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

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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.

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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 Ayurveda, 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 especially 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.

<table>
<thead>
<tr>
<th>Sl.No</th>
<th>Name</th>
<th>Distribution</th>
<th>Reported chemical constituents</th>
<th>Medicinal uses</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td><em>Strychnos nuxvomica</em> [4,5]</td>
<td>India, Southeast Asia</td>
<td>Brucine, Strychnine vomicine; Kajine &amp; Novacine isostrychicine; isobrucine, Cuciliside loganic acid, beta-colubrine</td>
<td>Raynaud’s disease, Penile erectile disease, depression, CNS disorders</td>
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<td>3.</td>
<td><em>Strychnos toxifera</em> [7]</td>
<td>South America, Africa and Asia</td>
<td>toxiferines, caracurine, macusine, mavaracin, fedamazine, curarine</td>
<td>Sedative, anticonvulsant, arrow-poison, ulcers</td>
</tr>
<tr>
<td>4.</td>
<td><em>Strychnos ignatii</em> [8,9]</td>
<td>Philippines, China</td>
<td>Strychnine, brucine, colubrine, vomacine, Novacine, pseudostrychnine, pseudobrucine</td>
<td>CNS stimulant, amenorrhoea, chlorosis, sterility, neuralgia, reproductive disorders</td>
</tr>
<tr>
<td>7.</td>
<td><em>Strychnos minor</em></td>
<td>India, Sri Lanka, Nicobars, Thailand, Vietnam, Philippines, Sumatra, Malaysia, Britain, Australia</td>
<td>---</td>
<td>Wormicide, in eye infections</td>
</tr>
<tr>
<td>8.</td>
<td><em>Strychnos gauthierana</em></td>
<td></td>
<td></td>
<td>Wormicide, in eye infections</td>
</tr>
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<td>9.</td>
<td><em>Strychnos usambarensis</em></td>
<td></td>
<td></td>
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<tr>
<td>13.</td>
<td><em>Strychnos</em></td>
<td>Ethiopia, Angola South</td>
<td>Diaboline, tsilamine, spermastrychnin</td>
<td>Rheumatism, tonic, in snake bite colic,</td>
</tr>
</tbody>
</table>

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Table 1: Tropical Strychnos plants

<table>
<thead>
<tr>
<th>Strychnos colubrina Linn</th>
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<tbody>
<tr>
<td><strong>Distribution</strong></td>
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<tr>
<td><strong>Synonym</strong></td>
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</tbody>
</table>

**Scientific classification**

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

**Vernacular names** [22]

- English: Snakewood
- Hindi: Kuchilalata
- Gujarati: Goagarilakri
- Telugu: Nagamusti
- Malayalam: Cherukanjiravalli
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](image)

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 endangered 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.
REFERENCES

[18] Ronan B, Ademir JS Alaide BO. Molecules 2009;14: 3037-3072