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## Review Article

# *Smilax zeylanica*: An overview

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**ABSTRACT:** *Smilax zeylanica* is a plant species in the genus *Smilax*. Its leaves and roots are used for medicinal purposes. The plant is widespread in India, and native in other parts of the Indian subcontinent as well as in Myanmar, Malaysia, Java and islands. It is a perennial, dioecious shrub of climbing nature. Leaves of *Smilax zeylanica* are found in various shapes like ovate, elliptic, oblanceolate which are generally round at base. It is known with different names like in Hindi- Chobchini, Bhitura, Kumarika and Ramdatun; Sanskrit: Chopachinee, Vanamadhushnuhi; Tamil- ayadi, Tirunamappalai. The plants contain 1-3% steroidal Saponins, phytosterols, starch, resin, sarsapic acid and minerals. Leaves and roots contain diosgenin. It is traditionally used for ulcers. Antiulcer activity of *Smilax zeylanica* is one of the larval host plants of the butterfly *Zesius chrysomallus*. It is one of the safe and efficacious medicinal used traditionally for the treatment of various ailments. As per Ayurveda the plant is useful against skin diseases pitta, insanity, diarrhea, colic, vata, syphilis, gonorrhea, fever, arthritis, leucorrhoea, impotency and general weakness etc. its roots are used as substitute for sarsaparilla. It also possesses many pharmacological activities such as antidiabetic, anticancer, anthelmintic, antioxidant, antiepileptic, hepatoprotective, pesticidal, immunomodulatory, antibacterial and antarthritic.

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## INTRODUCTION

*Smilax zeylanica* is distributed in India, Myanmar and Kampuchea. It is also a substitute for Indian sarsaparilla, for which *Hemidesmus indicus* which is known as sariva in Ayurveda. It is a large woody climber grows wild in Chittagong and other area throughout the country. It is commonly known as kumarilata in bangla [1].



Figure 1: Plant of *Smilax zeylanica*

## Taxonomic hierarchy

Kingdom- plantae

Phylum - Tracheophyta

Class- Liliopsida

Order--Liliales

Family - smilacaceae/ lilaceae

Genus - Smilax

## DISTRIBUTION AND HABITAT

It is widely distributed in the forest and hills of south India. It is found in tropical and subtropical hills from Himalayan region in the north to Kerala in south.

It is common in hill tracks of Karnataka, Kerala and Tamil Nadu between altitudes of 500-1800 meter.

## MORPHOLOGICAL CHARACTERISTICS

*Smilax zeylanica* branches rather stout angled, armed or not, leaves very variable, lanceolate elliptic, broadly oblong or orbicular, acute, base narrowed, rounded or cordate. Flowers are generally greenish white in color, white in umbels. Stem is woody with thorns [2, 3].

## CHEMICAL CONSTITUENTS

The plant contains 1-3% steroidal Saponins, phytosterols, starch, resin, sarsapic acid and minerals. Leaves and roots contain diosgenin. Roots also contain large amounts of tannin, saponin, 31-norcycloartenol, parillin, phenolic acid and potassium nitrate. The saponin on hydrolysis yields the sapogenins, Sarasapogenin, asperagenin and another steroid sapogenins. The roots also contain coumarin, smilasperic acid, a volatile oil, a crystallisable principle hemidesmine and rutin [4, 5].

## USES

1. Root, rhizomes and leaf of *Smilax zeylanica* are used in epilepsy, fever, venereal and skin diseases, sores, swellings and abscesses. Root is also used for treating rheumatism and pain in the lower extremities.
2. The plant is also used in ritual healing techniques and in bloodless dysentery. It is also used in the villages of Bangladesh for the treatment of fever, headache and wounds.

## PHARMACOLOGICAL ACTIVITIES

### Antidiabetic activity

1. Antidiabetic profile of *Smilax zeylanica* leaves using its methanolic extract on streptozotocin induced rats. From the study, it suggested that the possible mechanism by which the plant extract decreases the blood glucose level may be potentiation of insulin effect either by increase in pancreatic secretion of insulin from beta cells of islets of Langerhans or by increase in peripheral glucose uptake [9].
2. Antidiabetic activity of leaf extract of *Smilax zeylanica* in streptozotocin induced diabetic rats using solvent and concluded that the ethanolic extract showed better antidiabetic activity [2].

### Anthelmintic activity

1. Investigation on phytochemicals, anthelmintic and analgesic activities of *Smilax zeylanica* Linn. Leafy Extracts and concluded that the methanolic extract showed better results [3].
2. Anthelmintic activity of *Smilax zeylanica* leaves using its petroleum ether, benzene, chloroform and

methanolic extract on Indian adult earthworm (*Pheretima posthuma*). The result signifies that steroidal component would be active for achievements of paralytic conditions, whereas flavonoids and polyphenolic compounds somehow responsible for the death of *P. posthuma* [18].

### Antioxidant activity

1. Antioxidant property of roots and rhizomes of *Smilax zeylanica* and concluded that the methanolic extract showed potential scavenging effect against DPPH [14].
2. In vitro propagation and free radical studies of *Smilax zeylanica* through multiple shoots formation from nodal segments and concluded that the ethanolic extract of the stem showed maximum DPPH scavenging activity [16].

### Pesticidal activity

1. Pesticidal activity of *Smilax zeylanica* extract on *Cryptolestes pusillus* and concluded that the methanolic extract cause significantly high mortality than chloroform [6].

### Antiepileptic activity

1. Antiepileptic activity of *Smilax zeylanica* roots and rhizomes by using its alcoholic and aqueous extract on pentylenetetrazole and maximal electro shock (MES) induced Both the alcoholic and aqueous extract shows significant antiepileptic activity and concluded that the *S. zeylanica* as a potential alternate source for the ayurvedic drug chopachine in the treatment of epilepsy [19].

### Hepatoprotective activity

1. Screening of methanol extract of roots and rhizomes of *Smilax zeylanica* L. for hepatoprotective against carbon tetrachloride in Wistar rats and concluded that the hepatoprotective activity may be due to presence of antioxidant chemicals present on it [11].

### Immunomodulatory and antiarthritic activity

1. Immunomodulatory and antiarthritic activities of *Smilax zeylanica* with methanolic extracts. The presence of steroids in the extract might be responsible for the prominent immunomodulatory and antiarthritic activities of the plant and concluded that the *Smilax zeylanica* holds immunomodulatory and antiarthritic activities [21].

### Antidepressant activity

1. Anti-depressant like activities of *Smilax zeylanica* in behavioral despair test in mice and concluded that the effect of *S. zeylanica* on depression may be mediated

via the increase in monoamine level in the hippocampus, cortex and hypothalamus of mouse [20].

### Phytochemical evaluation

1. Phytochemical evaluation of *Smilax zeylanica* Linn and concluded that the *Smilax zeylanica* revealed presence of carbohydrates, reducing sugars, saponin, protein, alkaloids and tannin [11].

### Physicochemical and pharmacognostical analysis

1. Physicochemical and pharmacognostical analysis of the roots of *Smilax zeylanica* Linn and concluded that the analysis of roots and rhizomes of *Smilax zeylanica* provided useful information in regard of its identification and evaluation help to differentiate form the closely related other species of *Smilax zeylanica* [2].

### CONCLUSION

*Smilax zeylanica* is reported to possess a variety of phytoconstituents including phenols, flavonoids, alkaloids etc. which is turn account for its enormous pharmacological activities. Further investigations should be carried out to recognize and establish other potential phytoconstituents and pharmacological activities.

### ABBREVIATIONS

*Smilax zeylanica* (*S. zeylanica*), 1, 1-diphenyl, 2-picrylhydrazyl (DPPH).

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