

ETHNOMEDICINAL REVIEW OF THE PLANT COCCINIA INDICA (BIMBI) AND ITS UTILIZATION IN INDIA

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ABSTRACT

Many traditional healing herbs have been shown to have medicinal value and can be used to prevent or cure several human diseases. There has been increased global interest in traditional medicine. These medicines are not only used by the rural masses for their primary health care in developing countries but are also used in developed countries where modern medicines dominate. *Coccinia indica* (Cucurbitaceae), commonly known as Kundru, Ivy gourd or little gourd is a potent medicinal plant used in traditional medicine for various diseases. The different parts of this plant namely the leaves, roots, stems and fruits are used for several purposes like jaundice, diabetes, fever, cough, asthma, ulcers, stomach ache, skin diseases, fever etc. Analgesic, anti-inflammatory, antipyretic, antimicrobial, antiulcer, hypoglycaemic, hypolipidemic, hepatoprotective, antimalarial, anticancer, antitussive, antimutagenic are the reported pharmacological activities of this plant. The present review highlights adequate information to develop suitable medicinal value.

Keywords: Traditional medicine, *Coccinia indica*, Medicinal plant, Pharmacological activities

INTRODUCTION

Ethnomedicine is a study or comparison of the traditional medicine practiced by various ethnic groups and especially by indigenous peoples. There are many traditional systems of medicine in the world, each with different associated philosophies and cultural origins. Some of these, such as Tibetan traditional medicine, remain relatively localised in their country of origin; while others such as Ayurvedic and Chinese traditional medicines are increasingly used in many different areas of the world. ^[1] Traditional forms of medicine have existed and still exist in many countries of the world

including countries in the Indian sub-continent like India, Pakistan and Bangladesh. The various alternative medicinal systems of India (Ayurveda, Unani, and Siddha) uses more than 7500 plant species. ^[2] The World Health Organization (WHO) has listed 21,000 plants as herbs or medicinal plants. ^[3] Among these 2500 species are found in India. Around 800 plants have been used in the indigenous system of medicine. ^[4] Moreover, use of herbal medicines for the treatment of different ailments is very important in developing countries where the cost of conventional

medicines is a burden to the population. More than 30% of the entire plant species, at one time or other was used for medicinal purposes.^[5] About 40% doctors especially in India and in China have reverted to increasing use of indigenous drugs and natural medicines.^[6]

Coccinia indica Wight & Arn (syn. *Coccinia grandis* (L.) Voigt, *Cephalandra indica* Naud.) a herb that belongs to Cucurbitaceae family and that grows abundantly and wildly all over India.^[7] This plant is native to Central Africa, India and Asia. In India, it is cultivated in Assam, West Bengal, Bihar, Orissa, Maharashtra, Andhra Pradesh and Tamil Nadu. The fruits of this plant are eaten as vegetable throughout the country. The plant has also been used extensively in Ayurvedic and Unani practice in the Indian subcontinent.^[8] *Coccinia* includes 29 additional species and they are found only in tropical Africa.^[9] The fruit is often used for making 'sambhar' which is a name for South Indian lentil based vegetable soup. The people of Thailand and Indonesia use the fruits and leaves of this gourd in many dishes. The production of the gourd is encouraged in Thailand due to their rich micro nutrient content. The gourd is used in making curries, stir-fries, boiled dishes and in mashed form as stuffing.^[10]

Earlier scientific investigation of *Coccinia indica* showed that crude extract has hepatoprotective^[11] hypoglycemic, antihyperglycemic, antioxidant, anti-inflammatory and anti-nociceptive,^[12] hypolipidemic, antimicrobial, antitussive activities,^[13] mast cell-stabilizing, antianaphylactic and antihistaminic potential.^[14]

Vernacular Names of Bimbi:^[15] Hindi name- *Kundururu*, *Tirkol*, *Sanskrit Name- Bimbi*, *English Name- Ivy gourd*, *Scarlet gourd*, *Kowai*, *Bengali name- Telakucha*, *Oriya Name- Kunduru*, *Marathi Name- Tindora*, *Malayalam Name- Kovakka*, *Punjabi Name- Kanduri*, *Telugu name -Kaki donda, donda*, *Tamil name- Kovaikkai*

Sanskrit Synonym of Bimbi^[16] *Tundikeri/ Tundika* - The ripened red color of the fruit resembles the color of beak of parrot., *Raktaphala* - The ripened fruit is blood red in colour., *Ashtopama Phala* – ripe fruit resembles lips in shape and colour., *Oshta upama phala*

The color of the ripened fruit resembles red color like that of lips., *Vidruma phala*, *Ushnaphala*, *Dantachada*, *Peeluparnika* etc.

Classical categorization: *Charaka Samhita: Moolini – Herbs with root as used part*, *Sushruta Samhita: Urdhwabhagahara – group of herbs that are used for inducing vomiting*, *Dhanvantari Nighantu: Guduchyadi varga*, *Bhavaprakasha: Shaka varga*, *Kaiyyadeva Nighantu: Oushadhi varga*, *Raja Nighantu: Guduchyadi varga*

NUTRIENT COMPOSITION OF IVY GOURD^[17]

Chemical Composition of *Coccinia grandis* present the carbohydrate-12.62%, total protein- 15%, water soluble protein-11.25%, lipid-4.0%, total phenol- 61.92mg/100g, vitamin C-25.55 mg/100g, β -carotene- 70.05mg/100g, potassium-3.3 mg/100g, phosphorous- 1.15 mg/100g, sodium-0.95mg/100g, iron-2.23 mg/100g and calcium-3.79 mg/100 g. Fruits of *Coccinia grandis* contains steroids, saponin, ellagic acid, terpenoids, lignin, other compound like alkaloids, tannins, flavonoids, glycosides, phenols, B-amyrin acetate, lupeol, taraxerol, β , B-carotene, lycopene, cryptoxanthin, xyloglucen, carotenoids and β -sitosterol.

ETHNOMEDICINAL/ TRADITIONAL USES

Each part of this plant is valuable in medicine and various preparations have been mentioned in indigenous system of medicine like Ayurveda & Unani medicine in India. This plant grows abundantly in wild regions in India and whole plant is extensively and traditionally used for treatment of many common ailments. The plant can be also used to produce herbal tea.^[18] In Ayurveda, it has been well documented for its therapeutic potentials and described in *vamanopaga dashemani* and *urdhwabhagahara varga*.^[19] It is a folk medicine for diabetes. The plant has the reputation in Bengal of having a remarkable effect in reducing the amount of sugar in the urine of patients suffering from diabetes mellitus.^[20] It is also used as folk medicine in the treatment of snake-bite.^[21]

Leaves: Decoction of leaves is useful as antispasmodic, expectorant and in cases of chronic bronchitis. The paste of leaves is applied externally in ringworm, pso-

riasis and itching. Juice of leaves is also useful in treatment of diabetes and malarial infection. Leaf extract is also useful in treatment of gonorrhoea. A paste made of leaves is applied to the skin to treat scabies.^[22] Leaves are used in Indian folk medicine for treatment of number of ailments including diabetes, wounds, ulcers, inflammation, in eruptions of skin, fever, asthma and cough.^[23] In Unani systems of medicine it is used for ring worm, psoriasis, small pox, scabies and other itchy skin eruptions and ulcers.^[24]

Fruit: The fleshy green fruit is very bitter. Green fruit cures sores on tongue and dried fruit removes eczema. Fruit juice is useful in treatment of infections caused by helminthes.^[22] The fruit is used to treat leprosy, fever, asthma, infective hepatitis, jaundice, and sore throats.^[25]

Whole plant: Whole plant is useful in fever, cataracts, pyelitis, cystitis, snake bite, urinary gravel and calculi. Oil of the plant is used as injection into chronic sinuses.^[22]

Stem: The juice from the stem is dripped in to the eye to treat the cataracts.^[26]

Root: Dried powdered root bark is useful as cathartic. The ash of root is applied on skin lesions. Root extract is used to remove pain in joints, in treatment of diabetes.^[22] and in treating vomiting.^[27]

INDICATION IN DIFFERENT AYURVEDIC TEXTS ^[28]

Lock jaw – Ripe fruit of bimbi along with jaggery should be put in mouth and the jaw should be set in position followed by oleation and fomentation. Worms – Intake of bimbi ghrita destroys worms located in gastro-intestinal tract. Wound - Leaf juice is useful in wound., Mouth ulcer - Dried fruit is used in Mouth ulcer for chewing., Madhumeha - Mula or leaf juice is useful in Madhumeha.

CONCLUSION

Now a days, research on Indian traditional medicinal plants has gained a new recommence. *C. indica* is one of the most important medicinal plants used in Ayurveda and folklore systems because of having a number of pharmacological as well as therapeutic properties. Traditionally, this plant is used to treat a

huge variety of health problems. It is used as a household remedy by Indians who consider it as the best drug for diabetic patients. Present review highlights the various therapeutic uses mentioned by great Indian sages. There is a huge need systematic pharmacological and phytochemical study to assess its therapeutic values.

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