

Traditional Uses of Some Medicinal Plants by tribals of Gangaraju Madugula Mandal of Visakhapatnam District, Andhra Pradesh

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Abstract

During the years 2007-2008 several field trips were conducted to document the ethnomedicinal remedies for 47 diseases with 90 plant species of Angiosperms from three major tribes viz: Bagatas, Konda Doras and Valmikis who have been residing in Gangaraju Madugula Mandal of Visakhapatnam district. The plants were deposited as herbarium specimens in Andhra University, Visakhapatnam, India.

Key words : Traditional uses, medicinal plants,

Introduction

Some tribes are adhering to traditional way of life, native culture and customs, the tribal have vast store of information and knowledge on potentially useful medicinal plants. The traditional knowledge system in India is fast eroding due to steady decline in human expertise capable of recognizing various medicinal plants. Much of this wealth of knowledge is totally becoming lost as traditional culture is gradually disappearing because it is mostly oral (Hamilton, 1995). Therefore, effort should be initiated for the documentation and computerization of useful medicinal plants and their traditional knowledge (Mehrotra & Mehrotra, 2005).

The value of medicinal plants to the mankind is very well proven. It is estimated that 70 to 80% of the world population rely chiefly on traditional health care system and largely on herbal medicines (Shanley and Luz, 2003). Only 15% of pharmaceutical drugs are consumed in developing countries (Toledo, 1995). The affluent people have little alternative to herbal medicine, and they depend on traditional health care system (Marshall, 1998).

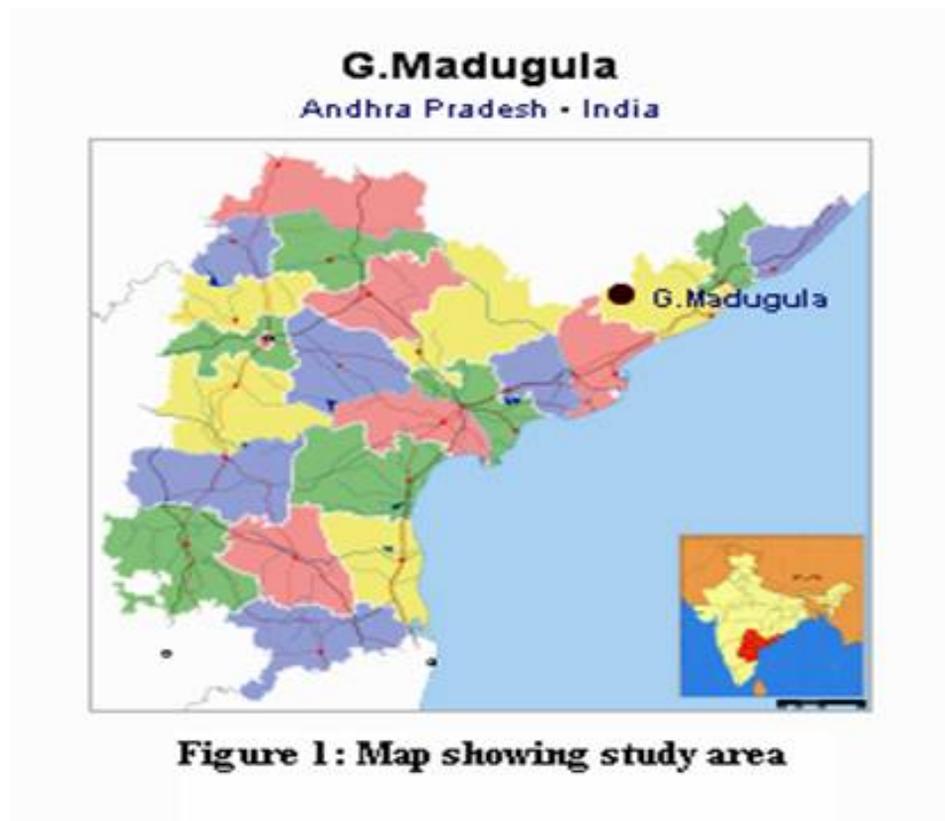
From the ethnomedicinal point of view Visakhapatnam district in Andhra Pradesh remained unexplored and no comprehensive account particularly on folklore of this region is available. Banerjee (1977) published a note on ethnobotanical observations of Araku valley. Rao *et al.* (2000) collected about 110 plant species of medicinal interest used by the tribals of Paderu division. Rao *et al.* (2001) reported 160 medicinal plants that occur in the same region. There is urgent, immense need to inventories and record all ethnomedicinal information among the diverse ethnic communities before the traditional cultures are completely lost (Rama Rao and Henry, 1996).

Ethnomedicinal activities on different aspects in Indian sub-continent has been put forth by Jain (1981). Therefore continuous efforts should be made to collect this information which will provide avenues for future generation. It is thus paramount importance that the native plant genetic wealth need to be maintained for posterity.

There is very little or no documentation of this ethnomedicinal knowledge was carried out pertaining to tribal of the Mandal. All the more, several wild medicinal plants are fast disappearing due to the destruction of forest by inhabitants, invasion of exotic flora and introduction of new crops. Hence, there is an urgent need for exploration and documentation of this traditional knowledge in order to ascertain the conservation value of the local ethnomedicinal plants of the forests. Therefore, the present study is an attempt to present some interesting ethnomedicinal observations recorded in Gangaraju Madugula Mandal, Visakhapatnam District of Andhra Pradesh, India.

Study Area

Gangaraju Madugula with an area of 544 sq. km. (4.8% of the area of the district) is one of the mandals of the Visakhapatnam district of Andhra Pradesh. It lies between $18^{\circ} 01' N$ latitude and $82^{\circ} 30' E$ longitude (Fig. 1). According to 2001 census the total population in the mandal is 50685. Of these 47625 are scheduled tribes (% of ST is 93.96). From centuries the forests of G. Madugula mandal have been inhabited by a number of tribes who have been maintaining distinct ways of life, beliefs, traditions, cultures, customs and myths. Such tribes include Bagatas, Konda Doras and Valmikis.



Materials and Methods

Exploration and survey work among the tribes of G. Madugula Mandal were conducted in all the tribal inhabited areas along the margin of forests during 2007-2008. Efforts have been made to collect the medicinal plants which were in flowering and fruiting conditions and were identified with the help of local flora. During the

course of survey, first hand information on the medicinal uses of the plants was gathered from local people and vaidyas. The uses of plants particularly for medicinal, were confirmed by many cross checking as possible in different localities.

Collection of information: The information on folk medicinal uses of plants was obtained through direct filed interviews with traditional healers. The data regarding names of plants, parts used and their method of preparation and mode of administration of various remedies were also noted down. When recording the names of plants, forest visit was made with the informant for identification of the specific plants. The inventory involved collection of plant specimens and then interviewing informants for vernacular names and uses.

Identification: The plant materials were identified with the help of standard local floras preliminary identification was done by examining fresh plants procured from the forest with the help of tribal. Few respondents were more informative and co-operative; they have shown fresh plants in the habitat, which was useful for the final identification. The identification of plant materials was confirmed at the herbarium in the Botany department of Andhra University.

Preservation: The collected materials were preserved in air tight containers and labeled individually. Various medicinal plant parts collected were broadly categorized as leaves, stem, bark, root, flower, fruit, seed, rhizome, bulb etc.,

Results

In the present study 90 species of plants included in 86 genera and 43 families have been recorded which are being potentially exploited by the tribal groups in curing different human ailments as shown in Table 1 and Figure 2. Of the 43 families Fabaceae is found to be dominant ethnomedicinally with 11 species used in various ailments, followed by Asclepiadaceae (6), Euphorbiaceae and Rutaceae (5), Moraceae and Verbenaceae (4) respectively.

Table 1. Some medicinal plants with their traditional uses

S. No.	Scientific name and Family	Vernacular Name	Life form	Part used and uses
1	<i>Annona reticulata</i> L. Annonaceae	Ramaphalam	T	Leaf paste is applied on the affected area of scabies.
2	<i>Annona squamata</i> L. Annonaceae	Seethaphalam	T	Seed powder is applied to scalp to treat dandruff
3	<i>Polyalthia longifolia</i> Thw. Annonaceae	Naramamidi	T	Stem bark used as febrifuge
4	<i>Cocculus hirsutus</i> (L.) Diels. Menispermaceae	Dusara teega	C	Leaf juice is applied on the affected areas of eczema till cure.
5	<i>Cadaba fruticosa</i> (L.) Druce. Capparaceae	Chikondi	S	Root decoction is administered during helminthiasis
6	<i>Hybanthus enneaspermus</i> (L.) Muell. Violaceae	Ratna purusha	H	Roots are diuretic and given in the urinary disorders

7	<i>Cochlospermum religiosum</i> (L.) Alston. Cochlospermaceae	Konda gogu	T	Stem bark paste is applied over the bone fractured areas
8	<i>Casearia elliptica</i> Willd. Flacourtiaceae	Girugudu	T	Leaf paste is applied over the bone fractured areas
9	<i>Flacourtia indica</i> (Burm. f.) Merr. Flacourtiaceae	Mandiakodi	S	Leaf juice is given internally to treat jaundice till cure
10	<i>Urena lobata</i> L. Malvaceae	Peddabenda	S	Roots are diuretic
11	<i>Waltheria indica</i> L. Sterculiaceae	Nalla benda	H	Roots chewed to control internal haemorrhages
12	<i>Grewia tiliaefolia</i> Vahl Tiliaceae	Charachi	T	Stem bark is used in dysentery
13	<i>Triumfetta rhomboidea</i> Jacq. Tiliaceae	Thithera	H	Leaf paste is applied on the affected areas of scabies and eczema
14	<i>Aegle marmelos</i> (L.) Correa. Rutaceae	Maredu	T	Half ripe fruits used for diarrhoea and dysentery
15	<i>Atlantia monophylla</i> (L.) Correa. Rutaceae	Gaja nimma	T	Oil from the fruit used in Rheumatism
16	<i>Chloroxylon swietenia</i> DC. Rutaceae	Billa chettu	T	Leaves used in Rheumatism
17	<i>Glycosmis pentaphylla</i> (Retz.) Correa Rutaceae	Konda gilugu	S	Juice of leaves used in fever, liver complaints and other skin troubles
18	<i>Toddalia asiatica</i> (L.) Lam. Rutaceae	Konda kasinda	S	Root bark is diaphoretic and used in stomach ache.
19	<i>Azadirachta indica</i> A.Juss. Meliaceae	Vepa	T	Stem bark used for skin troubles
20	<i>Cissus quadrangularis</i> L. Vitaceae	Nalleru	C	Stem paste used to cure rheumatoid arthritis
21	<i>Sapindus emarginatus</i> Vahl Sapindaceae	Kunkudu chettu	T	Fruits useful in treating asthma, diarrhoea, paralysis of limbs
22	<i>Schleichera oleosa</i> (Lour.) Oken Sapindaceae	Posuku	T	Seed oil is used for massage in rheumatism
23	<i>Lannea coromandelica</i> (Houtt.) Merr. Anacardiaceae	Deva ganneru	T	Stem bark used as astringent
24	<i>Mangifera indica</i> L. Anacardiaceae	Mamidi	T	Stem bark is decoction is administered for diarrhea
25	<i>Semecarpus anacardium</i> L.f. Anacardiaceae	Nalla jeedi	T	Gum used in leprosy and nervous debility.
26	<i>Abrus precatorius</i> L. Fabaceae	Guriginja	C	Root decoction used for coughs and cold, diuretic.

27	<i>Butea superba</i> Roxb. Fabaceae	Teega moodugu	C	Decoction of shoots used in piles
28	<i>Cajanus cajan</i> (L.) Millsp. Fabaceae	Kandulu	S	Leaf extract is administered for stomach pain
29	<i>Canavalia gladiata</i> (Jacq.) DC. Fabaceae	Adavi chikkudu	C	Leaf juice used in case of abdominal pains
30	<i>Desmodium gangeticum</i> (L.) DC. Fabaceae	Bhumi ippa	H	Root paste used in whooping cough
31	<i>Desmodium triflorum</i> (Retz.) Merr. Fabaceae	Muntha mandhu	H	Leaves used for dysentery and diarrhoea
32	<i>Mucuna monosperma</i> DC. ex Wight Fabaceae	Thilli teega	C	Seeds used in cough, asthma
33	<i>Tephrosia purpurea</i> (L.) Pers. Fabaceae	Vempali	H	Decoction of roots given in diarrhoea, rheumatism and asthma
34	<i>Cassia fistula</i> L. Fabaceae	Rela chettu	T	Dried fruits used as laxative
35	<i>Tamarindus indica</i> L. Fabaceae	Chinta chettu	T	Fruit pulp is used as a laxative
36	<i>Albizia lebeck</i> (L.) Benth. Fabaceae	Dirisanamu	T	Leaf juice administered orally to treat night blindness
37	<i>Dichrostachys cinerea</i> (L.) Wight & Arn. Mimosaceae	Velthuru chettu	T	Root paste is applied during bone fracture
38	<i>Xylea xylocarpa</i> (Roxb.) Taub. Mimosaceae	Konda tangedu	T	Root bark paste is applied on the affected areas of syphilis
39	<i>Kalanchoe lanceolata</i> (Forsk.) Pers. Crassulaceae	Ranapala	H	Leaf juice given during dysentery
40	<i>Calycopteris floribunda</i> Lam. Combretaceae	Adavi jama	C	Leaf juice used as laxative
41	<i>Quisqualis indica</i> L. Combretaceae	Tiga-ganneru	S	Seeds used for treating helmenthiasis
42	<i>Terminalia bellarica</i> (Gaertn.) Roxb. Combretaceae	Tadi	T	Decoction of fruits is administered for haemorrhoids
43	<i>Woodfordia fruticosa</i> (L.) Kurz Lythraceae	Jaji	S	Flowers used in menorrhagia
44	<i>Coccinia grandis</i> (L.) Voigt Cucurbitaceae	Kaki donda	C	Leaf paste applied on the affected areas of scabies

45	<i>Opuntia dillenii</i> (Ker-Gawl) Haw Cactaceae	Nagajemudu	S	Paste of phyllode and stem bark is applied on the area of snake bite
46	<i>Alangium salvifolium</i> (L.f.) Wang. Alangiaceae	Uduga chettu	T	Root bark is applied for skin troubles
47	<i>Haldinia cordifolia</i> (Roxb.) Ridsdale Rubiaceae	Bandari	T	Stem bark extract is administered orally for stomach pain
48	<i>Ixora pavetta</i> Rubiaceae	Papidi	S	Roots used in urinary diseases
49	<i>Tridax procumbens</i> L. Asteraceae	Gaddi chamanti	H	Leaves used in dysentery and diarrhea
50	<i>Sphaeranthus indicus</i> L. Asteraceae	Bhatti poolu	H	Whole plant juice is used for gastric disorders
51	<i>Plumbago zeylanica</i> L. Plumbaginaceae	Tella chitramoolam	H	Root paste applied on the affected areas of rheumatism
52	<i>Diospyros melonoxylon</i> Roxb. Ebanaceae	Tumki	T	Decoction of stem bark used in diarrhea
53	<i>Diospyros sylvatica</i> Roxb. Ebanaceae	Gada	T	Root extract used in malaria
54	<i>Holorrhena antidysentrica</i> (Buch.-Ham.) Wallich ex Don Apocyanaceae	Aaku pala	S	Stem bark used in amoebic dysentery and diarrhea
55	<i>Plumeria alba</i> L. Apocyanaceae	Nooru varahalu	T	Latex applied to treat scabies
56	<i>Wrightia tinctoria</i> (Roxb.) R. Br. Apocyanaceae	Pala ankudu	T	A decoction of stem bark administered during stomach pain
57	<i>Calotropis gigantea</i> (L.) R. Br. Asclepiadaceae	Jilledu	S	Leaf extract is applied on the affected area of rheumatoid arthritis
58	<i>Gymnema sylvestre</i> (Retz.) R. Br. ex Schult Asclepiadaceae	Podapathri	C	Leaf paste used as diuretic
59	<i>Hemidesmus indicus</i> (L.) R. Br. ex Schult. Asclepiadaceae	Sugandhi pala	S	Root powder mixed in water is administered orally for rheumatism
60	<i>Leptadenia reticulate</i> (Retz.) Wight & Arn. Asclepiadaceae	Mukku Tummudu	S	Leaf paste applied on the affected areas of eczema and scabies
61	<i>Pergularia daemia</i> (Forssk.) Chiov. Asclepiadaceae	Juttipaku	C	Root powder mixed in water is given for helminthiasis

62	<i>Tylophora indica</i> (Burm.f.) Merrill Asclepiadaceae	Verripala	C	Root powder mixed in milk used for asthma
63	<i>Coldenia procumbens</i> L. Boraginaceae	Hamsa padu	H	Leaves ground and applied to rheumatic swellings
64	<i>Heliotropium indicum</i> L. Boraginaceae	Nagadanthi	H	Leaf paste is applied on the area of snake bite
65	<i>Merremia tridentata</i> (L.) Hallier f. Convolvulaceae	Sitasavaram	C	Roots used for urinary disorders
66	<i>Datura metel</i> L. Solanaceae	Nalla umetha	H	Leaves applied on the affected areas of scabies and other skin diseases
67	<i>Scoparia dulcis</i> L. Scrophulariaceae	Goddu tulasi	H	Leaf paste is administered for dysentery
68	<i>Sesamum indicum</i> L. Pedaliaceae	Nuvvulu	H	Fresh leaves used in affections of kidney and bladder
69	<i>Andrographis paniculata</i> (Burm.f.) Nees Acanthaceae	Nela vemu	H	Leaf powder mixed with water and given for menstrual disorders, malaria, typhoid and helminthiasis
70	<i>Barleria prionitis</i> L. Acanthaceae	Mulla gorinta	S	Leaf paste is applied on the affected area of tooth ache
71	<i>Justicia procumbens</i> L. Acanthaceae		H	Infusion of herb is used in asthma
72	<i>Clerodendrum serratum</i> (L.) Moon Verbenaceae	Bommala marri	S	Root paste applied on the affected areas of rheumatism
73	<i>Gmelina asiatica</i> L. Verbenaceae	Nela gummadu	S	Fruit paste is applied on scalp to treat dandruff
74	<i>Lantana camara</i> (L.) Moldenke Verbenaceae	Deva ganneru	S	Root paste mixed with water is given for body pains
75	<i>Premna tomentosa</i> Willd. Verbenaceae	Nagaru	T	Leaves are used in diuretic conditions
76	<i>Celosia argentea</i> L. Amaranthaceae	Gunugu	S	Seeds used in diarrhea
77	<i>Cassytha filiformis</i> L. Lauraceae	Nulu tega	S	Leaf juice used for eye inflammations
78	<i>Bridelia retusa</i> (L.) Spreng. Euphorbiaceae	Koramanu	T	Stem bark powder is mixed with water and given during fever
79	<i>Cleistanthus collinus</i> (Roxb.) Benth. & Hook. F. Euphorbiaceae	Gavine	T	Stem bark paste is applied on sores of cattle
80	<i>Croton bonplandianum</i> Baill Euphorbiaceae	Kukka tulasi	S	Leaf paste is applied for skin diseases
81	<i>Euphorbia hirta</i> L. Euphorbiaceae	Pacha rodha	H	Latex is applied to warts

82	<i>Jatropha gossypifolia</i> L. Euphorbiaceae	Nepalam	S	Seed oil is applied to hair to eradicate lice
83	<i>Artocarpus heterophyllus</i> Lam. Moraceae	Panasa	T	Root extract is administered for diarrhea
84	<i>Ficus benghalensis</i> L. Moraceae	Marri	T	Latex is applied in rheumatism
85	<i>Ficus racemosa</i> L. Moraceae	Karuku bodda	T	Latex of root is applied on affected areas of cuts and muscle pain
86	<i>Streblus asper</i> Lour. Moraceae	Barinki	T	Stem bark decoction is administered for diarrhea and dysentery
87	<i>Sanseveria roxburgiana</i> Schult. F. Agavaceae	Gaju kura	H	Tuberous root paste is applied on the area of snake bite
88	<i>Borassus flabelifer</i> L. Araceae	Thadi chettu	T	Fruits are useful as laxative
89	<i>Caryota urens</i> L. Arecaceae	Jeeluga	T	Toddy is taken in limited to control body pains and cooling effect
90	<i>Bambusa arundinacea</i> (Retz.) Willd. Poaceae	Veduru	T	Decoction of roots are administered for diabetes

Note : T – Tree ; H – Herb; S – Shrub; C – Climber.

Among the 90 plant species that are recorded trees include 37, followed by shrubs 22, herbs 19 and climbers 12 as shown in the Figure 3 and Table 1. The traditional vydhya administer medicine by way of oral decoction, poultice and plant parts as paste.

For the preparation of the traditional medicine, these tribal vydhya used different parts of the plant species. Depending upon the plant part used leaf constitutes the highest percentage of utilization i.e., 32 % and gum the lowest 1%, while others being in between these two. Root is used in the quantum of 23% in curing ailments follower by Stem bark 17%, Fruit 9%, Seed 7%, latex 4%, root bark 3%, whole plant and flower 2% respectively (Figure 4).

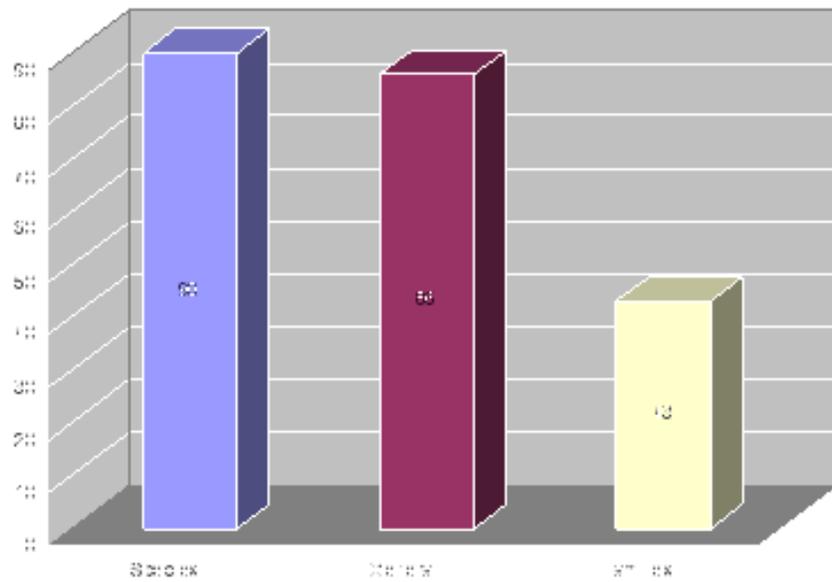


Figure 2: Spectrum of the taxa of the ethnomedicinal plants

habit wise analysis of medicinal plants

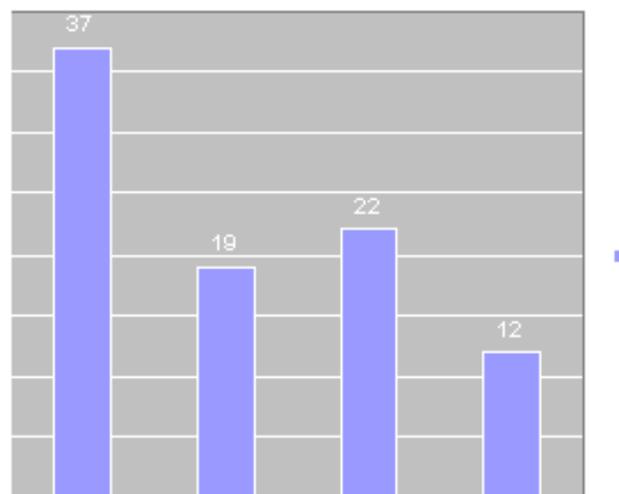


Figure 3: Graph showing habit wise analysis of medicinal plants

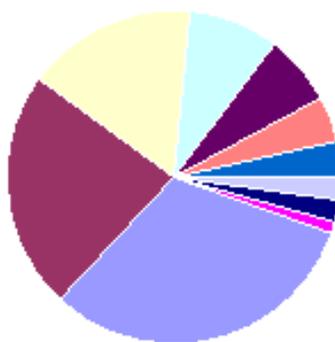


Figure. 4. Plant part-wise ethnomedicinal uses

Discussion

In the present investigation 90 plant species used by the different tribal vydhys of the G. Madugula mandal of Visakhapatnam district for different ailments and posterity have been identified. Forty seven different ailments/diseases are being treated by these plant species (Table 1). The tribal communities residing here have a wide range of remedies for asthma, body pains, bone fractures, cold, cough, cuts and wounds, dysentery, diarrhoea, eczema, gastric ulcers, night blindness, skin troubles, stomach ache, syphilis etc.,

From the enumeration it is clear that tribals of the G. Madugula mandal still depend, partially, on nature for their livelihood. No doubt civilization has touched almost all villages, but for economic backwardness they depend on forest for food, fuel, other requirements and an important one is the medicinal practices. These practices and knowledge treasures are transferred to these generations from their forefathers. Of the scheduled tribes in the study area, Bagatas, Konda Doras and Valmikis are found to possess reasonable sound ethnomedicinal knowledge than other tribal communities.

Pharmaceutical researchers acknowledge that screening plants on the basis of information derived from traditional knowledge saves billion dollars in time and resources (Hafeel and Shankar, 1999). However, the traditional knowledge has been eroding in these tribal societies of G. Madugula mandal. The crucial factors responsible for such erosion are the pressure of modernization and migration of youth from tribal area to semi urban or urban areas to take up job and employment. If such things are continue to happen in these communities then knowledge related to ethnobotany will vanish from the region. Similar factors were believed to be the reason for the loss of traditional ethnobotanical knowledge in Iban community in Sarawak, Malaysia (Jarvie and Perumal, 1994) and Raji tribal community of Central Himalaya, India (Negi *et al.*, 2002).

The collection, identification and documentation of ethnomedicinal data on biological resources are inevitable steps for bioprospecting. These plants may serve as source of some important medicine against some major

diseases. Therefore, these tribal claims should be further validated scientifically.

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