

Guduchi (*Tinosporacordifolia*): A Review Article

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ABSTRACT

Guduchi of family Menispermaceae. A Sanskrit word meaning "that which protects body from diseases" is guduchi. Another name for this herb is "Amrita," which in Hindu mythology means "the heavenly elixir." The story says that Guduchi kept celestial beings young forever by preventing them from growing old. Because of its many applications and abundance of life energy, it is considered a potential drug in Ayurveda. Long before the era of modern technology, the ancient rishis of the Vedic era recognised its ability to help prolong life. Potentially used extensively to treat fever, diabetes, urogenital tract infections, anaemia, jaundice, asthma, cardiac disorders, and other conditions, it is a potential ayurvedic medication. It is a well known immune-modulator herb used in the correction of auto immunity. As per Acharya Charak, Guduchi is one among the four Medya Rasayan where its Swaras is to bead minis rated to get all the benefits of rasayan. Its Ras is Tikta, Veerya is Ushna and Vipakais Madhura. Guna includes Laghu and Snigdha. It balances Tridoshain the body. Guduchi is highly rich in anti-oxidants. It also has anti-pyretic, anti-viral and wound healing properties. There are many studies already done on Guduchi and many researches are still going on to know the effects of Guduchi in the body for the benefit of the patients.

KEYWORDS: Guduchi; *Tinosporacordifolia*; Menispermaceae; Rasayan; Medya Rasayan.

I. INTRODUCTION

The Menispermaceae family of drugs, guduchi, is used in Ayurveda medicine for Rasayan Chikitsa.¹ One of the most important subfields of Ayurveda, known as rasayan (rejuvenation therapy), has been practiced successfully and widely for centuries.² It consists of a collection of medicinal preparations that stimulate the immune system and can stop the onset of numerous illnesses, including premature ageing. Rasayan is a term used to describe food or nourishment. Guduchi is a large spreading, glabrous, perennial,

deciduous, climbing shrub distributed throughout India and South Asia. It is also commonly known as Amruthu (Malayalam), Amrutha balli (Kannada), Gurcha (Hindi), Guduchi (Marathi, Sanskrit), etc. It has many medicinal properties such as anti-inflammatory, anti-diabetic, antiarthritic, antioxidant, anti-stress, antileprotic, antimalarial, hepato protective, antiallergic and immunomodulatory activities.^[3] It is an important drug and is used in form of different preparations like Satva, Ghrita, Tail, Swarasetc. Also, as one of the important ingredients in many other formulations used for treating various diseases. In clinical practice it is mainly prescribed for diseases like Jwara, Shwetapradara, Mandagani, Prameha, Daurbalya, Kamla, etc. Its Ras is Tikta, Veerya is Ushna and Vipakais Madhura. It is considered the best drug in terms of availability, economy, ease of administration, etc. and further, at the dose level employed clinically it is well tolerated.

Botanical and pharmacognostical descriptions

Botanical description

It is a large, deciduous extensively spreading climbing shrub with several elongated twining branches. **Leaves** simple, alternate, exstipulate, long petioles upto 15cm long, roundish, pulvinate, both at the base and apex with the basal one longer and twisted partially and half way around. **Lamina** broadly ovate or ovate cordate, 10-20cm long or 8-15cm broad, 7 nerved and deeply cordate at base, membranous, pubescent above, whitish tomentose with a prominent reticulumbeneath. **Flowers** unisexual, small on separate plants and appearing when plant is leafless, greenish yellow on axillary and terminal racemes. Male flowers clustered, female usually solitary. **Sepals** 6, free in two series of three each, the outer ones are smaller than the inner. **Petals** 6 free smaller than sepals, obovate and membranous. **Fruits** aggregate of 1-3, ovoid smooth drupelets on thick stalk with sub terminal style scars, scarlet or orange coloured.

Distribution

The plant is distributed throughout

the tropical region of India up to 1,200m above sea level from Kumaon to Assam, in north extending through West Bengal, Bihar, Deccan, Konkan, Karnataka and Kerala. It is a fairly common plant of de-ciduous and dry forests, growing over hedges and small trees.

Pharmacognostical Description

The drug Guduchi or Amrita consists of dried pieces of mature stem of *Tinosporacordifolia*. Roots and leaves are also medicinal. The diagnostic pharmacognostical characteristics of medicinal parts are as follows:

Stem

Stem is characterized by the presence of bicollateral vascular bundle less rounded by pericycle fibres. The cork arises in the sub-epidermal layers and give rise to 2-3 layers of cork. Starch is present throughout the parenchyma of the stem^{5,6}.

Root

The aerial root is characterized by tetra- to pent-arch primary structure. The cortex is divided into outer thick walled zone representing the velamen and inner parenchymatous zone containing secretory canals. Starch is present throughout the parenchyma of the aerial root. The starch grains are oval or elliptical in shape, mostly simple but sometimes as compound grains of 2 to 5 components, with faintly marked concentric striation and central hilum appearing like a point^{5,6}.

Leaf

The petiole in transverse section is more or less circular in outline. Not rich-omes were found. The cross section shows a single layered epidermis and a wide zone of cortex composed of 3 to 4 layers of endodermis. The vascular bundles consist of radial rows of xylem on the inner side and a few rows of cambium cells on the outer side followed by phloem. The mid-rib is more or less circular in outline and palisade do not extend over the stellar tissue. The cross section of lamina shows a dorsiventral structure with its mesophyll differentiated into palisade and spongy tissue. The mesophyll is clearly differentiated into a palisade layer made up of one row of thin walled columnar cells which occupy little more than half of the width of mesophyll. Glandular hairs are present in lower surface only. They are unicellular and somewhat club shaped. The base is surrounded by 4 to 5 epidermal cells. Starch is present throughout the tissue⁷.

RASAYAN EFFECT OF GUDUCHI

Rasayan is a term used to describe food or nourishment. Rasayan medications revitalise the body and mind by primarily affecting nutrition dynamics. Rasayan medications also support intelligence and fortitude, extend life, and aid in illness prevention. Rasayana can be used to achieve many benefits such as longevity, memory, intelligence, immunity to disease, youth, excellence in complexion and voice, lustre, and physical and sensory strength, perfection in reasoning, respectability, and brilliance.⁴ Rasayan is the means of attaining excellent qualities of rassa etc. dhatus i.e. body cells and tissues. Rasayan essentially denotes medicinal nutrition, rejuvenation, longevity, immune-enhancing and geriatric health care. Rasayan (rejuvenation therapy), one of the most essential branches of Ayurveda, practiced effectively and extensively in ancient times, is a group of medicinal preparations which are immunostimulants and capable of preventing the causation of many ailments such as untimely aging. Guduchi is an Ayurvedic drug used for Rasayan Chikitsa.⁵ In a research Guduchi Rasayan, enhances the life span of *Drosophila melanogaster* which validates the concept of Rasayan. Increase in the life span of F-1 generation of *Drosophila* is suggestive of Rasayan effect of Guduchi Churna even prevails to next generation.⁶ At lower concentration of Guduchi Churna there was a significant increase in lifespan of the flies. Higher concentrations progressively reduced the life span of flies significantly. Increasing the concentrations further did not show more increase in lifespan. This indicates that there is a particular concentration of Guduchi Churna which causes maximum life span extension (around 0.25 g/100 ml of food). Concentrations beyond that limit do not further increase the lifespan, which may be due to the absorption threshold of Guduchi Churna. The increase in life span of the flies due to Guduchi Churna can be attributed due to its high antioxidant properties. Researchers suggest that, the alcoholic and aqueous extracts of *T. cordifolia* are reported to have beneficial effects on the immune system⁷ and have been tested successfully for their immunomodulatory activity.⁸ Hence Guduchi should be consumed in proper quantity on daily basis to get all the benefits of rasayan in one's life.

ANTIPYRETIC EFFECT OF GUDUCHI

For many inflammatory and infectious diseases, fever serves as a stand-in marker for

disease activity. In Ayurvedic medicine, guduchi is well known for its ability to treat Jwara, or fever.⁹ Fever can be treated with Guduchi Swarasa and Guduchi Kalka, which are made from the stem of *T. cordifolia* (Willd.) Miers, according to ancient texts.¹⁰

In another study by Guduchi Ghrita formulations in albino rats it has been observed that Guduchi Ghrita samples produced very good antipyretic effect in a dose-dependent manner and the observed effect was almost similar to that in the paracetamol.^[14]

HYPOGLYCEMIC EFFECT OF GUDUCHI

The oral synthetic anti-diabetic medications that are currently on the market can only partially correct metabolic disturbances; they do not always improve the basic biochemical lesions, and they come with associated side effects.¹⁵ Diabetes mellitus is a long-term metabolic disease marked by elevated blood sugar levels brought on by a combination of environmental and genetic factors, as well as abnormalities in the secretion or action of insulin, or both. Today, it is a vulnerable endemic problem all over the globe, affecting carbohydrate, protein, and fat metabolism in addition to damaging liver, kidney, and cells of pancreas.^[16] Furthermore, insulin therapy in insulin dependent diabetes mellitus has several drawbacks such as insulin resistance, develops anorexia nervosa, brain atrophy, and fatty liver after chronic treatment.^[17] Researches conducted during past few decades on about 45 plants or their products (active, natural principles, and crude extracts) have shown experimental or clinical anti-diabetic activity.^[18] Ayurvedic classics emphasized using of Guduchi sattva in different stages of Prameha,^[20,21] It has been reported that 1,2- substituted pyrrolidines isolated from the stem is responsible for anti-diabetic activity of Guduchi.^[22] If many further studies will be made on Guduchi it will become even more clear that Guduchi give best effect on diabetes treatment.

ANTI-INFLAMMATORY ACTIVITY OF GUDUCHI

The local reaction of living mammalian tissues to damage caused by any agent is known as inflammation. It is the body's defensive response to get rid of or stop the spread of an inflammatory agent. It is categorised as acute or chronic based on the host's ability to defend itself and the length of the response. The accumulation of fluid and plasma, the intravascular activation of platelets, and

the role of polymorphonuclear neutrophils as inflammatory cells are among the primary characteristics of acute inflammation.²³ Histamine, 5-hydroxytryptamine and bradykinin are the first detectable mediators in the early phase of carrageenan-induced inflammation, whereas prostaglandins are detectable in the late phase of inflammation. In a study it has been observed that Guduchi Ghana prepared by classical method produced significant suppression of carrageenan-induced oedema indicating that it inhibits fluid exudation and thus acute inflammation. Hence it is proved that classically prepared Guduchi Ghana produced significant anti-inflammatory activity.

II. DISCUSSION

Guduchi, a Medya member Regular consumption of rasayan has been shown to enhance life, reduce illness, and improve strength, Agni, complexion, voice, and intellect. Regular consumption in the right amount leads to the attainment of various benefits such as longevity, memory, intelligence, immunity to disease, youth, flawless complexion and voice, maximum strength of body and sense organs, perfection in decision-making, respectability, and brilliance. Rasayan is a way to obtain superior rasa qualities, among other dhatus, or bodily tissues and cells. Guduchi, one of Ayurveda's most potent medicines, contains all of rasayan's properties. Fever is one of the disease which affect every person at least once in a year. Anti-pyretic effect of Guduchi helps the patient to get relieved by this and helps in maintaining disease free life. Guduchi is highly valued in Ayurveda for its detoxifying, rejuvenating, immune-supporting, and anti-ama properties. It is now being studied by researchers for cold and flu prevention, immune support, skin disorders, arthritis, liver disorders, gout and other rheumatic disorders. Among the various benefits of Guduchi attributed to the herb in the classical texts, Guduchi primarily is a rejuvenative, it supports immunity, helps the body to fight endogenous toxins, supports natural function of liver, anti-pyretic, anti-inflammatory and anti-diabetic as well.

III. CONCLUSION

Among its many other qualities, guduchi is anti-inflammatory, rejuvenative, anti-pyretic, and anti-diabetic. Guduchi is one of the four medications prescribed by Medya Rasayan that has a calming and anxiolytic effect, supporting the preservation of mental health in people. To reap the full benefits of rasayan, it must be taken regularly.

Additional research is needed to learn more about this promising medication. In the world of pharmaceuticals, guduchi is a wonder medication. Therefore, it should be regularly consumed to maintain a healthy and disease-free life.

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