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A Review on an Endemic Indian Species: *Strychnos Colubrina* Linn.

Preethimol Francis[1]*, and Suseem SR[2].

[1]Nirmala college of Pharmacy, Muvattupuzha, Kerala, India.
[2]Department Of Pharmaceutical Chemistry, SAS, Vellore Institute of Technology, Vellore, Tamil Nadu, India.

ABSTRACT

India is richly endowed with a wide variety of plants having medicinal value. These plants are widely used by all sections of the society either directly as folk remedies or indirectly as pharmaceutical preparation of modern medicine. The genus *Strychnos,* is the largest genus of the family Loganiaceae. About 200 species of plants are identified under this genus and 44 species of this are present in Asia. The present study deals with one of the important species of *Strychnos* genus which is endemic to the Indian State Kerala; *Strychnos Colubrina Linn*. The medicinal uses of this plant is not explored properly yet. Hence the study aims to reveal the significance of this plant

Keywords: Logainaceae, *Strychnos colubrina*, Lignum Colubrinum, Snakewood, Snake bite.

Corresponding author

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INTRODUCTION

India is having rich vegetation with a wide variety of plants, because of the extreme variations in geographical and climatic conditions prevailing in the country. Plants have been used since ancient times for the treatment of various ailments. India is richly endowed with a wide variety of plants having medicinal value. These plants are widely used by all sections of the society either directly as folk remedies or indirectly as pharmaceutical preparation of modern medicine. Its medicinal usage has been reported in the traditional systems of medicine such as Ayurvedha, Siddha and Unani. *Strychnos* has been described as a rasayana(These are Ayurvedic preparations used as dietary supplements) herb and has been used extensively for various medicinal purposes [1].

The genus *Strychnos,* the largest genus of the family Loganiaceae, was first described by Linnaeus on the basis of *Strychnos nux-vomica,* the type species, and *Strychnos colubrina*(*Strychnos minor*). It is pantropical and comprises about 200 species, which may be subdivided into three geographically separated groups: one in Africa with 75 species; one in America with 73 species; and one in Asia (including Australia) with 44 species. The only exception is *Strychnos potatorum* which is found both in Africa and Asia [2]. The species consist of trees and climbing shrubs found throughout the tropics and subtropics of both hemispheres. The various parts of the plant of most Strychnos species are intensely bitter and many of these plants contain poisonous substances especily in the bark, roots and seedcoats [3].

The present study deals with one of the Strychnos species endemic to the State Kerala; *Strychnos colubrina Linn*

Sl.No	Name	Distribution	Reported chemical constituents	Medicinal uses
1.	*Strychnos nuxvomica [4,5]*	India, Southeast Asia	Brucine, Strychnine vomicine; Kajine & Novacine isostrychine; isobrucine, Cuchiloside loganic acid, beta-colubrine	Raynaud's disease, Penile erectile disesase, depression, CNS disorders
2.	*Strychnos potatotrum [6]*	Myanmar,India, China	Diaboline, strychnine, brucine, triterpenes, Phenols, saponins, glycosides, lignins	Urinary disorders, leukoderma, diuretic Gonorrhea, aphrodisiac hallucination
3.	*Strychnos toxifera[7]*	South America, Africa and Asia	toxiferines, caracurine, macusine, mavacurine, fedamazine, curarine	Sedative,anticonvulsant,arrow-poison,ulcers
4.	*Strychnos ignatii [8,9]*	Philippines, China	Strychnine, brucine, colubrine, vomacine, Novacine, pseudostrychnine, pseudobrucine	CNS stimulant, amenorrhoea, chlorosis, sterility,neuralgia,reproductive disorders
5.	*Strychnos wallichiana/ Strychnos aenea/ S.bourdillonii [10,11]*	China, India, SriLanka, Laos Bangladesh, Vietnam, Indonesia	Strychnine, brucine, colubrine, vomacine, novacine,icajine	rheumatism, ulcers, elephantiasis, fever and epilepsy.
6.	*Strychnos lucida[12,13]*	Thailand, Malaysia, Indonesia Australia	Diaboline,colubrine,brucine, loganin, sweroside, picconioside, quinicacid ester	Anthelmentic, fever, snake bites, sores, wounds, eczema, stomachic , diabetes
7.	*Strychnos minor*	India,Srilanka, Nicobars, Thailand,Vietnam,Philippines, Sumatra, Malaysia,Britain, Australia	----	Wormicide, in eye infections
8.	*Strychnos gauthierana*			Wormicide, in eye infections
9.	*Strychnos usambarensis*	Guinea, Nigeria, Kenya South Africa Rwanda , Tanzania	Curarine, flurocurarine, akagerine, harmane &indole alkaloids	Arrow poison convulsant, anticancer,antimalarial
10.	*Strychnos spinosa[14,15]*	tropical Africa, Ethiopia, Kenya, Madagascar, Mali, Mauritius, Seychelles, Sudan, Tanzania, Uganda, Zambia	phenylpropanoids, trans-isoeugenol,Ascorbic acid	In snakebite, male sexual disorders, earache, inflammation ineye,analgesic
11.	*Strychnos icaja[16]*	Guinea African Angola	Strychnine pseudostrychnine protostrychnine	Haemorrhoids,malaria, hernia,skin allergies
12.	*Strychnos nux-blanda*	Thailand,India China,Vietnam Cambodia	strychnine, brucine, strychnine *N*-oxide, brucine *N*-oxide, icajine, vomicine, novacine	antimalarial, cathartic, anti-inflammatory, in snake bite, CNS stimulant
13.	*Strychnos*	Ethiopia,AngolaSouth	Diaboline, tsilanine, spermostrychnin,	Rheumatism,tonic,in snake bite colic,

	henning[17]	Africa, Madagascar	retuline	stomach-ache, dizziness and as a purgative and anthelmintic
14.	*Strychnos variabilis[18]*	Africa ,Brazil	Rutelin	Antimalarial
15.	*Strychnos panganensis[20]*	Kenya, Tanzania and Mozam-bique	*N*-desacetylisoretuline *N*-desacetylretuline	Chest pain
16.	*Strychnos diplotricha[17,21]*	Africa - eastern Madagascar	myrtoidine demethoxymyrtoidine s Bisindole alkaloids	Malaria
17.	*Strychnos myrtoides[17,21]*	Madagascar,Mozambique, Tanzania	strychnobrasiline malagashanine, malagashanol ,myrtoidine	Malaria
18.	*Strychnos matopensis[21]*	Mozambique, Zambia and Zimbabwe	matopensine	Malaria

Table 1: Tropical Strychnos plants

Strychnos colubrina Linn

Distribution : West coast tropical evergreen and semi evergreen forests.West deccan peninsula from konkan to cochin[22,23]
Synonym: Lignum colubrinum

Scientific classification

Kingdom: Plantae
Division : Angiospermis
Class : Eudicots
Subclass : Asterids
Order : Gentianales
Family : Logainaceae
Genus : Strychnos
Species : Colubrina

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Kingdom: Plantae
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Order : Gentianales
Family : Logainaceae
Genus : Strychnos
Species : Colubrina

Vernacular names [22]

English : Snakewood
Hindi :Kuchilalata
Gujrati :Goagarilakri
Telugu :Nagamusti
Malayalam: Cherukanjiravalli

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Plant description [23, 24]

A large climbing shrub with thickened bifid tendrils. Gigantic climber, stems glabrous Leaves simple, opposite, narrowly ovate to broadly elliptic or sub rotund, thin to coriaceous, glabrous, obtuse to broadly rounded at the base, sub-attenuate, apex shortly but distinctly acuminate; acumen long, blunt or acute; 3-nerved at or above base. Petioles 0.5-1.2cm long; Tendrils usually simple; Inflorescence terminal at ends of branches; Each axyl branched; Long with 10-20 flowers, pubescent. Calyx 1.0-2.0mm long; Sepals 5, ovate, pubescent, ciliate to sub-ciliate. Corolla tubular; tube 0.8-1.2cm long, externally minutely pubescent, internally long-pilose in lower 1/4 to 2/3. Lobes 5, 2.5-4.5 mm long. Stamens inserted at the mouth of corolla tube, filaments short, anthers 1.5-2.0mm long, apiculate, glabrous. Ovary 1.0mm long, glabrous. Style 0.8-1.3cm long, glabrous.. Fruits globular, orange when ripe, upto 9.0cm diameter, glabrous; Flowers greenish, incymes, arising from the mature stem. Fruit a berry, globose, about 1.5 cm in diameter.

Medicinal uses [23,24]

Root: Snake bite, dyspepsia, malaria, Intermittent fevers, swellings in chicken pox, joint pain, Diarrhoea
Fresh leaves: In tumor
Bark: Febrifuge, Intermittent fever, dyspepsia, malarial cachexia
Fruit: Mania

Figure 1: Leaves of *Strychnos colubrina Linn*

Works reported

The following are the works reported on this plant till date

- N Bhogireddy, A.N Vamsi krishna, B. Ramesh etc carried out the study of a group of endangerd plants in Andhra Pradesh having Antidiabetic and anti-inflammatory activity. *S.colubrina* is one of the rare plant having both these activities [25].

- WB. Mors, MC. Nascimento, BMR. Pereira etc studied the molecular approach for the plant natural products active against snake bite. The wood of *S. colubrina* was found to be potent against snake bite [26].

CONCLUSION

Medicinal plants are rich sources of active therapeutic agents. It is important to explore these vital group of plant source for the betterment of research in the field of new pharmaceutical remedies. The present study dealt with a rare, endemic species seen in southern part of India, which is used by tribes for various ailments. So the further scientific studies on this species may enrich the advances in therapy of various diseases.

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