

## FOLK – MEDICINE FOR DIABETES FROM RAYALASEEMA OF ANDHRA PRADESH

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**ABSTRACT:** *The paper deals with the folk-lore use of 26 antidiabetic plant species occurring in Rayalaseema region of Andhra Pradesh. The methods of preparation and dose of administration of crude drugs as suggested by tribal and non – tribal herbalists are recorded in the study. Also the known chemical constituents(s) of these plants are included in the communication.*

### INTRODUCTION

Diabetes Mellitus was known to mankind as Madhumeha from antiquity for more than 2500 years ago as can be seen from medical texts such as Charaka Samhita<sup>1</sup> and Sushruta Sahita<sup>2</sup> (400 B.C.). The disease was most often treated with diet control, herbs and herbomineral drugs. In India from ancient times, the herbalists treated the disease with indigenous herbs which were free from side effects. Many tribal and non tribal herbalists keep this information as patent medicine.

The present attempt is therefore a thorough survey for information on the treatment prevailing in tribals and non-tribals to enrich the traditional systems and to document the prescriptions which are not listed so far in Rayalaseema region.

The districts of Cuddapah, Kurnool, Anantapur and Chittoor comprise Rayalaseema (12°41' and 16°21' N., 76°45' and 80°1E.) in Andhra Pradesh (Fig.1). The topography of the area is mostly undulating and inclined towards Bay of Bengal. Further it covers much of the southern most part of the

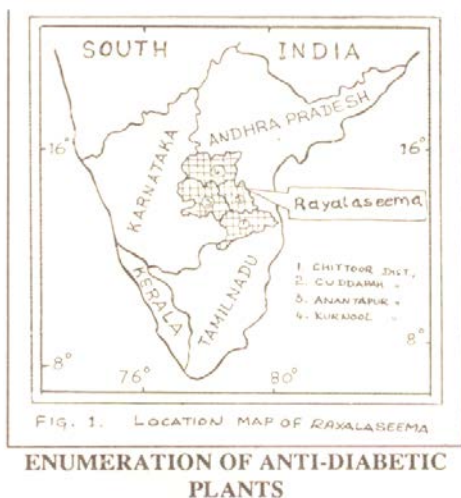
Eastern ghats. The climate is semi-arid with many sunny days during the year. The mean maximum temperatures are 40.5°C. The average rain-fall is only 72.8 cm. Rayalaseema area suffers drought and famine, leading to changes in the occupation and food habits of the people. The principal forest types are dry deciduous species mixed up with scrub jungle and with some evergreen taxa in the gorges. The south Eastern ghats in this region cover Horsely hills, Tirupati hills, part of Nallamalais, Erramalais, Velikondas, Palakondas and Lankamalais.

Rayalaseema area is inhabited by a large number of tribals like Yanadis, Chenchus, Irulas, Yerukalas, Sugalis, Koyas, Reddi Dhoras, Konda Kapu, Kattunayaka, Manne Dora and Godabas, who possess good knowledge of home remedies. By enumeration studies it is known that this region is a rich source of medicinal plants. The villages and the tribal localities have 80 per cent of traditional healers who treat many human ailments.

Ethnobotanically this region remains under explored and no comprehensive account especially on the folk-lore survey is available<sup>3,4</sup>. The antidiabetic properties of the plants of this region has also not been adequately codified. Thus, in the present paper, an elaborative account of the plants which are used as antidiabetics, is reported.

## METHODOLOGY

During 1986-1988, frequent trips were conducted to different parts of Rayalaseema. Information from tribal and non-tribal people on 26 plant species which are frequently used in diabetes is recorded. It is noted that each village has 2-3 well reputed traditional healers or Natuvaidyulu as they are known locally. Samples of the plant species were collected from them and deposited in the Herbarium, Department of Botany, S.V. University, Tirupati. As far as possible the nomenclature of plants is updated by consulting the latest floras on South India<sup>5,6,7</sup>.



The data gathered and the plants classified so far, are presented in Table 1. They are generally the plants most frequently used by

the healers, from Table 1 it can be seen that either a single plant is used to treat diabetes or mixed with other plants to synergise its effect.

## DISCUSSION

The foregoing enumeration presents an account of 26 plant species used in the treatment of diabetes by the local folk. During the study important literature, viz., Chopra<sup>8,9</sup>, Kirtikar and Basu<sup>10</sup> and Nadkarni<sup>11</sup>, were consulted to ascertain whether these plants are prescribed and known for similar use in the treatment of the same. During the course it was observed that out of 26 plants, 6 plant taxa, which are marked with an asterisk, are already ascribed with such properties, this investigation throws light on the popularity of our indigenous system of medicine amongst the general public and might draw the attention of phytochemists and pharmacologists for further scientific study. In conclusion, it is assumed that many more vital drugs can be unraveled from the secret wealth of tribal medicines of this area for the well being of mankind.

## ACKNOWLEDGEMENT

The authors are very much grateful to Dr. S.K Mukherjee Emeritus scientist, CDRI, Lucknow for valuable discussions. The financial support (to NNR) by the ICMR, New Delhi is gratefully acknowledged.

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TABLE 1 : Anti-diabetic Plants from Rayalaseema

No. 1	Plant Name & Family 2	Plant Part 3	Treatment 4	Chemical Constituents 5
1.	<i>Abrus precatorius</i> L. Gurivenda (Leguminosae – Fabaceae)	Leaves	Juice, twice a day for 20 days.	Glycyrrhizin
2.	<i>Aloe vera</i> (L.) Burm.f. Kalabanda (Liliaceae)	Leaves	Powder with hot water, twice per day after food	Quercetin, rutin, emodin, Chrysophanic acid.
3.	<i>Andrographis elongate</i> T. And. Nela vemu (Acanthaceae)	Entire plant	Decoction, drink 3 times per day.	Andrographolides
4.	<i>Asparagus gonocladus</i> Bak Pilliteega gaddalu (Liliaceae)	Tuberous Root	Powder mixed with leaf powder of <i>Gymnema sylvestre</i> twice per day for 20 days.	Quercetin, rutin
5.	* <i>Azadirachta indica</i> A. Juss. Vepa (Meliaceae) days; dose: once in a day.	Flowers/Bark	Roasted flowers or bark powder with buttermilk for 40	Acety Nimbin nimboloid (lactone)
6.	<i>Bougainvillea spectabilis</i> Willd. Kagitapoolu (Nyctaginaceae)	Leaves	Paste, made into pills; dose: 3 pills twice per day for 20 days	
7.	<i>Carica papaya</i> L. Parinda (Caricaceae)	Green fruit	Juice is drunk 2 times per day papain, Violaxanthin, Caricaxanthin.	Nicotinic acid, ascorbic acid,
8.	<i>Cassia auriculata</i> L. Tangedu (Leguminosae – Caesalpinaceae)	Leaves +Flowers	Juice with Triphala Churnam (mixture of <i>Emblica officianlis</i> , <i>Terminalia chebula</i> and <i>T. Pallida</i> ) for 15 days.	Sennosides A&B Anthraquinones.
9.	<i>Cassia occidentalis</i> L. Kasinda (Caesalpinaceae)	Leaves	Powder with milk (sugar should be avoided) twice a day for 40 days.	Sennosides A&B Anthraquinones.
10.	<i>Centratherum anthel-minticum</i> (L) Kuntze Nelavavil (Asteraceae)	Leaves	Paste made into pills, 3 pills per dose, twice a day for 40 days.	Ricinoleic, myristic, palmitic, stearic, oleic linoleic acids

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11.	<i>Coccinia indica</i> Wight & Arn. Donda (Cucurbitaceae)	Leaves/root	Powder, 3 times per day	Caffeic acid, quercetin, Kaempferol, B- sitosterol.
12.	<i>Cyamopsis tetragonoloba</i> (L) Taub. (Muttikayalu) (Fabaceae)	Fruit	Fried, used as a curry or chutney for 40 days.	Rutin, Caffeic acid, isovitexin
13.	<i>Decalepis hamiltonii</i> Wight & Am. Maredukommu/Madinakommu (Asclepiadaceae)	Tuberous	Root powder, one root teaspoonful twice a day with hot water for 20 days	Quercetin, Kaempferol rutin, coumarin
14.	<i>Emblica officinalis</i> Gaertn. Usiri (Emphorbiaceae)	Dry fruit	Powder, one teaspoonful with milk twice per day	Linolenic, inoleic, oleic stearic, palmitic, myristic acids
15.	<i>Gymnema sylvestre</i> (Retz. R.Br. ex Roemer & Schultes Podapatri (Asclepiadaceae)	Leaves	Chewed	Gymnemic acid
16.	<i>Ichnocarpus frutescens</i> (L) R.Br Illu-katte (Apocynaceae)	Leaves	Powder, two spoons twice per day after food for 20 days	
17.	* <i>Momordica charantia</i> L. Kakara (Cucurbitaceae)	Green fruit	Juice, daily in the morning	Charantin (momordicin)= Phytosterolin= B- Sitosterol
18.	<i>Moringa oleifera</i> Lamk. Munga (Moringaceae)	Fruit	Fried fruit for 20 days	Protocatechuic acid, Caffeic acid, P-hydroxy benzoic acid.
19.	<i>Phyllanthus amarus</i> Schun & Thonn. Nela usiri (Euphorbiaceae)	Entire	Powder, 1 teaspoon once in a week for 4 weeks	Phyllanthin, astralgin, Quercetoside, Quercetoside, Quercitrin.
20.	<i>Psidium guajava</i> L. Jama (Myrtaceae)	Fruit	Powder, with buttermilk twice per day for 15 days.	Kaempferol, rutin
21.	<i>Pterocarpus santalinus</i> L. Raktachandanam (Fabaceae)	wood	Aqueous extract, pieces twice per day; drinking water incubated in wooden cups.	Quercetin, Caffeic acid, Rutin

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22.	Syzygium alternifolium Walp. Mogi (Myrtaceae)	Seed	Powder, 3 times a day after food	Sapogenins, Quercetin, Kaempferol
23.	Talinum portulacifolium willd. Palaaku (Portulacaceae)	Leaves	Powder mixed with boiled milk, twice a day for 20 days.	
24.	Tecoma stans (L) Kunth. (Bignoniaceae)	Leaves	Decoction is drunk	Alkaloids, tecomine tecostanine
25.	Terminalia chebula Retz. Karaka (combretaceae)	Dry fruit	Powder, 1 to 2 teaspoonful with water kernel for 20 days	Quercetin, chebulin Caffeic acid
26.	Trigonella foenumgraecum L. Menthulu (Fabaceae)	Seed	Powder with water daily in the morning	Alkaloid: trigonelline, coumarin, nicotinic acid, disogenin, quercetin, luteolin.