborea*	Budda darmi	Lecythidaceae	Tree/I	Wild	Flower	Labour pains
62	*Casearia elliptica*	Kanusiri	Flacourtiaceae	Shrub/I	Wild	Bark/Leaf/Fruit	Corneal opacity, Ephemeral fever
63	*Cassia fistula*	Rela	Caesalpiniaceae	Herb/I	Wild	Leaf	Tympany
64	*Cassytha filiformis*	Paachi teega	Lauraceae	Climber/I	Wild	Whole	Bone fracture
65	*Cayratia pedata*	Edakula mandulamari	Vitaceae	Climber/I	Wild	Leaf	Venereal diseases
66	*Celosia argentea*	Gunugu	Amaranthaceae	Herb/E	Naturalized	Leaf	Galactogogue, Insect bite
67	*Centella asiatica*	Saraswathi aku	Apiaceae	Herb/I	Wild	Leaf	Memory booster
68	*Ceriscoides turgida*	Tella elaka	Rubiaceae	Tree/I	Wild	Bark	Piles, Tympany, Diarrhoea, Leucorrhoea
69	*Ceropegia juncea*	Bella gadda	Asclepiadaceae	Herb/I	Wild	Tuber	Galactogogue
70	*Chamaesyce hirta*	Guriji	Euphorbiaceae	Herb/I	Wild	Whole	Boils, Blisters, Cuts, Skin diseases
71	*Chloroxylon swietenia*	Billudu	Flindersiaceae	Tree/I	Wild	Bark	Shivering, Neck pain
72	*Chomelia asiatica*	Papidi	Rubiaceae	Shrub/I	Wild	Root	Fits
73	*Cissampelos pareira*	Boddi	Menispermaceae	Climber/I	Wild	Root	Digestive
74	*Cissus quadrangularis*	Nalleda	Vitaceae	Climber/I	Wild	Stem/Leaf	Bone fracture, Anorexia, Helminthiasis
75	*Cleistanthus collinus*	Nalla kodisha	Euphorbiaceae	Tree/I	Wild	Bark/Leaf	Boils, Blisters, Wounds
76	*Cleome viscosa*	Kukka vaminta	Cleomaceae	Herb/I	Wild	Leaf	Boils, Blisters, Wounds
77	*Clerodendrum phlomides*	Takkali	Verbenaceae	Shrub/I	Wild	Leaf	Rheumatism
78	*Clitoria ternatea*	Gantena	Papilionaceae	Climber/I	Planted /R_wild	Leaf	Dysentery
79	*Coccinia grandis*	Kaki donda	Cucurbitaceae	Climber/I	Wild /Cult	Leaf/Fruit	Dysentery, Tympany, Boils, Blisters, Cuts
80	*Cocculus hirsutus*	Dusara teega	Menispermaceae	Climber/I	Wild	Root	Urinary problems, Epistaxis
81	*Cochlospermum religiosum*	Konda gogu	Cochlospermaceae	Tree/I	Wild	Leaf	Piles
82	*Combretum latifolium*	Yada teega	Combretaceae	Climber/I	Wild	Leaf	Diarrhoea
83	*Crateva magna*	Uskia tammidi	Capparaceae	Tree/I	Wild	Flower	Tympany
84	*Crinum asiaticum*	Penjari gadda	Amaryllidaceae	Herb/I	Wild	Bark/Tuber	Wounds, Snake bite
85	*Crotalaria albida*	Adavi janumu	Papilionaceae	Herb/I	Wild	Root	Labour pains
86	*Crotalaria verrucosa*	Tella usiri	Papilionaceae	Herb/I	Wild	Leaf/Root	Ephemeral fever, Insect bite, Fits
87	*Cryptolepis dubia*	Adavi pala teega	Asclepiadaceae	Climber/I	Wild	Leaf/Latex	Skin diseases, Galactogogue
88	*Cyphostemma setosum*	Barre bachali	Vitaceae	Climber/I	Wild	Whole	Rheumatism, Dysentery
89	*Dalbergia latifolia*	Jittregi	Papilionaceae	Tree/I	Wild	Bark	Stomach ache
90	*Dendrophthoe falcata*	Vepa vajinika	Loranthaceae	Shrub/I	Wild	Leaf/Bark	Tuberculosis
91	*Derris scandens*	Nalla teega	Papilionaceae	Climber/I	Wild	Leaf/Bark	Impaction
92	*Dichrostachys cinerea*	Velturu	Mimosaceae	Shrub/I	Wild	Leaf	Boils, Blisters, Cuts, Rheumatism
93	*Dillenia pentagyna*	Revadi	Dilleniaceae	Tree/I	Wild	Leaf/Flower/ Fruit	Rheumatism, Dysentery, Bone fracture
94	*Diospyros chloroxylon*	Illinda	Ebenaceae	Tree/I	Wild	Flower/Root	Snake bite
95	*Diospyros montana*	Muchi tuniki	Ebenaceae	Tree/I	Wild	Bark/Fruit	Anorexia
96	*Diplocyclos palmatus*	Putaka kaya	Cucurbitaceae	Climber/I	Wild	Leaf	Fever
97	*Dodonaea viscosa*	Puli vailu	Sapindaceae	Shrub/I	Wild	Flower/Bark	Bone fracture
98	*Dolichandrone falcata*	Oddi	Bignoniaceae	Tree/I	Wild	Bark/Fruit	Corneal opacity
99	*Dregea volubilis*	Bandi gurija	Asclepiadaceae	Climber/I	Wild	Root/Whole	Paralysis, Rheumatism, Tonsils, Neck pain
100	*Drypetes roxburghii*	Putran jivika	Euphorbiaceae	Tree/I	Wild	Bark	Cough
101	*Elephantopus scaber*	Enugu adugu	Asteraceae	Herb/I	Wild	Root	Stomach ache
102	*Elytraria acaulis*	Eddu adugu padam	Acanthaceae	Herb/I	Wild	Root	Tonic
103	*Enicostemma axillare*	Resca	Gentianaceae	Herb/I	Wild	Whole	Boils, Blisters, Wounds
104	*Erythrina suberosa*	Tella moduga	Papilionaceae	Tree/I	Wild	Seed	Leucorrhoea
105	*Erythrina variegata*	Tella vajram	Papilionaceae	Tree/I	Planted	Leaf	Impaction, Summer stroke
106	*Erythroxylum monogynum*	Deva daru	Erythroxylaceae	Tree (Small)/I	Wild	Bark/Fruit	Bone fracture
107	*Euphorbia antiquorum*	Burre jemudu	Euphorbiaceae	Tree/I	Wild	Latex/Leaf	Bone fracture, Gout
108	*Euphorbia meenae*	Pala gaddalu	Euphorbiaceae	Herb/I	Wild	Leaf	Boils, Blisters, Cuts
109	*Euphorbia tirucalli*	Jemudu	Euphorbiaceae	Tree/I	Wild	Leaf/Latex	Skin diseases
110	*Evolvulus alsinoides*	Vishnu krantham	Convolvulaceae	Herb/I	Wild	Whole	Boils, Blisters, Wounds, Ephemeral fever
111	*Ficus benghalensis*	Marri	Moraceae	Tree/I	Wild	Latex	Rheumatism
112	*Ficus racemosa*	Medi	Moraceae	Tree/I	Wild	Fruit	Infant diseases
113	*Ficus talboti*	Juvvi	Moraceae	Tree/I	Wild	Bark	Diarrhoea
114	*Ficus virens*	Banda juvvi	Moraceae	Tree/I	Wild	Leaf/Bark	Skin diseases
115	*Flacourtia indica*	Kan regu	Flacourtiaceae	Tree/I	Wild	Leaf	Boils, Blisters, Cuts
116	*Gardenia latifolia*	Pedda karinga	Rubiaceae	Tree/I	Wild	Leaf	Piles, Boils, Blisters, Wounds
117	*Garuga pinnata*	Garugu	Burseraceae	Tree/I	Wild	Bark/Fruit	Leucorrhoea
118	*Gmelina asiatica*	Kavva gummudu	Verbenaceae	Shrub/I	Wild	Leaf	Epistaxis
119	*Gymnema sylvestre*	Poda patri	Asclepiadaceae	Climber/I	Wild	Leaf/Whole	Diabetes, Ephemeral fever, Galactogogue
120	*Haldina cordifolia*	Bandaru	Rubiaceae	Tree/I	Wild	Leaf	Stomach ache
121	*Helicteres isora*	Nultada	Sterculiaceae	Shrub/I	Wild	Leaf/Bark	Insect bite, Tympany
122	*Hemidesmus indicus*	Sugandi pala	Asclepiadaceae	Climber/I	Wild	Whole/Leaf	Galactogogue, Impaction, Blood purifier, Rheumatism
123	*Hemidesmus indicus* var. *pubescens*	Sugandhi	Asclepiadaceae	Climber/I	Wild	Whole	Diabetes
124	*Holarrhena pubescens*	Istari pala/ Palakodisa	Asclepiadaceae	Tree/I	Wild	Root/Bark	Cough, Dysentery, Head ache
125	*Holoptelea integrifolia*	Nemali nara	Ulmaceae	Tree/I	Wild	Root	Skin diseases
126	*Hybanthus enneaspermus*	Nela kobbari	Violaceae	Herb/I	Wild	Whole	Urinary problems

127	*Hygrophila auriculata*	Neeli gorimidi	Acanthaceae	Herb/I	Wild	Leaf	Oedema
128	*Hymenodictyon orixense*	Chedippa	Rubiaceae	Tree/I	Wild	Bark	Bone fracture, Menstrual pain
129	*Indigofera caerulea*	Vajra neeli	Papilionaceae	Shrub/I	Wild	Whole	Wounds
130	*Indigofera trita*	Jidi vempali	Papilionaceae	Herb/I	Wild	Leaf	Impaction
131	*Ipomoea carnea*	Tuti kada	Convolvulaceae	Climber/I	Wild	Whole	Tonsils, Neck pain
132	*Ipomoea eriocarpa*	Elika chevi	Convolvulaceae	Climber/I	Wild	Leaf	Skin diseases
133	*Ipomoea hederifolia*	Kashi ratnam	Convolvulaceae	Climber/I	Wild	Leaf	Tonic
134	*Ipomoea turbinata*	Katla kaya	Convolvulaceae	Climber/I	Wild	Leaf	Constipation
135	*Ixora arborea*	Korivi	Rubiaceae	Shrub/I	Wild	Root	Wounds
136	*Jasminum auriculatum*	Adavi malli	Oleaceae	Climber/I	Wild	Leaf/Bark	Tympany, Boils, Blisters, Wounds, Cough
137	*Justicia adhatoda*	Addasaram	Acanthaceae	Shrub/I	Wild	Leaf	Cough, Epistaxis
138	*Kavalama urens*	Tapasi	Sterculiaceae	Tree/I	Wild	Leaf	Menstruation pain
139	*Lagerstroemia parviflora*	Chennangi	Lythraceae	Tree/I	Wild	Leaf	Boils, Blisters, Cuts
140	*Lannea coromandelica*	Dumpidi	Anacardiaceae	Tree/I	Wild	Leaf	Rheumatism, Bone fracture, Cracked heels
141	*Lawsonia inermis*	Gorinta	Lythraceae	Shrub/I	Wild	Leaf	Jaundice
142	*Leea asiatica*	Neerteega	Leeaceae	Shrub/I	Wild	Root	Insect bite
143	*Leptadenia reticulata*	Mukku tummudu teega	Asclepiadaceae	Climber/I	Wild	Whole	Aphrodisiac
144	*Limonia acidissima*	Velaga	Rutaceae	Tree/I	Wild	Bark	Indigestion
145	*Litsea glutinosa*	Narra mamidi	Lauraceae	Tree/I	Wild	Fruit/Flower	Labour pains, Bone fracture
146	*Madhuca indica*	Ippa	Sapotaceae	Tree/I	Wild	Bark/Flower	Galactogogue
147	*Maerua oblongifolia*	Bhu chakram	Capparaceae	Climber/I	Wild	Tuber	Fertility
148	*Mallotus philippensis*	Kunkuma chettu	Euphorbiaceae	Tree/I	Wild	Bark/Flower	Shivering
149	*Mangifera indica*	Konda mamidi	Anacardiaceae	Tree/I	Wild	Whole	Boils, Blisters, Wounds
150	*Marsdenia tenacissima*	Adavi juttuku	Asclepiadaceae	Climber/I	Wild	Root	Snake bite
151	*Martynia annua*	Telukondikaya chettu	Martyniaceae	Herb/E	Wild	Flower	Boils, Blisters, Wounds
152	*Memecylon umbellatum*	Alli	Melanostomaceae	Shrub/I	Wild	Leaf	Leucorrhoea
153	*Merremia emarginata*	Chevi aaku	Convolvulaceae	Climber/I	Wild	Whole	Boils, Blisters, Cuts
154	*Merremia hederacea*	Thalantu teega	Convolvulaceae	Climber/I	Wild	Whole	Hair tonic/shampoo
155	*Merremia turpethum*	Leenaku	Convolvulaceae	Climber/I	Wild	Root	Ear ache
156	*Mimosa hamata*	Mega dadi	Mimosaceae	Shrub/I	Wild	Bark	Fertility
157	*Mimosa pudica*	Atti patti	Mimosaceae	Herb/E	Naturalized	Leaf	Dysentery, Diarrhoea
158	*Moringa concanensis*	Yerri munaga	Moringaceae	Tree/I	Wild	Leaf	Cough
159	*Moringa pterygosperma*	Mulaga	Moringaceae	Tree/I	Wild	Bark	Labour pains
160	*Mucuna pruriens*	Dulagunda	Papilionaceae	Climber/I	Wild	Root	Boils, Blisters, Wounds
161	*Naringi crenulata*	Torri elka	Rutaceae	Tree/I	Wild	Root	Piles
162	*Nyctanthes arbor-tristis*	Parijatam	Nyctanthaceae	Tree/I	Wild/ planted	Leaf	Fits
163	*Ochna obtusata*	Sonnari	Ochnaceae	Tree/I	Wild	Bark	Bone fracture
164	*Ocimum basilicum*	Bhu tulsi	Lamiaceae	Herb/I	Wild	Leaf	Corneal opacity, Tympany, Summer stroke
165	*Olax scandens*	Turaka toppe	Olacaceae	Shrub/ Climber/I	Wild	Root/Flower	Stomach ache, Diarrhoea
166	*Oroxylum indicum*	Dundilam	Bignoniaceae	Tree/I	Wild	Bark	Rheumatism
167	*Paederia foetida*	Surya bhakta	Rubiaceae	Climber/I	Wild	Whole	Rheumatism, Dysentery
168	*Pavetta indica*	Papidi	Rubiaceae	Shrub/I	Wild	Bark/Leaf	Ophthalmic diseases
169	*Pergularia daemia*	Juttupu	Asclepiadaceae	Climber/I	Wild	Leaf	Boils, Blisters, Wounds, Corneal opacity,Gout
170	*Phyla nodiflora*	Bokkena	Verbenaceae	Herb/I	Wild	Whole	Stomach ache
171	*Phyllanthus amarus*	Nela usiri	Euphorbiaceae	Herb/E	Wild	Bark	Ephemeral fever, Jaundice
172	*Phyllanthus emblica*	Usiri	Euphorbiaceae	Tree/I	Wild/Cult	Leaf	Anorexia, Impaction
173	*Phyllanthus reticulatus*	Nalla pulicheru	Euphorbiaceae	Shrub/I	Wild	Leaf	Bone fracture, Dysentery, Insect bite
174	*Plectranthus mollis*	Nella marri	Lamiaceae	Herb/I	Wild	Whole	Wounds
175	*Plumbago zeylanica*	Chitra mulam	Plumbaginaceae	Shrub/I	Wild	Leaf/Root	Fits, Skin diseases, Rheumatism, Tympany
176	*Pongamia pinnata*	Kanuga	Papilionaceae	Tree/I	Wild/ Planted	Shoots/Leaf	Skin disease
177	*Premna latifolia*	Nelli	Verbenaceae	Tree (Small)/I	Wild	Leaf	Oedema
178	*Pterocarpus marsupium*	Pedda aegi	Papilionaceae	Tree/I	Wild	Flower/Leaf	Diabetes, Labour pains, Fertility
179	*Pueraria tuberosa*	Nela gummadi	Papilionaceae	Climber/I	Wild	Root	Rheumatism, Ephemeral fever
180	*Rauvolfia serpentina*	Sarpa gandha	Apocynaceae	Shrub/I	Wild	Root	Snake bite
181	*Ricinus communis*	Amudam	Euphorbiaceae	Shrub/E	Cult/R_wild	Shoots	Gout
182	*Rotula aquatica*	Jana pamba	Lythraceae	Shrub/I	Wild	Bark	Shivering
183	*Saraca indica*	Asoka	Papilionaceae	Tree/I	Planted	Bark	Urinary problems
184	*Sarcostemma acidum*	Konda pala	Asclepiadaceae	Climber/I	Wild	Bark	Galactogogue, Snake bite, Bone fracture
185	*Sarcostemma secamone*	Pala teega	Asclepiadaceae	Climber/I	Wild	Latex	Galactogogue
186	*Schleichera oleosa*	Pusugu	Sapindaceae	Tree/I	Wild	Tuber	Chest pain
187	*Semecarpus anacardium*	Nalla jeedi	Anacardiaceae	Tree/I	Wild	Bark	Dog bite, Fits
188	*Senna alata*	Tamara chettu	Caesalpiniaceae	Shrub/E	Naturalized	Leaf	Skin disease
189	*Senna angustifolia*	Nela tangedu	Caesalpiniaceae	Herb/E	Naturalized	Leaf/Fruit	Constipation
190	*Senna italica*	Nela tangedu	Caesalpiniaceae	Herb/E	Naturalized	Fruit	Constipation
191	*Senna obtusifolia*	Tagarisa	Caesalpiniaceae	Herb/E	Naturalized	Leaf	Insect bite
192	*Senna occidentalis*	Advi chennangi	Caesalpiniaceae	Herb/E	Naturalized	Leaf	Rheumatism
193	*Senna tora*	Tagirisa	Caesalpiniaceae	Herb/E	Naturalized	Bark	Insect bite
194	*Sesamum alatum*	Adavi nuvvulu	Pedaliaceae	Herb/E	Naturalized	Whole	Boils, Blisters, Cuts
195	*Smilax perfoliata*	Nageti dumpa	Smilaceae	Climber/I	Wild	Tuber	Abortion
196	*Solanum virginianum*	Tella mulaka	Solanaceae	Climber/E	Naturalized	Seed	Fertility
197	*Soymida febrifuga*	Somi	Meliaceae	Tree/I	Wild	Seed/Leaf	Gout, Shivering, Tonic, Corneal opacity
198	*Strychnos nux-vomica*	Mushti	Loganiaceae	Tree/I	Wild	Seed	Insect bite, Dysentery
199	*Syzygium cumini*	Neredu	Myrtaceae	Tree/I	Wild	Root/Bark	Epistaxis, Diabetes
200	*Tamarindus indica*	Chinta	Caesalpiniaceae	Tree/E	Planted	Bark/Fruit	Piles, Scorpion sting
201	*Tectona grandis*	Teku	Verbenaceae	Tree/I	Wild	Bark/Fruit	Filariasis, Pregnancy
202	*Tephrosia purpurea*	Vempali	Papilionaceae	Herb/I	Wild	Seed	Scorpion sting, Cough
203	*Terminalia alata*	Nalla maddi	Combretaceae	Shrub/I	Wild	Bark	Wounds
204	*Terminalia arjuna*	Yeru maddi	Combretaceae	Tree/I	Wild	Bark/Shoots	Ephemeral fever, Boils, Blisters, Wounds
205	*Terminalia bellirica*	Taani	Combretaceae	Tree/I	Wild	Leaf	Gout
206	*Terminalia chebula*	Karakkaya	Combretaceae	Tree/I	Wild	Leaf/Fruit	Cough, Constipation
207	*Tinospora cordifolia*	Tippa teega	Menispermaceae	Climber/I	Wild	Stem	Impaction, Insect bite, Aphrodisiac
208	*Toddalia asiatica*	Konda kasinda	Rutaceae	Climber/I	Wild	Fruit	Boils, Blisters, Cuts
209	*Tribulus lanuginosus*	Palleru	Zygophyllaceae	Climber/I	Wild	Leaf	Venereal diseases
210	*Trichosanthes cucumerina*	Adavi potla	Cucurbitaceae	Climber/I	Wild	Leaf	Skin disease
211	*Tridax procumbens*	Nalla alam	Asteraceae	Herb/E (Weed)	Wild	Leaf	Boils, Blisters, Cuts
212	*Tylophora indica*	Meka meyani aaku	Asclepiadaceae	Climber/I	Wild	Stem	Urinary problems
213	*Ventilago maderaspatana*	Surala teega	Rhamnaceae	Climber/I	Wild	Root	Stomach ache
214	*Vernonia cinerea*	Sahadevi	Asteraceae	Herb/E (weed)	Wild	Root	Fever

215	*Vitex negundo*	Vavili	Verbenaceae	Tree/I	Wild	Whole/Leaf	Ephemeral fever, Retained placenta
216	*Withania somnifera*	domma dolu gadda	Solanaceae	Herb/I	Cult/R_wild	Root	Boils, Blisters, Wounds, Fertility
217	*Woodfordia fruticosa*	Jaaji	Lythraceae	Shrub/I	Wild	Leaf	Blood purifier
218	*Wrightia arborea*	Putta pala	Apocynaceae	Tree/I	Wild	Leaf	Menstrual pain
219	*Wrightia tinctoria*	Pala kodisha	Apocynaceae	Tree/I	Wild	Leaf	Boils, Blisters, Wounds, Ephermeral fever
220	*Xanthium pungens*	Matangi	Asteraceae	Herb/I	Wild	Leaf	Galactogogue
221	*Xylia xylocarpa*	Bojja	Mimosaceae	Tree/I	Wild	Bark	Diarrhoea
222	*Ziziphus oenoplia*	Pariki	Rhamnaceae	Climber/ shrub/I	Wild	Leaf	Dysentery
223	*Ziziphus rugosa*	Enuga pariki	Rhamnaceae	Tree/I	Wild	Leaf	Bone fracture
224	*Ziziphus xylopyrus*	Gotti	Rhamnaceae	Tree/I	Wild	Seed/Bark	Snake bite, Ephemeral fever, Wounds
	Liliopsida						
225	*Acorus calamus*	Vasa	Acoraceae	Herb/I	Cult	Rhizome	Stomach ache
226	*Agave americana*	Saga nara	Agavaceae	Tree/E	Planted	Leaf	Ephemeral fever
227	*Aloe vera*	Kala banda	Liliaceae	Herb/I	Planted	Leaf	Piles, Insect bite
228	*Asparagus gonoclados*	Guddelugu bochu	Asparagaceae	Herb/I	Wild	Tuber	Skin disease
229	*Asparagus racemosus*	Ellamma gaddalu	Asparagaceae	Climber/I	Wild/Cult	Tuber/Shoots	Snake bite,Dysentery, Galactogogue, Insect bite, Tympany
230	*Cheilocostus speciosus*	Kepu kanda	Costaceae	Shrub/I	Wild	Rhizome	Abortion
231	*Commelina benghalensis*	Yennadri	Commelinaceae	Herb/I	Wild	Bark	Helminthiasis
232	*Curculigo orchioides*	Nela thadi	Hypoxidaceae	Herb/I	Wild	Tuber	Aphrodisiac, Ephemeral fever, Galactogogue
233	*Curcuma longa*	Pasupu	Zingiberaceae	Herb/I	Cult	Tuber	Boils, Blisters, Cuts, Bone fracture, Anti-septic
234	*Curcuma pseudomontana*	Adavi pasupu	Zingiberaceae	Herb/I	Wild	Tuber	Wounds
235	*Cyperus rotundus*	Tunga	Cyperaceae	Herb/I	Wild	Tuber	Ephemeral fever
236	*Dendrocalamus strictus*	Veduru	Poaceae	Tree/I	Wild	Tuber	Oedema
237	*Dioscorea alata*	Bellam gadda	Dioscoreaceae	Climber/I	Wild/Cult	Tuber	Aphrodisiac
238	*Dioscorea bulbifera*	Chenna gadda	Dioscoreaceae	Climber/I	Wild/Cult	Tuber	Indigestion, Bone fracture, Dysentery
239	*Dioscorea pentaphylla*	Adavi ginsu teega	Dioscoreaceae	Climber/I	Wild/Cult	Tuber	Rheumatism, Cough
240	*Drimia indica*	Adavi ulli	Hyacinthaceae	Herb/I	Wild	Leaf	Ephemeral fever
241	*Eleusine coracana*	Taidalu	Poaceae	Herb/I	Cult	Leaf	Dysentery
242	*Gloriosa superba*	Potti dumpa	Colchicaceae	Climber/I	Wild	Leaf/Tubers	Insect bite, Abortion
243	*Habenaria marginata*	Pasupu suddulu gadda	Orchidaceae	Herb/I	Wild	Tuber	Tonic
244	*Habenaria roxburghii*	Malle sudulu	Orchidaceae	Herb/I	Wild	Leaf	Tonic
245	*Ledebouria hyacinthina*	Adavi tella gadda	Hyacinthaceae	Herb/I	Wild	Bulb	Urinary problems
246	*Scleria corymbosa*	Ashta medha	Cyperaceae	Herb/I	Wild	Leaf	Blood purifier
247	*Smilax zeylanica*	Firangi	Smilaceae	Climber/I	Wild	Root	Venereal disorder
248	*Tacca leontopetaloides*	Adavi kanda	Taccaceae	Herb/I	Wild	Tuber	Piles
249	*Vanda tessellata*	Kodikaalla chettu	Orchidaceae	Herb/I	Wild	Whole	Scorpion sting, Ephemeral fever, Snake bite

E: Exotic; I: Indigenous; Cult: Cultivated; R_wild: Running wild.

(b) *Growth forms:* As per the growth forms of the ethnomedicinal plants, tree species contribute to the maximum indicating that these species are apparent category (found throughout the year and over years at fixed locations), easy to find, and that the habitat is a forest region and the people know the local plants. The use of lianas is also indicative of the service provided by the forest habitat (ecosystem). The use of growth form category indicates that the local people primarily use trees and their climbers which are wild and abundant in the adjoining forests as '*apparent*' category (found throughout the year), and (ii) the herbs (these are the '*non-apparent*' category as they are not seen/available throughout the year)[18].

(c) *Wild vs. Planted/Cultivated:* There are 15 disease/disorder categories recognized based on the ethno-botanico-medicine used by the local people (Table 2). Of the 249 plant species used as ethnomedicine, 87.5% are obtained from the wild while the rest are naturalized (4.5%; e.g. *Senna tora*), wild/cultivated (2.4%; e.g. *Dioscorea* spp.), cultivated/running wild (1.6%; e.g. *Ricinus communis*), planted/running wild (1.2%; *Annona squamosa*), planted (2.0%, e.g. *Tamarindus indica*) and wild/planted (0.80%; e.g. *Pongamia pinnata*). In Peru, Bussmann & Sharon (2006)[17] found 83% of the plant species used in traditional medicine to be native. It was 92.4% of (219) species used in the habitat of Koyas of northern Warangal district are indigenous[18].

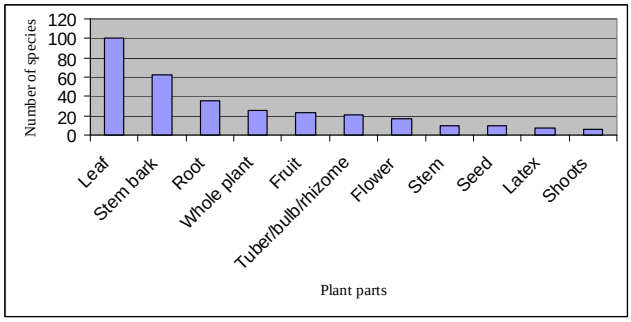

Figure.2: The number of plant species and the plant-part wise medicinal uses.

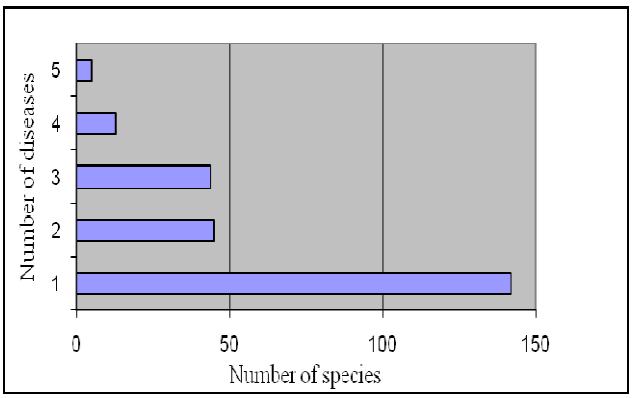

Figure.3: Use-pattern of medicinal plants for one or more diseases.

(d) *Disease-wise use-pattern:* When the plant species employed for medicine were looked for use against one disease or more (Table 1), the following pattern has emerged: (i) As many as 142 species are used just for one disease only, and (ii) there are 45 species used for two, 44 for three, 13 for four and five for five ailments, and no more than that (Figure 3).

ii. Human ailments and phytomedicine

The plant species used by the ethnic people in Nalgonda and Warangal districts as phytomedicines are enumerated disease-wise alphabetically in Table 2. The terms 'disorder' and 'disease' are used as synonyms though they do not mean exactly. The human ailments numbering 66, as realized by local ethnic people, are put into organ, system, vector-borne and other categories (Table 2). The categories of human ailments treated by using ethno-botanico-medicines are animal-borne, skin, circulatory, ENT, digestive, genitourinary, nervous, metabolic, musculo-skeletal, reproductive and respiratory system disorders and/or diseases, injuries, infections, fevers, inflammatous and miscellaneous (Table 2). However, there is some overlapping in the diseases reported as conceived by the local people. For example, under the category digestive system disorders (Table 2), abdominal pain, dyspepsia and stomach ache cannot be distinguished. It is obvious because of inter-connectivity of the health problems and the level of understanding of level of human pathology of the people concerned. The plant species used as source of medicine are listed against them. So far, no such attempt has been made to document the ethno-botanico-medicinal data available for Telangana region.

Table.2: Human ailments and plants used as source of ethnomedicine.

	Category	Plant species	Genera	Species
1	**Animal (vector) borne diseases (4)**			
	(a) Dog bite	*Acacia farnesiana, Boswellia serrata, Semecarpus anacardium.*	03	03
	(b) Insect bite	*Abrus precatorius, Abutilon indicum, Achyranthes aspera, Aloe vera, Ampelocissus tomentosa, Anogeissus latifolia, Aristolochia bracteolata, Asparagus racemosus, Canthium parviflorum, Celosia argentea, Crotolaria verrucosa, Gloriosa superba, Helicteres isora, Leea asiatica, Phyllanthus reticulatus, Senna obtusifolia, Senna tora, Strychnos nux-vomica, Tinospora cordifolia.*	18	19
	(c) Scorpion sting	*Boswellia serrata, Cyclosorus unitus, Tamarindus indica, Tephrosia purpurea, Vanda tesellata.*	05	05
	(d) Snake bite	*Abrus precatorius, Alangium salvifolium, Andrographis paniculata, Aristolochia indica, Asparagus racemosus, Crinum asiaticum, Diospyros chloroxylon, Marsdenia tenacissima, Rauvolfia serpentina, Sarcostemma acidum, Vanda tesellata, Ziziphus xylopyrus.*	12	12
2	**Circulatory system disorders (1)**			
	(a) Blood purifier	*Hemidesmus indicus, Scleria corymbosa, Woodfordia fruticosa.*	03	03
3	**Digestive system disorders (7)**			
	(a) Abdominal pain	*Abelmoschus moschatus.*	01	01
	(b) Anorexia	*Ailanthus excelsa, Ampelocissus latifolia, Cissus quadrangularis, Diospyros montana, Phyllanthus emblica.*	05	05
	(c) Constipation	*Calotropis gigantea, Ipomoea turbinata, Senna angustifolia, Senna italica, Terminalia chebula.*	04	05
	(d) Digestives	*Cissampelos pariera, Elytraria acaulis, Habenaria marginata, Habenaria roxburghii, Ipomoea hederifolia, Soymida febrifuga.*	05	06
	(e) Dyspepsia / Indigestion	*Bauhinia vahlii, Dioscorea bulbifera, Limonia acidissima.*	03	03
	(f) Stomach-ache	*Acorus calamus, Dalbergia latifolia, Elephantopus scaber, Haldinia cordifolia, Olax scandens, Phyla nodiflora, Ventilago maderaspatana.*	07	07
	(g) Tympany (swelling of abdomen)	*Ailanthus excelsa, Argyreia nervosa, Cassia fistula, Cerascioides turgida, Coccinea grandis, Crateva magna, Helicteres isora, Jasminum auriculatum, Ocimum basilicum, Plumbago zeylanica.*	10	10
4	**ENT disorders (2)**			
	(a) Ear-ache	*Aerva lanata, Aristolochia indica, Calotropis gigantea, Merremia turpethum.*	04	04
	(b) Epistaxis (bleeding from nose)	*Cocculus hirsutus, Gmelina asiatica, Justicia adhatoda, Syzygium cumini.*	04	04

5	**Genitourinary system disorders (9)**			
	(a) Abortion	*Cheilocostus speciosus, Gloriosa superba, Smilax perfoliata.*	03	03
	(b) Aphrodisiac	*Curculigo orchioides, Dioscorea alata, Leptadenia reticulata, Tinospora cordifolia.*	04	04
	(c) Contraceptives	*Cajanus cajan, Capparis sepiaria.*	02	02
	(d) Hydrocele	*Caesalpinia bonduc, Cardiospermum halicacabum.*	02	02
	(e) Labour pains	*Acacia torta, Butea superba, Careya arborea, Crotalaria albida, Litsea glutinosa, Moringa pterygosperma, Pterocarpus marsupium.*	06	06
	(f) Leucorrhoea	*Cerascioides turgida, Erythrina suberosa, Garuga pinnata, Memecylon umbellatum, Selaginella bryopteris.*	05	05
	(g) Menstrual pains (Dysmenorrhoea)	*Hymenodictyon orixense, Kavalama urens, Wrightia arborea.*	06	06
	(h) Piles	*Ailanthus excelsa, Aloe vera, Cerisciodes turgida, Cochlospermum religiosum, Gardenia latifolia, Naringi crenulata, Tacca leontopetalaoides, Tamarindus indica.*	08	08
	(i) Urinary problems	*Cocculus hirsutus, Hybanthus ennaespermis, Ledebouria hyacinthina, Tylophora indica.*	04	04
6	**Infections/Infestations (5)**			
	(a) Diarrhoea	*Cerascioides turgida, Combretum latifolium, Ficus talboti, Mimosa pudica, Olax scandens, Xylia xylocarpa.*	06	06
	(b) Dysentery	*Abutilon indicum, Aegle marmelos, Asparagus racemosus, Bauhinia racemosa, Bombax ceiba, Byttneria herbacea, Clitoria ternatea, Coccinia grandis, Cyphostemma setosum, Dillenia pentagyna, Dioscorea bulbifera, Eleusine coracana, Holarrhena pubescens, Mimosa pudica, Paederia foetida, Phyllanthus reticulatus, Strychnos nux-vomica, Ziziphus oenoplia.*	18	18
	(c) Filariasis	*Tectona grandis.*	01	01
	(d) Helminthiasis	*Abutilon indicum, Cissus quadrangularis, Commelina benghalensis.*	03	03
	(e) Jaundice	*Lawsonia inermis, Phyllanthus amarus.*	02	02
7	**Inflammations and Fever (5)**			
	(a) Antiseptic	*Curcuma longa, Tridax procumbens.*	02	02
	(b) Ephemeral fever	*Acacia leucophloea, Agave americana, Andrographis paniculata, Anisomeles indica, Annona squamosa, Azadirachta indica, Balanites roxburghii, Bauhinia malabarica, Caesalpinia bonduc, Cardiospermum halicacabum, Casaeria elliptica, Crotalaria verrucosa, Curculigo orchioides, Cyperus rotundus, Drimia indica, Evolvulus alsinoides, Gymnema sylvestre, Phyllanthus amarus, Pueraria tuberosa, Terminalia arjuna, Vanda tasellata, Vitex negundo, Wrightia tinctoria, Ziziphus xylopyrus.*	24	24
	(c) Fever	*Acacia chundra, Calotropis gigantea, Cyathillium cinereum, Diplocyclos palmatus.*	04	04
	(d) Gout	*Euphorbia antiquorum, Pergularia daemia, Ricinus communis, Soymida febrifuga, Terminalia bellirica.*	05	05
	(e) Rheumatism	*Azima tetracantha, Barringtonia acutangula, Boswellia serrata, Caesalpinia bonduc, Calotropis gigantea, Canavalia gladiata, Capparis sepiaria, Clerodendrum phlomides, Cyphostemma setosum, Dichrostachys cinerea, Dillenia pentagyna, Dioscorea pentaphylla, Dregea volubilis, Ficus benghalensis, Hemidesmus indicus, Lannea coromandelica, Oroxylum indicum, Paederia foetida, Plumbago zeylanica, Pueraria tuberosa, Senna occidentalis.*	21	21
8	**Injuries (5)**			
	(a) Boils	*Acacia leucophloea, Achyranthes aspera, Biophytum sensitivum, Bridelia montana, Cadaba fruticosa, Chaemesyce hirta, Cleistanthus collinus, Cleome viscosa, Coccinia grandis, Curcuma longa, Dichrostachys cinerea, Enicostemma axillare, Euphorbia meenae, Evolvulus alsinoides, Flacourtia indica, Gardenia latifolia, Jasminum auriculatum, Lagerstroemia parviflora, Mangifera indica, Martynia annua, Merremia emarginata, Mucuna pruriens, Pergularia daemia, Sesamum orientale, Terminalia arjuna, Toddalia asiatica, Tridax procumbens, Withania somnifera, Wrightia tinctoria.*	29	29
	(b) Blisters	*Biophytum sensitivum, Bridelia montana, Cadaba fruticosa, Chaemesyce hirta, Cleistanthus collinus, Cleome viscosa, Coccinia grandis, Curcuma longa, Dichrostachys cinerea, Enicostemma axillare, Euphorbia meenae, Evolvulus alsinoides, Flacourtia indica, Gardenia latifolia, Jasminum auriculatum, Lagerstroemia parviflora, Mangifera indica, Martynia annua, Merremia emarginata, Mucuna pruriens, Pergularia daemia, Sesamum alatum, Terminalia arjuna, Toddalia asiatica, Tridax procumbens, Withania somnifera, Wrightia tinctoria.*	27	27
	(c) Cuts	*Biophytum sensitivum, Bridelia montana, Cadaba fruticosa, Chaemesyce hirta, Coccinia grandis, Curcuma longa, Dichrostachys cinerea, Euphorbia meenae, Flacourtia indica, Lagerstroemia parviflora, Merremia emarginata, Sesamum alatum, Toddalia asiatica, Tridax procumbens.*	14	14
	(d) Cracked heals	*Lannea coromandelica.*	01	01
	(e) Wounds	*Acacia chundra, Acacia leucophloea, Achyranthes aspera, Aristolochia bracteolata, Buchanania axillaris, Cleistanthus collinus, Cleome viscosa, Crinum asiaticum, Curcuma pseudomontana, Enicostemma axillare, Evolvulus alsinoides, Gardenia latifolia, Indigofera caerulea, Ixora arborea, Jasminum auriculatum, Mangifera indica, Martynia annua, Mucuna pruriens, Pergularia daemia, Plectranthus mollis, Terminalia alata, Terminalia arjuna, Withania somnifera, Wrightia tinctoria, Ziziphus xylopyrus.*	24	25
9	**Mental and Nervous System (Neurological) disorders (5)**			
	(a) Fits/Convulsions	*Acacia pennata, Chomelia asiatica, Crotolaria verrucosa, Nyctanthes arbor-tristis, Plumbago zeylanica, Semecarpus anacardium.*	06	06
	(b) Hemiplegia (partial paralysis)	*Aristolochia indica.*	01	01
	(c) Memory boosters	*Centella asiatica, Ceratopteris thalictroides.*	02	02

	(d) Paralysis	*Dregea volubilis.*	01	01
	(e) Shivering	*Chloroxylon swietenia, Mallotus philippensis, Rotula aquatica, Soymida febrifuga.*	04	04
10	**Metabolic disorders (1)**			
	(a) Diabetes	*Capparis zeylanica, Gymnema sylvestre, Hemidesmus indicus* var. *pubescens, Pterocarpus marsupium, Syzygium cumini.*	05	05
11	**Musculo-Skeletal Disorders** (MSDs) **(4)**			
	(a) Bone fracture	*Alangium salvifolium, Ampelocissus tomentosa, Anodendron paniculatum, Cassytha filiformis, Cissus quadrangularis, Curcuma longa, Dillenia pentagyna, Dioscorea bulbifera, Dodonea viscosa, Erythroxylum monogynum, Euphorbia antiquorum, Hymenodictyon orixense, Lannea coromandelica, Litsea glutinosa, Ochna obtusata, Phyllanthus reticulatus, Sarcostemma acidum, Ziziphus rugosa.*	18	18
	(b) Chest pain	*Buchanania lanzan, Schleichera oleosa.*	02	02
	(c) Joint Swellings	*Alangium salvifolium, Dendrocalamus strictus, Hygrophila auriculata, Premna latifolia.*	04	04
	(d) Neck pain	*Bauhinia semla, Chloroxylon swietenia, Dregea volubilis, Ipomoea carnea.*	04	04
12	**Reproductive system disorders (4)**			
	(a) Galactogogue	*Asparagus racemosus, Celosia argentea, Ceropegia juncea, Cryptolepis dubia, Curculigo orchioides, Gymnema sylvestre, Hemidesmus indicus, Madhuca indica, Sarcostemma acidum, Sarcostemma secamone, Xanthium pungens.*	11	11
	(b) Infertility	*Bombax ceiba, Lygodium flexuosum, Maerua oblongifolia, Mimosa hamata, Pterocarpus marsupium, Solanum virginianum, Withania somnifera.*	07	07
	(c) Pregnancy	*Tectona grandis.*	01	01
	(d) Sexually Transmitted Diseases (STDs)	*Canavalia virosa, Cayratia pedata, Smilax zeylanica, Tribulus lanuginosus.*	04	04
13	**Respiratory system disorders (4)**			
	(a) Bronchial asthma	*Acacia chundra, Anogeissus latifolia, Cissus quadrangularis.*	03	03
	(b) Cough	*Blumea mollis, Breynia retusa, Dioscorea pentaphylla, Drypetes roxburghii, Holarrhena pubescens, Jasminum auriculatum, Justicia adhatoda, Moringa concanensis, Tephrosia purpurea, Terminalia chebula.*	10	10
	(c) Pertussis (whooping-cough)	*Balanites roxburghii.*	01	01
	(d) Tuberculosis	*Dendrophthoe falcata.*	01	01
14	**Skin/sub-cuticle cellular tissue disorders (3)**			
	(a) Burns	*Acacia nilotica, Boucerasia umbellata.*	02	02
	(b) Hair tonic/shampoo	*Merremia hederacea.*	01	01
	(c) Skin disease	*Acalypha indica, Argemone mexicana, Asparagus gonocladus, Chaemesyce hirta, Cryptolepis buchananii, Euphorbia tirucalli, Ficus virens, Holoptelea integrifolia, Ipomoea eriocarpa, Lygodium flexuosum, Plumbago zeylanica, Pongamia pinnata, Senna alata, Trichosanthes cucumerina.*	14	14
15	**Other/un-classified disorders (7)**			
	(a) Corneal opacity	*Aegle marmelos, Balanites roxburghii, Casaeria elliptica, Dolichandrone falcata, Ocimum basilicum, Pergularia daemia, Soymida febrifuga.*	07	07
	(b) Head-ache	*Holarrhena pubescens.*	01	01
	(c) Heat and summer stroke	*Blepharis repens, Erythrina variegata, Ocimum basilicum.*	03	03
	(d) Impaction	*Aegle marmelos, Byttneria herbacea, Capparis zeylanica, Derris scandens, Erythrina variegata, Hemidesmus indicus, Indigofera trita, Phyllanthus emblica, Tinospora cordifolia.*	09	09
	(e) Infant diseases	*Azima tetracantha, Ficus racemosa, Selaginella bryopteris.*	03	03
	(f) Ophthalmic diseases	*Pavetta indica.*	01	01
	(g) Tonsils	*Bauhinia semla, Dregea volubilis, Ipomoea carnea.*	03	03

Animal-borne diseases are due to animal bites and vector-borne. Insect bites are more common and the number of medicinal plants used as antidote is highest (18 genera/19 species), followed by snake bites (12/12), scorpion stings (5/5) and dog bites (3/3). Sometimes, the same plant species is used as different medicine in different areas (e.g. *Abrus precatorius* is used for insect and snake bites (cf. Table 2).

Conversely, injuries and related problems are a frequent trouble to the local people. The greatest number of species are used for boils (29 genera/29 species) and blisters (27/27), followed by wounds (24/25), cuts (14/14) and cracked heals (1/1). There are diseases cured with only one plant species alone such as abdominal pain (*Abelmoschus moschatus* - fruit), filariasis (*Tectona grandis* - bark), cracked heals (*Lannea coromandelica* - leaf), hemiplegia (*Aristolochia indica* - root), paralysis (*Dregea volubilis* - root), pregnancy (*Tectona grandis* - fruit), pertussis (*Balanites roxburghii* - flower), tuberculosis (*Dendrophthoe falcata* - leaf), hair tonic/shampoo (*Merremia hederacea* – whole plant), head-ache (*Holarrhena pubescens* - bark) and ophthalmic disease (*Pavetta indica* – bark/leaf).

Interestingly, the medicinal plant species used to cure the common human ailments like diabetes, jaundice, etc. (Table 2) are the time-tested and widely used Ayurvedic medicines, with established curative properties.

Conclusion

The ethnic people in Nalgonda and Warangal districts in Andhra Pradesh still hold fair traditional ethno-botanico-medicinal knowledge. It is in regard to both health problems they face and medicines they prepare and use for their primary healthcare, injuries, bites, stings, etc. despite the modern medical help available around. Besides, there is great diversity in the plant species and the parts they use as crude drugs for a variety of diseases they perceive, diagnose and treat.

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