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REVIEW OF SAPTARANGI: AN ANUKTA DRAVYA

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ABSTRACT

Saptarangi is a climber belongs to the family Celastraceae and is distributed across the tropical areas of world. Specially In India and Sri Lanka this plant is widely used. Saptarangi in Sanskrit named as saptachakra whose roots, stems, and leaves are used in treatment of diabetes and other health problems. The roots are used as powder form or as decoction. Species of the genus Salacia are well known for its anti-inflammatory, anti-lipidemic, anti-peroxidative, anti-microbial, anti-leukemic, astringent and anti-malarial action. Ayurvedic properties of the herbs and phytochemical constituents, pharmacological activities of saptarangi were compiled from the Ayurvedic text and the previous research works done. In south it is an popular herb by the name of Eknayakam for its action in diabetes mellitus. It is also beneficial drug for the treatment of skin ailments like leprosy, ulcers, hyperhidrosis, hepatopathy and dyspepsia. The present study is focussed on study the Ayurvedic properties of the herb, research work done on the herb, its various actions like anti-diabetic, anti-obesity, hepato-protective and nephro-protective.

INTRODUCTION

Ayurveda is a well-documented, age-old science that treats the whole body and mind. The whole of Ayurveda is explained in three sutras (formula): the Hetu sutra (etiologic —causes of diseases), the Linga sutra (Symptoms of disease), and the Aushadh sutra (Treatment).[1] In ayurveda, most of the drugs are used in their natural form which are derived from plants (herbs). Saptarangi is one of them. It belongs to the family *Celasteraceae,* whose roots are used for their numerous benefits in diabetes, obesity, hepatoprotection etc. Salacia's only 18 species are identified in India, and among those 18 species, a few are traceable, like Salacia

reticulata, Salacia chinensis, Salacia oblanga, and Salacia roxbrghi, which are used as saptarangi in various parts of India. *Eknayakam* is its folk name in Kerala, *Chundan* in Tamil, and *Ponkoranti* in Malayalam. As it is an Anukta Dravya, it is mentioned only in modern Ayurvedic texts, where it is described with the name Saptachakra, which is its Sanskrit name.[2] It is a woody climbing shrub and an endangered medicinal plant naturally found in tropical areas of Sri Lanka, Africa, and the southern regions of India. It is an *anukta* Dravya, the drugs whose description is not found in samhitas. *Saptarangi* is mentioned in *Nishakattakadi Kashaya* in Prameha (diabetes *mellitus)* by the name *'Eknayakam'* in *Sahastrayogam* by *DR. Ramniwas sharma 3.* Saptarangi (Salacia) roots have been used in Ayurvedic medicine for diabetes, obesity, and complications of diabetes since antiquity, specifically in the southern part of India, and Japan, the United States, and other countries have been extensively consumed it as a food supplement to protect themselves from obesity and diabetes. In ayurveda, drugs act on diseases according to their raspanchak (Rasa, Guna, Virya, Vipaka, and Prabhava). So In this article, saptrangi's uses will be explored according to its raspanchak, modern properties (chemical composition), and research done in various fields to assess its efficacy to cure different diseases.

METHODOLOGY

For this article, data was collected from various classical ayurvedic texts.

Various research papers related to salacia species were retrieved and evaluated.

Taxonomical Classification

Saptarangi (Salacia reticulata) is a plant species that belongs to the family Celasteraceae and the kingdomPlantae. Here is the taxonomic classification of Saptarangi

- Domain: Eukaryota
- Kingdom: Plantae
- Division: Magnoliophyta
- Class: Magnoliopsioda
- Order: Celastrales
- Family: Celasteraceae
- Genus: Salacia
- Species: Salacia reticulata

Botanical Description

Saptarangi is a large woody climber.

- **Bark is** pale yellow.
- **Leaves** are 6 to 11 cm oval, narrowed at the base.
- **Flowers** are 6mm pale Yellow in colour and come in December or January.
- Around April, a fruit 2 to 2.38 cm long, smooth, and bright pinkish orange appears.[4]
- **Roots** external bark is golden in colour, and when cut, seven rings are seen. Fresh roots havedifferent colours, hence the name Saptarangi in Hindi.

- **Synonyms**

1. Svarnamoola: The bark of the root is golden in color.[5]
2. Saptachakra: When the root is cut, it shows seven wheel-like structures.[5]
3. Hindi name: Saptarangi
4. English name: Chinese Salacia, Lolly Berry

Ayurvedic properties[6]

- **Rasa (Taste**) = Tikta (Bitter) and Kashaya (Astringent).
- **Guna (properties**) = Laghu (Light), Ruksha (Dry), and Tikshana (Strong).
- **Virya (Potency)** =Ushana (Hot)
- **Vipaka** = Katu (Changes into a pungent taste after digestion)

Part used:- Moola (Root)

Dose[6]

Decoction -50 to 100 ml, choorna – 3 to 5 gm.

Pharmacological actions

- The root bark of Salacia reticulata is used in Gonorrhoea, rheumatism, and skin diseases.[7]
- Saptachakra is laghu ruksha tikshan and tikta-kashya in nature. Beneficial in amenorrhea andgenito-urinary, pecify pitta and kapha diseases.[8]

सप्तचक्रा लघु रूक्षा तीक्ष्णा तिक्तकषायका ||

रजोरोधं रजःकृच्छ्रं कफं पित्तं च नाशयेत्|| (प्रियव्रत शर्मा)

- Saptachakra is a potent drug for diabetes mellitus, liver disease,
- Roots are used in diabetes. Also beneficial in amenorrhea and genito-urinary and venereal diseases.
- Anti-inflammatory analgesic, mild laxative, liver stimulant, anti-diabetic. Sothaghna, vednanasthapana, yakrttejaka premehaghna.[9]

- **Phytochemistry**

The presence of mangiferin (C19H18O11), kotalanol (C12H24O12S2 +), and salacinol (C9H18O9S2 +) has been identified as the antidiabetic principles of S. reticulata through pharmacological studies.[10]

Salacinol and kotalanol are glycosidase inhibitors that are present in the stem and root of Salacia. Aldose reductase inhibitors, such as kotalgenin-16-acetate, are also present.

Dulcitol and leucopelargonidin (a linear isomer of natural rubber), iguesterin (quinonemethides), epicatechin, phlobatannin, glycosidal tannins, triterpenes, and hydroxyferruginol are also found in Salacia. Lambertic acid, kotalagenin 16-acetate, 26-hydroxy-1, 3-friedelanedione, and maytenfolic acid have also been detected in the root of S. reticulate.[11]

- **Pharmacological Actions**

1. Salacinol and kotalanol bind to a-glucosidase present in the brush borders of the small intestine and prevent the breakdown of oligosaccharides into monosaccharides, maintaining normal blood levels inthe human body.
2. The enzyme aldose reductase catalysis the conversion of glucose to sorbitol (sugar alcohol). Sorbitoldoes not readily diffuse across the cell membranes and gets accumulated in the lens, resulting in cataract formation. Kotalgenin-16-acetate competitively binds to the aldose reductase, which prevents.
3. Various studies have been done that have given satisfactory results in anti-obesity action, Antiproliferative activities of Salacia.
4. Hepatoprotective action and Antioxidant activities of Salacia reticulata's phenolic constituents on CCl4-induced liver injury in mice where antioxidative activity of the principal phenolic compounds is involved in the hepatoprotective activity of S. reticulata.[12]

- **Research work done on Saptarangi**

1. Saptarangi ghan vati shows highly significant result in apathyanimmittaja parameha. In which Saptarangi reduced the fasting blood sugar (FBS) and post prandial blood sugar, This action of the saptarangi ghan vati was seen in both the newly detected cases as well as in chronic cases of type-2 diabetes mellitus. Value of Serum HbA1c evaluated in patients showed statistically significant reduction.[13]
2. Hypoglycaemic action was seen in a randomized, double-blind, placebo-controlled cross-over study conducted in healthy volunteers. NR-Salacia (a 1000-mg extract of S. chinensis) was used,which reveals that it lowers postprandial plasma glucose levels after a carbohydrate-rich meal andcan be used as an oral hypoglycaemic agent.[14]
3. anti-diabetic action of methanolic extract of Salacia stem (Yoshikawa et al., 2003; Li et al., 2008;Kishino et al., 2009; Sellamuthu et al., 2012; Duke and Ayensu, 1985).
4. Anti-diabetic (especially type 2 diabetes) (Yoshikawa Sellamuthu et al., 2012; Duk)
5. There was stabilization of renal function as measured by serum creatinine and creatinine clearance in patients who received Salacia Chinensis compared to placebo (P value < 0.05), suggesting that Salacia chinensis may retard the progression of chronic kidney disease.[15]
6. Salacia reticulata's Hepatoprotective and oxidative properties were assessed.In this research it was revealed that its preventive action was due to its phenolic constituents on CCl4-induced liver injury in mice.(Yoshikawa M, Ninomiya K et al.)

- **Ayurvedic preparations having saptarangi**

1. Nishakathakadi kashaya in Sahastrayogam.[16]
2. Madhumeha dhaman churan in Ras tantra sarsangreha.

CONCLUSION

Saptarangi is an anukta Dravya, which is Saptachakra in ayurveda but a well-potent drug for Diabetes mellitus, liver dysfunction, and obesity. Its Safety and potency have been evaluated with well-designed clinical and preclinical research for hepatoprotective activity and nephroprotective activity. Many of salacia's species are endangered[17], so their conservation and cultivation should be done on a large scale.

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