Journal of Pharmacognosy and Phytochemistry
Available online at www.phytojournal.com

E-ISSN: 2278-4136
P-ISSN: 2349-8234
JPP 2018; SP3: 305-307

Lakshmana
Professor and Head, AHRS, Ullal, Mangaluru, Karnataka, India

HC Vikram
Assistant Professor, ZAHRS, Brahmavar, Karnataka, India

Mahesh Math
Assistant Professor, AHRS, Ullal, Mangaluru, Karnataka, India

Correspondence
Lakshmana
Professor and Head, AHRS, Ullal, Mangaluru, Karnataka, India

National conference on "Conservation, Cultivation and Utilization of medicinal and Aromatic plants"
(College of Horticulture, Mudigere Karnataka, 2018)

Ekanayakam (*Salacia reticulata* Wight): A prime medicinal plant of coastal Karnataka under erosion

Lakshmana, HC Vikram and Mahesh Math

Abstract
A large growing woody climber, much dichotomously branched, bark pale yellow, young parts glabrous which is one time most available medicinal plants of coastal Karnataka is under erosion due to destructive harvesting from it's existence. Root bark, stem bark are of major medicinal importance in *Salacia reticulata* (family: Hippocrateaceae**)** though fruits, leaves and shoots also having medicinal values. Roots are acrid and bitter having thermogenic, antidiabetic, antidermatic, anti-inflammatory, astigent, liver tonic and stomachic properties. Used for its number of medicinal properties such as splenalgia, gastropathy, seminar weakness, constipation, asthma, bronchitis, cough, scurvy, verminosis, painful tumors. *S. reticulata* contains *Salaretin* and *mangiferin* which reduces the sugar level and protect the body from any secondary side effect of Diabetes. Yet, until only recently the antidiabetic effect of Salacia remained a mystery. As one time predominant medicinal plant in the coastal zone of Karnataka valued for said medicinal properties as well as remunerative prices. Due to destructive harvesting of medicinal plants from forest in a recent past this medicinal plant species availability in the forest is very less. Also known market value for this medicinal species farmers are taken up cultivation of this species. But continuing of natural collection, growers are not receiving good market price. At one time prime medicinal species, *S. raticulata* is now rowing towards erosion and may further lead to the endangered species. To control this strict regulation should be followed in holistic approach for safer harvest and conservation of natural gift. Also, have to promote for the cultivation of medicinally important and endangered species.

Keywords: *Salacia reticulata*, medicinal plants, destructive harvest, coastal zone, Ekanayakam

Introduction
Ekanayakam (*Salacia reticulata* Wight) is a climbing herb with blackish branches. It has Salanisol as active principle for diabetic treatment. Yet another Ayurvedic herb holds great promise for management of weight and blood sugar issues. It is a large, woody climber found in the rain forests of Sri Lanka and parts of western India.

Medicinal plants and herbs are a source of active principle capable of curing human ailments. The active principle differs from plant to plant due to their biodiversity (Nirula, 2002) [8]. They play a key role in the human health care. A number of plants have shown to possess antidiabetic activity (Juss, 2006) [3]. Southern India and Sri Lanka. Karnataka, Kerala and southern Orissa. In Karntaka, rare in semi-evergreen forests of Western Ghats. In Kerala, reported from the coastal forests of Kollam, Western Ghats of Pathanamthitta and Idukki districts. Not reported from Tamil Nadu.

Since ancient times, *S. reticulata* was used as medicine by Indian tribes and later Ayurvedic (alternative medicine) practitioners started to use it to treat diabetes for normalizing blood sugar and insulin levels (Tissera and Thabrew, 2001, Yoshikawa *et al.* 2002a, b, Jayawardane *et al*. 2005) [11, 12, 6]. Compounds such as mangiferin and sulfonium ion derivatives-kotalanol and salacinol have been identified in root and stems of *S. reticulata*, which are potent alpha-glucosidase inhibitors (Yoshikawa *et al.* 1998, Kumara *et al.* 2005) [4]. Mangiferin also inhibits aldose reductase activity, thereby delaying the onset or progression of diabetic complications (Mukherjee *et al.* 2006) [7]. Due to its medicinal importance, it is becoming endangered and there is a need for its conservation and large scale production.

Geographical distribution of *Salacia reticulate*

S. reticulata known as 'Ekanayakam' in Ayurvedic medicine, are widely distributed in Sri Lanka, India, China, Vietnam, Malaysia, Indonesia and other Asian countries, where this species have been used for thousands of years in traditional medicines particularly for the treatment of diabetes (He *et al.* 2009; Yuhao *et al.* 2008 [15]. In India, it is well distributed in Karnataka (Western Ghats), Kerala (coastal forests of Kollam and Idukki districts) and Southern parts of Odisha (Orissa). Though rare, this species could also be found in evergreen forests of Western Ghats (Ravikumar and Ved 2000) [10].

Botany: *S. reticulata* Wight is a large woody climbing shrub belongs to family Hippocrateaceae. A large woody climber, much dichotomously branched, bark pale yellow, young parts glabrous. A Leaves 6.3-11 cm, oval, narrowed at base, simple, opposite, extipulate, coriaceous, crenate-serrate, glabrous and shining, petiole 6 mm. Flowers 6 mm, on short glabrous pedicels, 2-10 together fascicled on woody axillary tubercles. Calyx scarcely lobed, glabrous; pet als oblong, obtuse, spreading. Fruit 2-3.8 cm, smooth, bright pinkish orange, pericarp soft-leathery, with 1-4 seeds immersed in pulp. Seeds 2.5 cm, almond like, testa membranous, yellowish, embryo homogenous.

Medicinal properties

Decoction of *S. reticulata* roots are used in the treatment of itching and swelling, asthma, thirst, amenorrhea and dysmenorrhea. Roots are acrid, bitter, thermogenic, urinary, astringent, anodyne, anti-inflammatory. Roots and stem have been widely used in treating diabetes and obesity, gonorrhea and rheumatism, skin diseases and haemorrhoids. In addition, the water extracts of leaves of *S. reticulata* could be beneficial for the prevention of diabetes and obesity as its multiple effects such as the ability to increase the plasma insulin level and lower the lipid peroxide level of the kidney (Yoshino *et al.* 2009) [14]. In addition to the above, *S. reticulata* has been widely employed in traditional medicine for treating or preventing several other disorders.

Table 1: Phytochemical studies of *Salacia reticulate*

Salacia reticulata	**Soxhelet Extraction**					**Cold Maceration**		
Tests	**Pet.eth**	**CHCI3**	**E.A**	**MeOH**	**Wtr**	**50% HA**	**50%HA**	**100%Wtr**
Alkaloids	-	+	+	+	+	+	+	+
Carbohydrates	-	-	+	+	+	+	+	+
Phytosterols	+	-	+	+	-	-	-	-
Fixed oils and Fats	-	-	-	-	-	-	-	-
Saponins	-	-	-	+	-	+	-	+
Phenoloics and Tannins	-	-	-	+	+	+	+	+
Proteins and Amino acids	-	-	-	+	+	+	+	+
Glycosides	-	-	-	+	+	-	-	-
Flavonoids	-	-	-	+	-	+	-	-
Volatile oils	-	-	-	-	-	-	-	-

Kumara *et al.* (2012) [5] + -- Indicates positive test results. - -- Indicates negative test results.

Conclusion

S. reticulata has antidiabetic property and some of studies proved scientifically. Due to its medicinal property lead to increase in the consumption across the world. Increasing demand, on the other hand, may create extra pressure on natural habitats. Therefore, strict regulation should be followed in holistic approach for safer harvest and conservation of natural gift. Also, have to promote for the cultivation of medicinally important and endangered species.

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