Phytochemical and Pharmacological aspects of Sarcostemma acidum (Roxb.) Voigt

Suresh Kumar Dev*, Maya Sharma, Rajnish Srivastava and Pratim Kumar Choudhury

INTRODUCTION

The use of herbal plant products is growing in many segments of the population. According to an estimate, 80–90% of the world’s population lead to herbal plants for their medicine. Sarcostemma acidum Roxb. Voigt is a xerophytic plant of the family Asclepiadaceae. Plant is locally known as Khair, Khimp, Khurasni tanto, Art thor, Soma, and Somavalli. In English, Moon plant and Moon creeper, and in Hindi, Somlata used in the Indian traditional system of medicine. This review focused on different properties of S. acidum Roxb. Voigt a multifaceted plant.

KEY WORDS: Pharmacological uses, Phytochemical, Sarcostemma acidum Roxb. Voigt

ABSTRACT

Natural products had been used by many cultures and traditions from thousands of years for their bioactive pharmacophores by modern pharmaceutical companies. The potential bioactive phytocompounds such as alkaloids, flavonoids, phenolic compounds, and steroids are potential source for drug discovery. The present review deals with chemical compounds, medicinal properties, biological activities, and pharmacological effects of Sarcostemma acidum Roxb. Voigt. The plant species S. acidum Roxb. Voigt is a member of the Asclepiadaceae family, locally known as Khair, Khimp, Khurasni tanto, Art thor, Soma, and Somavalli. In English -Moon plant and Moon creeper, and in Hindi - Somlata. It is a traditional medicinal plant categorized as a member of soma plants used to prepare Somras. It is much branched, leafless, straggling shrub (Figure 1), climbing on Euphorbia caducifolia Haines on China hills. The plant found in India, Pakistan, and Europe. In India, it is mainly found in Bihar, West Bengal and many places of South India in dry rocky places at an altitude of 1350m. It was also distributed widely over tropical and subtropical areas of Africa, America and Asia.

The different parts of S. acidum plant including stem, root, seeds, latex, and fruits exhibited various medicinal uses. The juice of this plant is considered as the divine drink offered to gods, contemplated with medicinal efficacy, and used as natural restorative for health that makes the consumer awakened and alert. As per geographical indications, flowering of the plant occurs during summer (Figure 2) and fruiting in October. It was propagated through seed. The stem juice of the plant was used as ear drops in otitis and dog bite. However root was used in to treat snake bite, rables, emesis and leprocy.

Latex is applied on wounds and cuts. The whole extractives of the plant was reported to have to number of psychopharmacological effect including antipsychotic, anxiolytic and CNS inhibitory activity. Plant contains many important phytochemicals such as - malic acid, succinic acid, reducing sugars, α and β-amyrins, lupeol and lupeol-acetate, and β-sitosterol.

CLASSIFICATION

Kingdom: Plantae
Order: Asterids
Family: Asclepiadaceae
Genes: Sarcostemma R.Br.
Botanical name: Sarcostemma acidum (Roxb.) Voigt
Synonyms: Asclepiasacidica Roxb., Cynanchum acidum (Roxb.) Oken, Sarcostemma brevistigma Wight & Arn.
Vernacular name:

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English: Moon Plant, Moon Creeper
Hindi: Soma, Somlata
Sanskrit: Soma, Somalata, Somavalli
Bengal: Kula Thar, Soma, Somlatha
Gujarati: Somvel
Kannada: HambuBali, Hambukkalli, Soma balli, Somalate, Somalatha,Vasukaanthi
Malayalam: Somam, Somavalli, Vayastha
Marathi: Ransher, Somvel
Oriya: Borohwi, Notasiju, Somolata
Tamil: Kodikkalli, Somanum
Telugu: Dustappa Tiga, Kaadujemmudu, Kondapaala, Padmakaashtamu, Somalatha

PHARMACOGNOSTIC PARAMETER[10]

Bhavesh Kumar Dave et al. studied about pharmacognostical parameters of that plant as follows:

- Moisture content 80.23% W/W,
- Ash value - Total ash 12.125% W/W, acid insoluble 4.5077% W/W, water soluble 1.2595% W/W,
- Extractive value - Alcohol soluble 7.424% W/W, water soluble 12.4% W/W, ether soluble 3.784% W/W,
- Decoction 13.66% W/W.

Figure 1: Sarcostemma acidum Roxb. Voigt

Figure 2: Sarcostemma acidum Roxb. Voigt

PHYSOCHEMICAL CONSTITUENTS

Plant contains many important phytochemicals such as malic acid, succinic acid, reducing sugars, α and β-amyrins, lupeol and lupeol-acetate, and β-sitosterol.[9]

It has four lignans, sacidumlignans A–D (1–4), and two degraded lignan derivatives, sacidumols A (5) and B (6), (+)-pinoresinol, 9α-hydroxy pinoresinol, perforatic acid, and peucenine-7-O-methyl ether, isolated from the ethanolic extract of the whole plant of S. acidum. Among these, sacidumlignan A (1) showed moderate antimicrobial activities against two Gram-positive bacteria in vitro.[11]

THERAPEUTIC USES

<table>
<thead>
<tr>
<th>Plant part</th>
<th>Therapeutic/medicinal uses</th>
<th>References</th>
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</thead>
<tbody>
<tr>
<td>Stem</td>
<td>Bronchodilator, vasodilator, anti-asthmatic, diaphoretic antispermatogenic activity, antifertility potential, boils, bone fracture or dislocation, rheumatism, gout, obesity, and yoke gall (a yoke gall is a localized acute inflammation of the skin and subcutis on the neck of cattle)</td>
<td>[9,12-17]</td>
</tr>
<tr>
<td>Leaves and Root Latex</td>
<td>Snakebite, mental disease, and allergic rhinitis and sinusitis Wounds and cuts, preparation of lotion, ear drops during an earache, dog bite, and chronic ulcer</td>
<td>[18,19]</td>
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<tr>
<td>Ethyl acetate extract</td>
<td>Psychopharmacological activity, CNS inhibitory activity, and anxiolytic</td>
<td>[22]</td>
</tr>
<tr>
<td>Bark</td>
<td>Galactagogue</td>
<td>[23]</td>
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<td>Whole plant</td>
<td>Narcotic, emetic, pitta, dysipia, antiviral, rejuvenating, hydrophobia, antimicrobial, lactation, rheumatic pain, diabetes, edema, antiodote, and anti-inflammatory</td>
<td>[5,11,24-29]</td>
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<td>Pulpy mesocarp</td>
<td>Nasal drops (externally remedy) in epilepsy</td>
<td>[10,30]</td>
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<tr>
<td>Fruit and seed</td>
<td>Anti-rabies</td>
<td>[31]</td>
</tr>
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</table>

OTHER USES

India Brahmins now use the stalks of S. brevistigma under the name “Pitica” or “Putica” as Soma. It is possible that they used the plant in their religious worship as a surrogate of Soma.[26]

The species of S. acidum are used by cultivators to extirpate white ants from sugarcane fields. A bundle of twigs is put into trough from which the field is watered together with a bag of salt and water thus impregnated destroys the white ants without affecting the crop.[32]
CONCLUSION
This study provided scientific background and medicinal property of *S. acidum* (Roxb.) Voigt. The present work will help to study the medicinal value of the plant, taking into account the details available in the literature, and convert it into a suitable dosage form after pre-formulation studies.

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