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Enumeration of Antidiabetic Herbal Flora of Tamil Nadu

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Abstract: This study showed the first had information on 57 interesting medicinal herbal plants used by tribal people, Vaidyas, Siddha and Ayurveda for diabetes mellitus. Present enumeration of antidiabetic herbal flora of Tamil Nadu includes information regarding previous findings. This information's were gathered at the time of field study from various local inhabitants, viz., vaidyas. Medicinal plant seller, healers, priests, hakims and local elderly people. Furthermore, information's regarding antidiabetic nature of plants were confirmed by previous findings reported in various national and international journals.

Key words: Ayurveda, medicinal plants, antidiabetic, diabetes mellitus

INTRODUCTION

All systems of traditional Indian medicine have their roots in folk medicine and household remedies. Whereas some of those earliest remedies were subjected to certain refinements, revisions and improvements through practices by trained medicine men. The people are using various recipes traditionally from generation to generation. Some of them might be found in recorded form and some of them are not. Those which are not found in recorded form and the knowledge about those has come through generations verbally in the main subject of ethnobotany (Dhiman and Khanna, 2001) Today there is an increasing desire to unravel the centuries old secrets of traditional medicines. In India, ethnobotanical studies with a good scientific base have appeared in last 1-2 decades (Yadav and Patil, 2001; Maikhuri *et al.*, 1998; Chopra *et al.*, 1956; Jain, 1963, 1965, 1991; Paul and Mudgal, 1985; Bhargava, 1983; Jain and Borthakur, 1980; Kirtikar and Basu, 1975; Juyal and Uniyal, 1966; Gupta, 1964). This knowledge came down through folklore (Jain, 1980).

Diabetics, rise in blood sugar beyond the normal level has become a very common problem in our society. It is a challenge to developing countries like India (Srinivastava, 1998). Diabetes is a very serious disease, left unchecked. It can bring serious consequences including death. Fortunately, it is a disease that can be managed. Unfortunately most of the people who have diabetes do not know. The tribal people, priests and hakims can easy to identify who have diabetes simply watching the urine. The tribal people call diabetes a sugar disease (Sakarai Veyathi). Since antiquity, diabetes has been treated with herbal plant medicines. Recent scientific investigations have confirmed the efficacy of many of these herbal medicines. The plant medicines that help control blood sugar levels in people with diabetes mellitus. There has been no effective treatment available for the treatment of diabetics in the last few decades. But now traditional treatments are available. The seeds of *Trigonella foenum graceum* have shown antidiabetic and hypocholesterolaemic activity in animal and humans (Al Haberi and Raman, 1998). Hypoglycaemic activity has also been reported in *Cassia fistula* and in bitter gourd (Bhakta *et al.*, 1997).

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MATERIALS AND METHODS

A survey of the antidiabetic plants was conducted through periodical field visits throughout Tamil Nadu. Information obtained through formal interviews with all age groups of tribes was recorded. Repeated enquiries were made with a number of informants to ascertain the authenticity of the information. Data were collected on the names of plants and the parts used and documented with their families.

The study involved field work and interviews. Data were obtained from native informants who were hakims, priests, tribal people and common people who have knowledge of the therapeutic value of antidiabetic plants (Table 1). The intensive interviews were according to the methods of Jain (1987). The plants thus collected were identified by Matthew (1991, 1988 and 1982), Nair and Henry (1983), Henry *et al.* (1989 and 1987), Variers (1996). The antidiabetic plants according to their Botanical with English, vernacular name and part of the plant used for diabetes (Table 1).

Table 1: List of antidiabetic plants with botanical, English and vernacular name

Botanical name	Family	English	Vernacular	Parts of uses
<i>Acacia catechu</i> (Linn. f.) Willd.	Mimosaceae	Cutch tree	Karunkali	Heart wood
<i>Acacia nilotica</i> Linn.	Mimosaceae	Babul	Karuvelam	Gum
<i>Acacia polyacantha</i> Willd.	Mimosaceae	White catechu	Kovil	Heart wood
<i>Aegle marmelos</i> (Linn.) Corr.	Rutaceae	Bael tree	Vilvam	Leaves
<i>Albizia odoratissima</i> (Linn. f.) Benth	Mimosaceae	Black siris	Karuvakai	Bark
<i>Alpinia calcarata</i> Rose.	Zingiberaceae		Chittarattai	Rhizomes
<i>Alpinia galangal</i> (Linn.) Willd.	Zingiberaceae	Greater galangal	Perarattai	Rhizomes
<i>Anogeissus latifolia</i> (DC.) Wallich ex Beddome	Combretaceae	Axle wood	Vellanagai	Roots
<i>Aphanamixis polystachya</i> (Wall.) Parker	Meliaceae	Rohituka tree	Malampuluvan	Bark
<i>Argyrea speciosa</i> Sweet	Convolvulaceae	Elephant creeper	Samuttirappachai	Roots
<i>Butea monosperma</i> (Lam.) Taub.	Fabaceae	Bastard teak	Parasa	Bark
<i>Caesalpinia bonduc</i> (Linn.) Roxb.	Caesalpinaceae	Fever nut	Kazhichikay	Seed
<i>Caesalpinia sappan</i> Linn.	Caesalpinaceae	Sappan wood	Pahungam	Heartwood
<i>Callicarpa macrophylla</i> Vahl	Verbenaceae	Priyangu	Nalal	Flowers and Fruits
<i>Cassia auriculata</i> L.	Caesalpinaceae	Tanner's cassia	Avaram	Flowers and Fruits
<i>Cassia fistula</i> L.	Caesalpinaceae	Purging fistula	Konnai	Bark
<i>Cassia occidentalis</i> L.	Caesalpinaceae	Negro coffee	Nattam takarai	Roots
<i>Catharanthus roseus</i> (L.) Don	Apocynaceae	Madagascar periwinkle	Sudukattu mallikai	Whole plant
<i>Cedrus deodara</i> (Roxb.) Don.	Pinaceae	Deodar	Tevataram	Heart wood
<i>Ceiba pentandra</i> (L.) Gaertner	Bombacaceae	White silk cotton tree	Ilavum	Root
<i>Chonemorpha fragrans</i> (Moon) Alston	Apocynaceae	-	-	Root
<i>Coccinia indica</i> Wight and Arn	Cucurbitaceae	Lvy gourd	Kovakai	Root, leave, fruits
<i>Commiphora candata</i> (Wight and Arn) Engl.	Bursaceae	Hill-mango	Kiluvai	Root.
<i>Coscinium fenestratum</i> (Gaertn.) Colebr.	Menispermaceae	Tree turmeric	Maramanjai	Stem
<i>Cressa cretica</i> L.	Convolvulaceae	-	Uppumarikkoluntu	Whole plant
<i>Cucumis trigonus</i> Roxb.	Cucurbitaceae	Bitter gourd	Kattutummatti	Fruits
<i>Dioscorea alata</i> L.	Dioscoreaceae	Greater yam.	Perumvalli kizhangu	Tubers
<i>Diospyros peregrina</i> ((Gaertner) Guerke	Ebenaceae	Gaub persimon	Kattatti	Bark
<i>Ficus amottiana</i> Miq.	Moraceae	-	Kotiyarasu	Bark
<i>Ficus benghalensis</i> Linn.	Moraceae	Banyan	Alamaram	Bark
<i>Ficus microcarpa</i> Linn. f.	Moraceae	-	Kallicci	Bark, leaves
<i>Ficus racemosa</i> Linn.	Moraceae	Fig	Atti	Bark, root
<i>Flacourtia jangomas</i> Raeusch.	Flacourtiaceae	Puncala plum	Vaiyyankarai	Fruits
<i>Gymnema sylvestre</i> (Retz.) R. Br.	Asclepiadaceae	Periploca of the woods	Shirukurinja	Leaves
<i>Helicteres isora</i> Linn.	Sterculiaceae	East Indian s crew tree	Valampiri	Root
<i>Holoptelea integrifolia</i> (Roxb.) Planch.	Ulmaceae	Indian elm, Kanju	Avail	Bark and leaves
<i>Hydnocarpus laurifolia</i> (Dennst.) Sleumer	Flacourtiaceae	Marothi tree	Maravattai	Seeds and oil
<i>Ichnocarpus frutescens</i> (L.) R. Br.	Apocynaceae	-	Udarkoti	Roots
<i>Kyllinga monocephala</i> Rottb.	Cyperaceae	-	Vellutta nirbasi	Tuber
<i>Limonia acidissima</i> W and A.	Rutaceae	Elephant apple	Vilankay maram	Gum

Table 1: Continued

Botanical name	Family	English	Vernacular	Parts of uses
<i>Ougeinia dalbergioides</i> Benth.	Fabaceae	Sandan	Narivengai	Bark
<i>Pandanus odoratissimus</i> (L. f.)	Pandanaceae	Screw Pine	Talai	Root
<i>Portulaca oleraceae</i> L.	Portulacaceae	Common Purslane	Pulikkirai	Stem and Leaves
<i>Premna corymbosa</i> Rottler and Wild.	Verbenaceae	-	Munnai	Root
<i>Pterocarpus marsupium</i> Roxb.	Fabaceae	Indian Kino tree	Pirasaram	Heart wood
<i>Rubia cordifolia</i> Linn.	Rubiaceae	Indian madder	Manjitti	Root
<i>Rotula aquatica</i> Lour.	Boraginaceae	-	Seppunerinji	Root
<i>Semecarpus anacardium</i> L.f.	Anacardiaceae	Marking Nut tree	Serangottai	Fruits
<i>Sphaeranthus indicus</i> Linn.	Asteraceae	East Indian globe-thistle	Kottakkarand ai	Whole plant
<i>Strychnos potatorum</i> Linn. f.	Loganiaceae	Clearing nut tree	Tetankoltai	Seeds
<i>Syzygium cumini</i> (Linn.) Skeels	Myrtaceae	Jambolan	Naval	Bark, Seeds
<i>Terminalia arjuna</i> W and A	Combretaceae	Arjun	Marudu	Bark
<i>Terminalia paniculata</i> Roth.	Combretaceae	Flowering Murdah	Pumarudu	Bark
<i>Tinospora cordifolia</i> (Willd.) Hook. F. and Thoms.	Menispermaceae	Gulancha tinospora	Cintilikkoti	Stem
<i>Tragia involucrate</i> Linn.	Euphorbiaceae	Indian stinging-nettle	Kannichi	Root
<i>Woodfordia fruticosa</i> (Linn.) Kurz	Lythraceae	Fire-flame bush	Velakkai	Flowers
<i>Zanthoxylum armatum</i> DC.	Rutaceae	Toothache tree	Tumpunalu	Bark and Fruits

RESULTS AND DISCUSSION

Herbal medicine has always played a key role in the health system of our people. *Gymnema sylvestre*. R. Br, is a famous antidiabetic plant exported in large quantities. (Karuppusamy *et al.*, 1998). Antidiabetic medicinal plants documented through ethnobotanical studies may serve as a guide to carry out further research for the treatment of diabetes, a disease which requires special attention.

The medicinal plants have been used by humans from the pre-historical times. Studies have pointed out that many drugs that are used in commerce have come from folk-use and use of plants by indigenous cultures (Anonymous, 1994). About 50 drugs have been discovered from ethnobotanical leads by translating folk knowledge into new pharmaceuticals (Cox, 1994).

Diabetes mellitus is a disease of disordered metabolism of carbohydrate, protein and fat which is caused by the complete or relative insufficiency of insulin secretion and/or insulin action (Balkau *et al.*, 2000). The disease constitutes a major health problem in the developing countries because of expensive and inadequate treatments (Djrolo *et al.*, 1998) coupled with the side effect associated with these drugs, hence search for a new drug with low cost, more potentials and without adverse effects is being pursued in several laboratories around the world (Kumar *et al.*, 2006).

In spite of the presence of known antidiabetic medicine in the pharmaceutical market, remedies from medicinal plants are used with success to treat this disease (Bhattaram *et al.*, 2002). Many traditional plant treatments for diabetes are used throughout the world and there is an increasing demand by patients to use the natural products with antidiabetic activity (Swanston Flatt *et al.*, 1990).

In the present study, many antidiabetic medicinal plants belonging to 33 families were recorded in this study along with their botanical name, family, English name, vernacular name and useful parts. The objective of this study is to motivate the agriculturists/farmers to come forward for the utilization, cultivation and preservation of traditional herbs.

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