Pharmaceutical scope of a phytochemically unexplored medicinal plant, *Sarcochlamys pulcherrima* (Roxb.) Gaud.: A review

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Submitted: 22-11-2013 Revised: 27-03-2014 Published: 05-05-2015

ABSTRACT

Sarcochlamys pulcherrima (Roxb.) Gaud. is widely used as traditional medicine and food by different tribes and communities of Assam in India and in neighboring countries. Recent studies conducted in our laboratory showed the broad-spectrum antimicrobial and antioxidant activities of its crude extract and different solvent fractions and detected the presence of phenolics, flavonoids, saponin, and acidic compounds. This review gives a bird's eye view of the traditional uses of *S. pulcherrima* as food and medicine based on the information gathered by personal interaction with the people of different places of Assam as well as the investigations made on its ethno-botanical claims, biological activities, and other aspects by various workers since years till date and highlight the prospects of future research.

Key words: Pharmaceutical scope, *Sarcochlamys pulcherrima*, traditional uses

INTRODUCTION

Assam, a state of the northeastern part of India, has diverse ethnic groups and as many as 23 tribal communities, which constitute 12.82% of the total population of the state,[1] and hence, a diversity of knowledge exists, particularly on the use of different plants. About 80% of the population of Assam depends totally on plants for their daily life.[2] These tribes have their unique knowledge of medicinal plants in combating various diseases. From the information provided by ethnobotany, modern science can make a sure shot and lead to a pathway within its possibility to utilize the natural resources to its best for the mankind. In the past few decades, there have been intense pharmacological studies brought about by the recognition of the value of medicinal plants as potential sources of new compounds for therapeutic use.[3] Unfortunately, majority of these valuable plant resources of Assam (India) have not been extensively explored so far.

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Access this article online

Quick Response Code:

Website: www.phcogrev.com

DOI: 10.4103/0973-7847.156358

Sarcochlamys pulcherrima (Roxb.) Gaud. is being widely used in the traditional systems of medicine. It is a small evergreen tree found in the tropical rain forests and the open and damp secondary forests on the floodplains in Bhutan, Indonesia, Myanmar, Sikkim, and Thailand.[4] The plant grows wild both in hilly regions and plains in the northeastern part of India. Many ethnic tribes and communities in the states of Assam, Meghalaya, and Nagaland of India, as well as in Bangladesh use this plant traditionally as food and medicines.[5,6] This review focuses on the information gathered by personal interaction with the people of different places of Assam as well as the investigations made on its ethno-botanical claims, biological activities, and other aspects by various workers since years till date.

S. pulcherrima is commonly known as dogal tree (English). It is known by different vernacular names among different tribes and communities, such as Mechaki/Mesaki/Meshangi (Assamese),[5,7,8] Ombe (Mising),[9] Ambe (Mishing), Adumbra (Bodo),[7] Notke (Mishing),[10] Khajathshear (Khasi),[11] and Mechaki (Garo).[6] In Bandarban district of Bangladesh, the plant is known as Ma Cha Da (Marma tribe), Kan Leng (Murang tribe), Jung Gallya sak (Tanchangya tribe),[12] and Jangaillya shak (Chakma tribe, Hill tract district, Bangladesh).[13]

Taxonomic position of the plant is as follows: [14]
Family: *Urticaceae*
Genus: *Sarcochlamys*
Species: *Pulcherrima* - Gaudich
Binomial name: *Sarcochlamys pulcherrima* Gaud.

BOTANICAL DESCRIPTION

It has pubescent branchlets, covered with soft hair; leaves alternate, narrowly lanceolate, toothed, caudate acuminate, membranous rugose, shining and rough above, white beneath, strongly three nerved; inflorescence spike; flowers dioecious; male in slender interrupted spikes and female in stouter spikes; fruit achene, enclosed in fleshy perianth.[15,16] Flowering and fruiting occur in winter [Figure 1].

COMMON USES

The leaves of *S. pulcherrima* are widely consumed as a vegetable and medicines. Tender leaves of this plant are used as a vegetable by Khasi and Naga tribes of Machkhal, Binnakandi, Ramnagar, and other tribal pockets of Cachar District, Assam. On the first day of bohag bihu, the most important festival of Assam, the Assamese people collect 101 plant species to prepare a recipe, which includes *S. pulcherrima* also. They believe that this special recipe has some medicinal values that maintain them in good health for the next year.[5] Young shoots, leaves, and fruits are eaten as vegetable, especially by Mishing people; favored with pork.[7] The plant is used as a natural dye by the Assamese people. Leaves and stem bark when boiled in water produce a dark brown color and the resultant product is used to dye cotton and silk.[17] *S. pulcherrima* is also used as a substitute for ramie.[18] The bark of *Albizia odoratissima* is boiled together with the leaves of the *S. pulcherrima* and the yarn of the cloth to give the latter a brownish color.[19]

RELIGIOUS VIRTUE

Mishing people, the second largest tribal community of Assam, consider *S. pulcherrima* as a sacred plant. *S. pulcherrima* is among the plants used as a vegetable in the preparation of Apong (a kind of rice beer) during Dobur Uie, and is found in a wild state and has been domesticated. The tribal people make a special food item from the tender leaves of the plant in any religious festival and offer it with Ajeng Dues. The local status of the plant is reported as rare.[9] The Mishing tribes in Majuli River Island of Assam cook the young shoot and fruits with pork as a custom and ritual practice.[10]

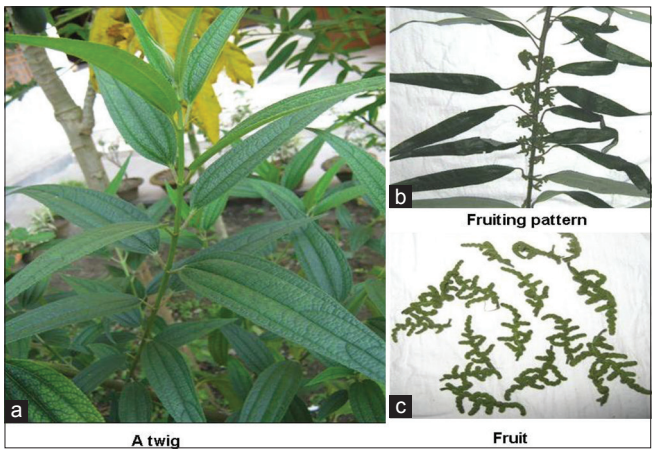

Figure 1: Different parts of *Sarcochlamys pulcherrima*

ETHNOMEDICINAL INFORMATION

The medicinal utility of *S. pulcherrima* has a well-established track in various tribes. Chakma tribe living in the remote hill tract districts of Bangladesh uses the leaf paste of *S. pulcherrima* to treat boils and fever blisters. Fresh leaf extract is applied as eye drop to stop itching.[13] The leaves are used for treating diarrhea and dysentery; they are carminative and digestive.[9] Seeds are used to treat ulceration of tongue.[15] *S. pulcherrima* is commonly used by the Marma, Murang, and Tanchangya communities of Bandarban district of Bangladesh. They use the whole plants, leaves, and fruits for treating boils and cold and for lactation.[12] The Marma (Masada) tribe of Rangamati and Bandarban districts of Bangladesh uses the leaf paste in the treatment of boil and sore.[20]

Young shoots, leaves, and fruits are eaten as vegetable favored with pork, especially by Mishing people of Assam.[7] Garo tribe of Nokrek Biosphere Reserve in Meghalaya, India uses the tender shoots in preparing pork dishes.[6] The people of the Garo hills, Meghalaya consume the leaves and stem of this plant as a vegetable.[21] The Mishing people of Tinsukia district, Assam use the decoction of tender shoot for dysentery. It is believed that its consumption with pork facilitates the digestion of fats.[8,10] It is also claimed that *S. pulcherrima* leaves damage the tapeworm eggs present in pork when boiled with it.[10,14]

BIOLOGICAL ACTIVITY

Earlier, we reported the *in vitro* antioxidant activity of methanolic extracts from five plant species selected on the basis of ethnomedicinal information, among which *S. pulcherrima* (leaves) was found to be the best.[14] This indeed supports taking advantage of the antioxidant phytochemical to defend against the problems arising due to free radicals. In a subsequent study, we observed the potential activity of methanolic leaf extracts from *S. pulcherrima* in the inhibition of *Candida albicans*.[11]

PHYTOCHEMICAL CONSTITUENTS

Phytochemical investigation conducted by us revealed the presence of phenolics,[14] flavonoids, saponin, and acidic compounds for the first time as far as our knowledge is concerned. Efforts for isolating and characterizing the active antioxidant and antimicrobial compounds present in this plant are being undertaken.

Since *S. pulcherrima* is widely used as food and traditional medicine, it is generally assumed to be safe. The above review provides information on its probable phytopharmacology, which

may be useful for further studies on Ayurvedic drugs of folk medicinal practice of the present era. There is an urgent need is to explore this plant for its potential compounds of medicinal value and rescue the plant before it becomes extinct.

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How to cite this Article: Mazumder AH, Das J, Gogoi HK, Paul SB. Pharmaceutical scope of a phytochemically unexplored medicinal plant, *Sarcochlamys pulcherrima* (Roxb.) Gaud.: A review. Phcog Rev 2015;9:81-3.

Source of Support: Nil, **Conflict of Interest:** None declared