



LUFFA CYLINDRICA- SPONGE GOURD (CUCURBITACEAE): A MEDICINAL GREEN HERB

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Abstract:

A medicinal herb as potential source of therapeutic aids has attained a significant role in health system. Genus *Luffa* belongs to Cucurbitaceae family is a tropical or sub tropical and warm climate fast growing plant. *Luffa cylindrica* as a medicinal plant has been widely employed in treatment of many diseases. It used as edible vegetable. The present paper is an attempt to provide a detailed taxonomy, phyto-chemical characters, medicinal and pharmacological potential of this valuable herb plant.

Key Words: Medicinal, Herb, Hepatoprotective & Vegetable.

1. Introduction:

Nature has bestowed our country with an enormous wealth of medicinal plants, therefore India has often been referred to as the Medicinal Garden of the world. A medicinal herb as potential source of therapeutic aids has attained a significant role in health system all over the world for both humans and animals not only in the diseased condition but also as potential material for maintaining proper health [1]. Herbal medicine is still the mainstay of about 75-80% of the world population, mainly in developing countries, for primary health care because of better cultural acceptability, better compatibility with the human body and lesser side effects. The chemical constituents present in the herbal medicine or plant are a part of the physiological functions of living flora and hence they are believed to have better compatibility with human body [2]. Almost 80% of people in developing countries depend on traditional medicines for primary health care, most of which are derived from the plants. The village folk, especially the sugali tribal people are still using the natural resources available in their surroundings [3].

Genus *Luffa* which belongs to Cucurbitaceae family is a tropical or sub tropical vine. *Luffa* is a warm climate fast growing plant and it grows up to a height of 15 feet. It originates from America. *Luffa* (*Luffa cylindrica*) commonly called as Tori, Smooth Luffa, Sponge gourd, loofa, vegetable sponge, Bath sponge or Dish cloth gourd. The number of species in the genus *Luffa* varies from 5 to 7. Only 2 species *L. cylindrica* and ribbed or ridge gourd *L. acutangula* (L.) Roxb] are domesti- cated [4].

Luffa cylindrica as a medicinal plant has been widely employed in treatment of many diseases and used in proffering solutions to clinical problems relating to child birth [5]. *L. cylindrica* has effect on the treatment of fever, enteritis and swell etc. The extracts from vines alive are used as an ingredient in cosmetics and medicine. It used as edible vegetable. *Luffa* also finds a wide application in packing medium, shoes mats, sound proof linings, bath sponges, utensil cleaning sponges, adsorbent for removal of heavy metal (such as Nickel, Lead, Chromium, Copper, etc) in waste water, and immobilization matrix for plant, algae, bacteria and yeast [6].

2. Taxonomy:

Kingdom	:	Plantae
Division	:	Mangoliophyta
Class	:	Mangoliosida
Order	:	Cucurbitales
Family	:	Cucurbitaceae
Genus	:	Luffa
Species	:	cylindrica

3. Ecological Conditions:



Figure 1: Photograph of *Luffa cylindrica*

Geographical source *Luffa cylindrica* is a sub-tropical plant, which requires warm summer temperatures and long frost-free growing season when grown in temperate regions. It is an annual climbing plant which produces fruit containing fibrous vascular system. It is summer season vegetable. It is difficult to assign with accuracy the indigenous areas of luffa species. They have a long history of cultivation in the tropical countries of Asia and Africa. Indo-Burma is reported to be the center of diversity for sponge gourd. The main commercial production countries are China, Korea, India, Japan and Central America [23].

4. Phytochemical Properties:

Phytochemically, leaves contain flavonoids [7], saponins [8] where as in fruits ascorbic acid, anthocyanins, flavonoids, triterpenoid saponins [2] are present. The flowers are rich in flavonoids [7], carotenoids, flavonoids and oleanolic acid were found in the peel [9] where as polypeptides are reported in Seeds [10]. Preliminary phytochemical screening revealed the presence of carbohydrates, flavanoids, glycosides and saponins in *Luffa cylindrica* fruit extracts [11].

5. Medicinal Uses:

It has long been used as medicinal herb to treat asthma, intestinal worms, sinusitis [12]. Leaves are used in chronic bronchitis [13] pain, carbuncles, abscesses, [14]. Crushed leaves are used to alleviate pain and inflammation and heat rashes of children in summer. It is used in the treatment of hemorrhage from bowels or bladder, hemorrhoids, jaundice, menorrhagia, haematuria, leprosy and spleenopathy. Antiseptic, anthelmintic, carminative, emmenagogue and galactagogue, properties of ripe fruits have also been reported [15]. Fruits in bronchitis, haematuria, leprosy, spleenopathy and syphilis [16]. Flowers are effective in migraine [13]. Fruits are also used in the traditional Chinese medicine as an anthelmintic, stomachic, antioxidant and antipyretic [17].

6. Pharmacological Activity:

6.1 Anti-Hypertriglyceride Activity: In a hypertriglyceridemia rat model, oral administration of water decoction of *Sigaluo* decreased serum cholesterol and triglyceride levels, increased high density lipoprotein-cholesterol, and reduced the body weight [18].

6.2 Anti-Allergy Activity: Oral administration of ethanol extract of the stem inhibited homologous passive cutaneous anaphylaxis in rats, heterologous passive cutaneous anaphylaxis in mice, Arthus reaction in mice, and sheep red blood cell-induced delayed type hypersensitivity in mice [19].

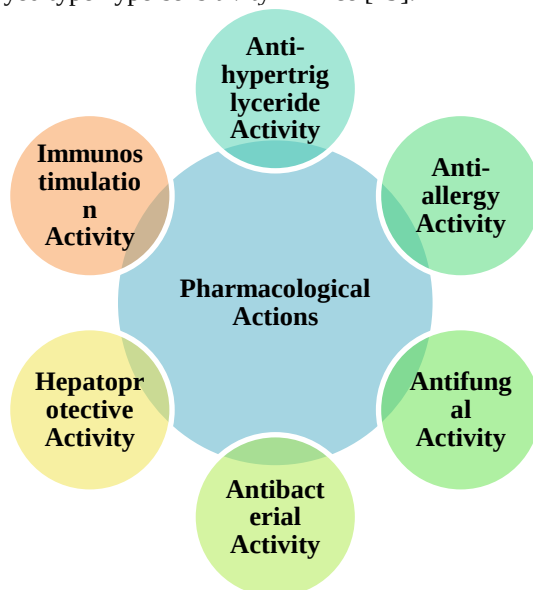


Figure 2: Some Pharmacological Properties of *Luffa cylindrica*

6.3 Antifungal Activity: The crude methanolic extract and various fractions of *Luffa cylindrica* were screened for antifungal activity against *Aspergillus flavus*, *Trichophyton longifusus*, *Candida albicans*, *Microsporum canis*, *Fusarium solani* and *Candida glabrata* [20].

6.4 Antibacterial Activity: The leaf and seed extract of *Luffa cylindrica* show appreciable inhibitory effect against all the indicator bacteria. The extracts were found to have antibacterial activity against gram positive and gram negative bacteria [21].

6.5 Hepatoprotective Activity: The phytochemical studies revealed the presence of flavonoids have been reported for their hepatoprotective activity [22].

6.6 Immunostimulation Activity: Oral administration of the petroleum ether fraction of the ethanol extracts of fruits, leaves and stems potentiated the cytophagic action and acid phosphatase activity of peritoneal macrophages in mice [24]. In vitro, 3-O- β -D-glucopyranosylmaslinic acid (contained in the leaf) enhanced the production of interleukin-1 and tumor necrosis factor- α in mouse thymocytes, and the production of interleukin-2 in mouse splenic cells [25].

7. Conclusion:

Green herbal medicinal plants play an important role in health services around the world. A large numbers of Indian medicinal plants are attributed with various pharmacological activities because they contain a diversified class of phytochemicals. The *Luffa cylindrica* are nutritious food that provide sufficient amount of nutrients needed for normal body function, maintenance and reproduction. This review will serve the purpose of aiding in future Research work on this plant.

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