



### **GUDUCHI AS A RASAYANA IN INFECTIOUS DISEASES: A REVIEW**

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#### **ABSTRACT**

Disease is the outcome of combination of vitiated *Dosha* and *Dooshya* which happens when *Vyadhikshamatwa* (immunity) is decreased. Because of the lifestyle and changing environment, the immunity of people is decreasing day by day making them prone for getting afflicted with infectious diseases. The present day infectious diseases like Dengue, H1N1, AIDS, TB etc. are only due to lowered immunity. *Rasayana* is believed to promote the process of *Dhatuposhana* and enrich *Ojas* leading to *Vyadhikshamatva*. The concept of *Rasayana* therapy is a comprehensive and specialized regimen capable of producing healthful longevity and improved mental faculties by acting at the level of *Rasa*, *Agni* and the *Srotas*, thus enabling the organism to procure the best qualities of different *Dhatu*s. *Guduchi* is considered one of the best *Rasayan*as and is unusual in its potent versatility. The significant actions of *Guduchi* include promoting *Bala* (cellular and humoral immunity), *Agnideepana*, cures fever, eliminates *Ama* (metabolic wastes and toxins), skin diseases, Upper respiratory tract infections, gout etc. It can be used as *Swarasa*, *Kashaya*, *Satwa* for internal use or as paste for external application in skin diseases to get the desirable effect. *Guduchi* is known to be a rich source of trace elements which act as antioxidants. It is apt to get the name '*Amrita*' because it itself can regenerate and can bring back the diseased cells to normalcy. So this article aims at making a public awareness of the use of *Guduchi* as a *Rasayana* in maintaining health and in the treatment of infectious diseases.

**KEYWORDS:** *Rasayana*, Infectious diseases, *Guduchi*, *Vyadhikshamatwa*, Immunity.

#### **INTRODUCTION**

The human body is one of the most superior creations of the nature. It always endeavors to sustain homeostasis in the midst of all labile conditions. However, many factors can cause disease: infectious agents, heredity, environmental conditions, malnutrition and stress. Infectious diseases cause death of millions of people each year. We have already observed that the adoption of appropriate preventive measures has dramatically reduced mortality from infectious diseases in developed countries. However, they continue to be the leading cause of death in the Third World countries (The World Health Report, 1999). One of the greatest triumphs in modern healthcare has come from vaccination, which has eradicated or virtually eliminated several infectious diseases. It is the single most successful disease preventive measure so far, because it takes advantage of the immune system's natural specificity and is inducible. Nevertheless, there are many important infectious diseases, such as AIDS and tuberculosis, for which there is still no effective vaccine.

Ayurveda has given much priority to live a healthy and joyful long life. Many people are prone to disease due to breaking their dietary habit, change in climate, on the other hand, some people remain healthy inspite of breaking dietary rules or change in climate and do not get affected by any disease. Many microorganisms enter the human body through air and water, but fail to create disease due to immune response present in the living body. The most important thing in relation to health and

disease is immunity of the body. Concept of *Vyadhikshamatva* described in the classical texts of Ayurveda is similar to immunity. Disease is the outcome of combination of vitiated *Dosha* and *Dooshya* which happens when *Vyadhikshamatwa* is decreased.

The concepts of immunity and immunomodulation are extensively explored and used in *Ayurveda*, particularly in *Rasayanatanhra*<sup>[1]</sup>. *Rasayana* is believed to promote the process of *Dhatuposhana* and enrich *Ojas* leading to *Vyadhikshamatva*. The concept of *Rasayana* therapy is not a single drug treatment but it is a comprehensive and specialized regimen capable of producing healthful longevity and improved mental faculties.

Several medicinal plants have been described as *Rasayan*as in Ayurveda. *Guduchi* is one of the most highly valued and common herbs known to possess a number of wonderful therapeutic values through its use. It is considered one of the best *Rasayan*as and is unusual in its potent versatility. In recent years, significant progress has been attained regarding its biological activity and medicinal applications. *Guduchi* is known to be a rich source of trace elements (Zinc and Copper) which act as antioxidants and protects cells from the damaging effects of oxygen radicals generated during immune activation<sup>[2]</sup>. Studies have shown its importance in improving cognitive function because of its ability to cross the blood brain barrier. Its use in reducing the side effects of chemotherapy is a wonder<sup>[3]</sup>.

## Infectious diseases

Infectious diseases are caused by pathogenic microorganisms, such as bacteria, viruses, parasites or fungi; the diseases can be spread, directly or indirectly, from one person to another<sup>[4]</sup>. Some infectious diseases can be passed from person to person. Some are transmitted by bites from insects or animals. And others are acquired by ingesting contaminated food or water or being exposed to organisms in the environment. These infectious diseases occur due to lack of immunity of the body. Infectious diseases can range from a simple Common cold to diseases like Cholera, TB, Typhoid etc. The general symptoms of infectious diseases include fever, fatigue, cough, muscle aches etc.

There is a general chain of events that applies to infections. The chain of events involves several steps which include the infectious agent, reservoir, entering a susceptible host, exit and transmission to new hosts. Each of the links must be present in a chronological order for an infection to develop. Change in the dietary pattern, change of climate etc. makes a person prone for infectious diseases. The infectious agent can contact or enter host cells and directly cause cell death<sup>[5]</sup>. They can release endotoxins or exotoxins that kill cells at a distance<sup>[5]</sup>. They also release enzymes that degrade tissue components or damage blood vessels causing ischemic injury<sup>[5]</sup>. They can induce host cell responses that may cause additional tissue damage, usually by immune mediated mechanisms<sup>[5]</sup>.

## Rasayana

*Rasayana* is one of the eight clinical specialties of classical Ayurveda which creates a foundation of wellness and stability in the physiology of human body. *Rasayana* means the way for attaining excellence in all body tissues through some special measures and medicines<sup>[6]</sup>. *Rasayana* acts at the level of Rasa, Agni and the Srotas<sup>[7]</sup>, thus enabling the organism to procure the best qualities of different *Dhatus*. *Rasayana* plays 2 roles in the control of infectious diseases

- as a prophylactic medication in diseased people.
- prevention of diseases in healthy individuals.

## Guduchi

*Guduchi* is a large, glabrous, perennial, deciduous, climbing shrub of weak and fleshy stem found throughout India. It is a widely used plant in folk and *Ayurvedic* systems of medicine. The chemical constituents reported from this shrub belong to different classes, such as alkaloids, diterpenoid lactones, glycosides, steroids, sesquiterpenoid, phenolics, aliphatic compounds and polysaccharides<sup>[8]</sup>. The properties of the plant are *Tikta*, *Kashaya Rasa*; *Guru*, *Snigdha Guna*; *Ushna Veerya* and *Madhura Vipaka*<sup>[9]</sup>. It pacifies all the three *Doshas* and maintain their balance with each other i.e. why it is said to be having *Rasayana* character. When taken with *Ghruta* (Ghee), it balances *Vata*, with *Guda* (Jaggery) *Pitta* and with Honey the *Kapha*. *Guduchi* is having *Vayasthapana*<sup>[10]</sup>, *Dahaprashamana*<sup>[10]</sup>, *Trishnanigrahana*<sup>[10]</sup>, *Stanya-shodhana*, *Triptighna*, *Rasayani*, *Samgrahini*<sup>[9]</sup>, *Balya*<sup>[9]</sup>, *Agni deepani*<sup>[9]</sup>, *Valepalitanashini*<sup>[11]</sup> and *Medhya* actions<sup>[10]</sup>.

The plant is preferably said to be used green and fresh. When storage is desired, the stem should be

properly collected during the rainy season and then stored after drying in shade<sup>[8]</sup>. *Guduchi* is commonly used in rheumatism, urinary diseases, dyspepsia, general debility, fever, bronchitis, syphilis and morbidity of liver<sup>[8]</sup>. *Guduchi* is given as *Swarasa*, *Kashaya*, *Satwa* etc. Oil prepared with *Guduchi* or its external application as paste is advised in skin diseases. It is traditionally dried and made into a starchy extract called *Guduchi Sattva* which is highly valued for intermittent fevers, chronic diarrhoea, chronic dysentery, burning sensation etc.<sup>[8]</sup>

The commonly used parts are dried stem, roots and leaves.

## Action of Guduchi in infectious diseases

The infectious agent releases *Ama* (endotoxins) which degrades tissue components (due to *Agnimandya*) and result in *Vyadhi* (disease). *Guduchi* acts in infectious diseases through its *Amapachana*, *Agnideepana*, *Jwaraghna* and *Balya* properties. *Guduchi* helps in increasing the killing ability of macrophages. *Swarasa* promotes platelets cell formation. *Satva* of *Guduchi* along with white inner bark of *Neem*, *Daruharidra* protect from infectious diseases. Pills are prepared from the paste of stem of the *Guduchi* and the roots of *Bhatkatiaya* (*Solanum surattense*) in fever. Decoction of stem, Juice or decoction of leaves and the warm juice of root of the plant are administered orally in different types of fevers. Decoction of stem with cold and hot water (about 3-4 g) in morning in an empty stomach, as a tonic.<sup>[12]</sup>

Compound preparations like *Amritottaram-kashayam*<sup>[13]</sup>, *Guduchyadiakashaya*<sup>[14]</sup>, *Chyavanaprasa*<sup>[15]</sup>, *Amritaprasaghritham*<sup>[16]</sup> are there. *Haridrakhandam* + *Sitopaladichurna* + *Guduchi Satwa* in the ratio 3:2:1 is proved to be beneficial in infectious diseases.

## Immunomodulatory action of Guduchi<sup>[12]</sup>

The alcoholic and aqueous extracts of *T. cordifolia* are reported to have beneficial effects on the immune system and have been tested successfully for their immunomodulatory activity. The novel (1,4)-alpha-D-glucan derived from the plant activates the immune system through the activation of macrophages via TLR6 signaling, NFkappaB translocation and cytokine production. The aqueous extract of *T. cordifolia* was found to enhance phagocytosis in vitro. The aqueous and ethanolic extracts also induced an increase in antibody production in vivo. *T. cordifolia* extract (TCE) treatment caused significant reduction in eosinophil count and improved hemoglobin in HIV patients.

The adjuvant immunomodulatory effect of the plant's aqueous extract in combination with chloroquine was studied for the treatment of hyper reactive malarious splenomegaly. Addition of extract to chloroquine had regression of spleen by 37-50% after six weeks and 45-69% after six months from the start of the treatment. Likewise decrease in IgM and increase in Hb as well as wellbeing were observed<sup>[17]</sup>. The efficacy of the extract in patients of allergic rhinitis was assessed in a randomized double blind placebo controlled trial which demonstrated a significant decrease in all the symptoms of allergic rhinitis<sup>[18]</sup>.

## DISCUSSION

Infectious diseases are those diseases caused by pathogenic microorganisms, such as bacteria, viruses,

parasites or fungi. These micro organisms enter the human body due to the lowered immunity of the body. These micro organisms release *Ama* (endotoxins) which causes *Agnimandya* (loss of digestive fire) resulting in depletion of nutrition to *Dhatu*s thereby causing *Dhatushithilata* (tissue degradation). When the *Dhatu*s (which maintains the body) undergo degradation, it results in *Vikrutavastha* (diseased condition). *Rasayanas* act at the level of *Rasa*, *Agni* and *Srotas*, thus enabling *Dhatuposhana* and help in increasing the *Vyadhikshamatwa* (immunity). *Rasayanas* can be used as a prophylactic medication in diseased people and for prevention of diseases in healthy individuals. *Guduchi* is considered one of the best *Rasayanas* and is unusual in its potent versatility. The alcoholic and aqueous extracts of *T. cordifolia* have been tested successfully for their immunomodulatory activity. *Guduchi* acts in infectious diseases through its *Amapachana*, *Agnideepana*, *Jwaraghna* and *Balya* properties. The *Ama* which is released into circulation by the infectious agent and the resultant *Agnimandya* can be managed with the *Amapachana* and *Agnideepana* properties of *Guduchi*. The *Jwaraghna* property of the plant helps in alleviating the general features of infectious diseases like fever, cough etc. The *Balya* and *Rasayana* property of *Guduchi* help during the post infectious phase in regaining the strength of the body.

#### CONCLUSION

In the present age, people are more concerned about their health and related problems. The *Rasayana* effect of *Guduchi* can be made use of in treatment as well as prevention of infectious diseases. *Rasayana* activate those pathways that neutralize the stimuli and inhibition of pathways that cause the disease without altering other basic parameters of body function. This leads us to describe the idea of *Rasayanas* as a "universal vaccine" for any disease. The synonym "Amrita" suits the herb very much as it serves as a nectar in bringing back the diseased cells to normalcy and prevents formation of any disease.

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