



ETHNO MEDICINAL PLANTS USED FOR DIABETES BY THE TRIBES OF ETTURNAGARAM WILDLIFE SANCTUARY, TELANGANA STATE, INDIA

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ABSTRACT

It is the fact that diabetes can't be cured and it has never been reported that someone had recovered totally from diabetes. The rapidly increasing incidence of diabetes mellitus is becoming a serious threat to mankind health in all parts of the world. Moreover, during the past few years some of the new bioactive drugs isolated from plants showed antidiabetic activity with more efficacy than oral hypoglycemic agents used in clinical therapy. The traditional medicine performed a good clinical practice and is showing a bright future in the therapy of diabetes mellitus. The present paper reviews natural medicines. Many studies have confirmed the benefits of medicinal plants with hypoglycemic effects in the management of diabetes mellitus. The effects of these plants may delay the development of diabetic complications and correct the metabolic abnormalities. WHO has pointed out this prevention of diabetes and its complications is not only a major challenge for the future, but essential if health for all is to attain. Therefore, in recent years, considerable attention has been directed towards identification of plants with antidiabetic ability that may be used for human consumption. Further, it emphasizes strongly in this regard the optional and rational uses of traditional and natural indigenous medicines. The present research is on the Ethno Medicinal Plants Used for Diabetes by the Tribes of Eturnagaram Wildlife Sanctuary, Telangana State, India

KEYWORDS : Diabetes, Ethno-medicine, Lambadi, Koya, Wildlife sanctuary

INTRODUCTION

There is little doubt that Traditional Medicines have been utilized since antiquity in the health care. However, with the advent of the pharmaceutical industry early in this century, the popularity of traditional/herbal medicine declined, in spite of the fact that twenty five percent of all prescription drugs still contain ingredients isolated from plants. The resources now do exist which can help and assist for greater understanding of the ways in which herbs can facilitate health and restore balance in disease (Murray and Pizzorno, 1991). The global herbal cornucopia represents an eclectic collection of the most authentic early medicines that even today continued to prevent and cure diseases. A major portion of the global population in developing countries still relies on botanical drugs to meet its health needs. The attention paid by health authorities to the use of herbal medicines has increased considerably, both because they are often the only medicine available in less developed areas and because they are becoming a popular alternative treatment in more developed areas (Yoganarasimhan, 2000).

Medicinal plants have been reported to be useful in diabetes worldwide and have been used empirically as antidiabetic remedies. Despite the presence of known antidiabetic medicine in the pharmaceutical market, diabetes and the related complications continued to be a major medical problem. Antihyperglycemic effects of these plants are attributed to their ability to restore the function of pancreatic tissues by causing an increase in insulin output or inhibit the intestinal absorption of glucose or to the facilitation of metabolites in insulin dependent processes. More than 400 plant species having hypoglycemic activity have been available in literature, however, searching for new antidiabetic drugs from natural plants is still attractive (Malviya, *et al*, 2010).

MATERIALS AND METHODS

Geography of the Location

The Eturnagaram wildlife sanctuary is located in the Warangal District of Telangana State. (Map.1) The location which the snake found lies between 17°29'16" and 18°36'20"N and 78°49'49" and 80°40'13"E. The division has a geographical area of 8,687.81 km² which is 67.6% of the total area of the district (12,847 km²). Elevation is between 266 and 518 m, with a general SE slope along which surplus waters drain into the river Godavari. The climate is tropical, generally dry with temperature ranging from 15°C to 45°C and annual rainfall of 1182 mm, received mainly through south-west monsoon. Soils are primarily black cotton, loamy, sandy, and red chhalaka. The area under forest cover is 2,310 km², 27% of the total geographical area of the division. The forest canopy density

categories are moderately dense forest (953 km²), open forest (1015 km²), scrub (91 km²), and non-forest (244 km²). The forest division has six ranges: Bhupalapally North, Eturnagaram, Tadvai, Pasra, Mulugu, and Warangal. The research area was in Tadvai and Eturnagaram ranges which include Eturnagaram Wildlife Sanctuary. This research was conducted among the Koya and Lambadi Tribes settled in the wildlife sanctuary.

Plant collection and identification

This data is collected during the study period from March 2016 to February 2017. During this period, weekly collections were taken from flowering plants during early morning. Every time, fresh collected materials were exhibited to the taxonomic expert to get the taxonomic information about the plants. The photographs of selected plants were also taken during the field trips. The habitual data were recorded in the field note book. Polythene bags were used to keep the collected materials in fresh condition. Hand lens was used for recording the morphological characters. The collected plants were brought to the herbarium room for preservation and further identification.

The collected plants were identified correctly and confirmed by referring various flora like The flora of Nilgiri and Pulney Hill top by Fyson (1921), The flora of presidency of madras by Gamble and Fischer (1957). In addition to the above flora Joseph (1981), Nair and Sastri (1987) Sasidharan (2004) and Prakash *et al* (2006) were referred.

Identified plants were verified and by the herbarium of TBG&RI, Palode, Thiruvananthapuram. The plant specimens and their medicinal uses, Habit, useful part, for which the particular plant is thoroughly verified with Kirthikar and Basu (1980).

The data gathered through interviews was verified with the available literature (Yoganarasimhan and Chelladurai, 2000; Parota, 2001).

The relevant information about the local names, their morphological useful parts and Tribal medicinal uses for the treatment of various diseases were gathered from the Lambadi and Koya Tribal villagers, herbal plant collectors and local practitioners from in and around village of the study area. They were mostly were not willing to reveal the combinations and usages completely.

RESULT AND DISCUSSIONS

Binomial: *Polyalthia longifolia* (Sonn.) Thwaites

Family: **Annonaceae**

Plant properties: A tall handsome evergreen tree, bark smooth, greyish brown, thick; Lvs. simple, green, shining with undulate margins; Fl. yellowish green in fascicles; Fr. a bunch of small ovoid one-seeded berries.

Tribal medicinal use: The bark is beaten well to take juice, and the extract is good for sugar diseases.

Traditional medicinal use: The bark is useful in diabetes, hypertension and helminthiasis.

Binomial: *Pongamia pinnata* (Linn.) Pierre
Family: **Fabaceae**

Plant properties: A medium-sized semi-evergreen glabrous tree with a short bole and spreading crown. Lvs. compound, ovate, acuminate or elliptic; Fl. lilac, fragrant, in axillary racemes; Fr. thick, woody, smooth.

Tribal medicinal use: The roots are used for cleaning diabetic ulcers.

Traditional medicinal use: The roots are good for cleaning diabetic ulcers. Flowers are useful to quench dipsia in diabetes.

Binomial: *Portulaca oleracea* Linn
Family: **Portulacaceae**

Plant properties: A succulent prostrate or erect herbaceous annual with green or purple stems, swollen at the nodes, quite glabrous; Lvs. simple, fleshy, variable, oblong-ovate, spatulate, linear with cuneate sessile base, Fl. bright yellow, in sessile, terminal or axillary clusters; Fr. ovoid, circumscissile capsules, Sd. numerous, black, concentrically striate and granulate.

Tribal medicinal use: Cooked leaves are good to diabetic allied jaundice.

Traditional medicinal use: The stem and leaves are useful diabetes, cardiovascular diseases.

Binomial: *Pterocarpus marsupium* Roxb.
Family: **Fabaceae**

Plant properties: A medium sized to large tree with dark brown or grey bark having shallow cracks, Lvs. compound, imparipinnate, glabrous on both surfaces, main nerves numerous, prominent; Fl. yellow in terminal panicles; Fr. nearly circular, glabrous, flat, winged pods, Sd. bony.

Tribal medicinal use: Poultice of leaf and skin is applied for strong skin infections in diabetic patients.

Traditional medicinal use: The heartwood is useful in diabetes, diabetic retinopathy.

Binomial: *Saraca indica* Linn.
Family: **Caesalpinaceae**

Plant properties: A medium sized handsome evergreen tree with numerous spreading and drooping glabrous branches; Lvs. pinnate; Fl. orange or orange-yellow in dense corymbs, very fragrant; Fr. flat black pods.

Tribal medicinal use: Leaf paste is applied to treat pimples. Dried flowers are given to diabetic patients.

Traditional medicinal use: The dried flowers are used in diabetes.
Binomial: *Scoparia dulcis* L.
Family: **Scrophulariaceae**

Plant properties: Erect annual, herb, Fl. white, Widespread pantropical weed.

Tribal medicinal use: Leaf decoction are used in treatment of fever, cough, bronchitis and dental trouble.

Traditional medicinal use: It is used against diabetes.

Binomial: *Syzygium cumini* (Linn.) Skeels
Family: **Myrtaceae**

Plant properties: A medium sized tree with smooth light grey bark. Lvs. Simple, opposite, gland dotted, smooth and shiny. Fl. Greenish white in trichotomous panicles. Fr. Oblong with pinkish juicy pulp.

Tribal medicinal use: Fruits are given to diabetic patients. Leaves are used as tooth cleaner.

Traditional medicinal use: The bark is used in diabetes, and dermatopathy.

Binomial: *Tectona grandis* Linn. F.
Family: **Verbinaceae**

Plant properties: A large deciduous tree. Lvs. simple, opposite, broadly elliptical with glandular dots. Fl. many, white, sweet scented, in large erect terminal branched tomentose cymes; Fr. hard, bony, irregularly globose drupes.

Tribal medicinal use: The bark poultice is used in leprosy and diabetic skin infections.

Traditional medicinal use: The flowers are useful in strangury and diabetes.

Binomial: *Thespesia populnae* (Linn.) Soland ex Correa
Family: **Malvaceae**

Plant properties: A fairly large, quick growing, evergreen. Lvs. simple, alternate, long petioled, cordate, entire, acuminate, prominent nerves scales on both surfaces; Fl. yellow with purple base, slowly changing to purple on withering; Fr. globose or oblong brown capsules covered with minute peltate scales, pubescent, channelled along the back.

Tribal medicinal use: The leaf juice is used in diabetic ulcers and wounds.

Traditional medicinal use: The plant is useful in diabetes The bark and fruits possess more curative properties.

Binomial: *Tragia involucrata* Linn.
Family: **Euphorbiaceae**

Plant properties: A perennial evergreen, climbing hispid herb with scattered stinging hairs; St. slender, elongate, twining; Lvs. simple, alternate, stipulate, serrate, base rounded or cordate; Fl. shortly pedicellate, in terminal axillary and leafopposed racemes, male flowers many in the upper part, female flowers few in the lower part; Fr. capsules.

Tribal medicinal use: Whole plant is ground and mixed in milk is given for giddiness.

Traditional medicinal use: The roots are useful diabetes.

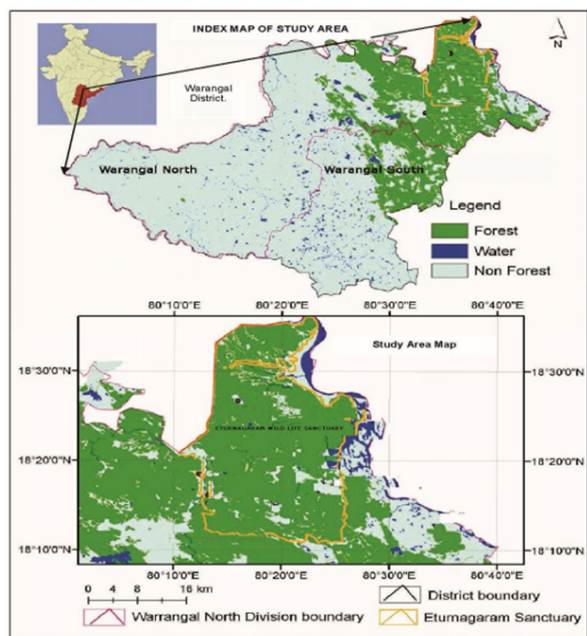
CONCLUSION

The study highlighted a rich diversity of indigenous medicinal plants with equally divergent herbal remedy preparation and use pattern among the tribal groups in Etturagaram Wildlife sanctuary. Baseline information gaps were observed in key geographic

settings. Likewise, herbal remedy toxicity risks and countermeasures generally entailed more exhaustive investigation. Experimental research and advanced chemical analysis are also required to validate the therapeutic potential compounds from promising plant species.

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