Publisher
Maharshi Charaka Ayurveda
www.maharshicharaka.in

E-ISSN:2456-3110

Journal of Ayurveda and Integrated Medical Sciences

2025 Volume 10 Number 2 FEBRUARY

Review Article

Bhallataka as Immunomodulator

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The Role of Bhallataka as Immunomodulator in Autoimmune Disorder - A Review

Pawar KJ[1*], Chavhan KR[2], Lambat RD[3]

DOI:10.21760/jaims.10.2.28

[1*] Komal J Pawar, Post Graduate Scholar, Dept of Agad Tantra Evam Vyavahara Ayurveda, Govt Ayurved College, Nagpur, Maharashtra, India.

[2] Kalpana R Chavhan, Associate Professor, Dept of Agad Tantra Evam Vyavahara Ayurveda, Govt Ayurved College, Nagpur, Maharashtra, India.

[3] Rajendra D Lambat, Head of Department, Dept of Agad Tantra Evam Vyavahara Ayurveda, Govt Ayurved College, Nagpur, Maharashtra, India.

Normally, Immunity deals with both identifying foreign compounds and inactivating and rejecting bacteria and other foreign chemicals. The inability of this ability to distinguish between the body's own material and foreign material at some point is likely the fundamental component of Autoimmune Disorders. Due to changes in lifestyle, the prevalence of Autoimmune illnesses such as Rheumatoid Arthritis, Pemphigus Vulgaris, Systemic Lupus Erythematosus and Multiple Sclerosis etc., is on the rise. Substances that alter or control immunological processes are known as Immunomodulators. Immunomodulators decrease the hyperactive immune response that targets the body's own tissues, which aids in the management of various disorder. Bhallataka is one of the Rasayana Dravyas described in Ayurveda. We can utilize Bhallataka as Naimittika Rasayana because of its beneficial therapeutic properties, which include Anti-inflammatory, Anti-carcinogenic, Anti-microbial, Antioxidant, and Hypoglycemic.

Keywords: Immunity, Immunomodulators, Rasayana, Bhallataka, Autoimmune Disorders

Corresponding Author

Komal J Pawar, Post Graduate Scholar, Dept of Agad Tantra Evam Vyavahara Ayurveda, Govt Ayurved College, Nagpur, Maharashtra, India.
Email: dr.komalpawar1995@gmail.com

How to Cite this Article

Pawar KJ, Chavhan KR, Lambat RD, The Role of Bhallataka as Immunomodulator in Autoimmune Disorder - A Review. J Ayu Int Med Sci. 2025;10(2):205-209.
Available From
https://jaims.in/jaims/article/view/4061

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Conflict of Interest	Funding	Ethical Approval	Plagiarism X-checker	Note
None	Nil	Not required	12.52	

Introduction

Immunity deals with both identifying foreign compounds and inactivating and rejecting bacteria and other foreign chemicals.**[1]** The failure of ability to distinguish between the body's own tissue and foreign body at some point is likely the fundamental component of Autoimmune disorders.**[2]**

Due to changes in lifestyle, the prevalence of Autoimmune illnesses such as Rheumatoid Arthritis, Pemphigus vulgaris and Systemic Lupus Erythematosus, etc. is on the rise. Substances that alter or control immunological processes are known as Immunomodulators. Immuno modulators are used in a number of medical disorders to either suppress an overactive immune system, as in autoimmune diseases, or strengthen it when it is weak, like in some infections or cancers. *Ayurveda*, an Indian system of medicine, offers a lot of promise for treating Autoimmune Diseases.

We have a lengthy history of success addressing the underlying cause of the illness rather than its symptoms through *Ayurveda*. *Ayurveda* approaches the root cause of any disease and not merely the symptom. Inflammatory changes mainly occur due to *Ama*.**[3]** *Mandagni* is the root cause of Autoimmune Disorders. Consequently, the goal of *Ayurvedic* treatment is to restore *Jatharagni. Jara (Rasayana) Chikitsa* is one among the *Astanga Ayurveda* Explained by *Vaghbhata.***[4]**

Numerous herbs are described in *Ayurveda* as Immuno- modulators that can help you get rid of *Ama* from your body and avoid Autoimmune illnesses. *Bhallataka* is one among the *Rasayana Dravyas* described in *Ayurveda.***[5]** *Acharya Charaka* listed ten different ways to prepare *Bhallataka Rasayana* and highlighted its *Rasayana* quality.**[5]** *Dhanwantari Nighantu* **[6]** and *Rastarangini* **[7]** describe *Bhallataka* under *Upvisha*. *Bhallataka* is classified as *Vishadravyas* as per Drugs and Cosmetic Act (India), 1940.**[8]** Despite being poisonous, the plant is used to treat a wide range of illnesses, including *Grahaniroga, Hridaroga, Panduroga, Gulma, Udavarta,* and *Shool.***[9]** *Bhallataka* can be used as *Naimittika Rasayana* because of its beneficial therapeutic qualities, which include Anti-inflammatory, Anti-carcinogenic, Anti-microbial, Antioxidant, and Hypoglycemic.**[10]**

Aim and Objective

To Review Role of *Bhallataka* as Immunomodulator in Autoimmune Disorders.

Materials and Methods

This study is based on textual review. Evidences related to *Rasayana* effect of *Bhallataka* were collected from *Brihatrayi, Laghutrayi, Nighantu.* Modern texts and various websites to collect information on the relevant topics were referred. The Research articles published in Peer Reviewed journals were analysed for this review.

Observation and Results

Text Name	Rasa	Guna	Virya	Vipak	Karma	Doshaghnata	Rogaghnata
Bhavaprakash Nighantu[11]	Kashaya, madhura	Laghu	Ushna		Shukrala	V-K	Udara, Aanaha, Kushta, Arsha, Grahani, Gulma, Jwara, Kshwitra, Krimi Agnimandya, Vrana
Dhanwantri Nighantu[12]	Katu, Tikta, Madhura		Ushna			V-K	Krimi, Gulma, Arsha, Grahani, Kushta
Raja Nighantu [13]	Katu, Tikta, Kashaya		Ushna				Krimi, Udara, Aanaha, Meha, Durnama
Charaka Samhita [14]			Ushna		Medhagni-Vardhana		Kaphaja Rogas
Dravya Guna-Vijanana Vol-II[15]	Katu, Tikta, Kashaya	Laghu, Tikshna Snigdha	Ushna	Madhura	Sheetprashaman, Vishaghna,Medhya	V-K	Grudhrasi, Amavata, Pakshvadh, Kasa, Shwas, Kushtha

Discussion

Mode of Action of *Rasayana Dravyas*

Rasayana medications have been shown to be *Saptadhatuvardhana*; nevertheless, in order to be *Saptadhatuvardhana*, the following conditions must be met:

1. Make sure that all of the body's systems are operating physiologically.
2. In order for the nutrient fraction to reach every *Srotasa* correctly and consistently, it is necessary to comprehend the physiological *Gati* of *Apan Vayu*.
3. Agni's typical physiological activity ensures that the nutritional fraction consistently and correctly reaches all

Mode of action of *Bhallataka* as *Rasaya*

Bhallataka Madhura Vipaka & Snigdha Guna

Katu, Tikta, and Kashaya Rasa Saptadhatuvardhana
↓
Deepan, Pachana, Bhedaniya especially *Shukravardhaka*
↓
Works on *Jatharagni Vyadhishkamatwa Rasayan*
↓
Decreases Margavrodha (Laghu, Ruksha, Aashu, Vishad, Vyavayi, Teekshna & Ushna Guna)
↓
Removes *Ama* from *Srotas (Srotoshodhana)*
↓
Increases *Rasa- Rakta Samvahana* in body (Micro-circulation & Bioavailability)
↓
Removes *Dhatvagni Mandya*
↓
Improved Quality of *Dhatus*
↓
Immunity → Rasayana

Antioxidants Property:[16]

The antioxidant activity of the aqueous extract of the nuts of the medicinal plant SA was examined by Verma et al. in the liver of AKR mice while lymphoma developed.

Antioxidant enzyme activities rise when the aqueous extract of SA is administered to lymphoma-transplanted mice, whereas LDH activity sharply declines, suggesting a reduction in carcinogenesis.

Anti-inflammatory Property:[17]

Chronic inflammation is characterized by fibroblast growth and monocyte infiltration. According to a study, non-steroidal anti-inflammatory medicines (NSAIDS) reduce inflammation by blocking the production of collagen fibers and granulocyte infiltration. According to Ramprasathet et al.'s study, SA nut extract also prevents monocyte infiltration and fibroblast multiplication, demonstrating Semecarpus anacardium Linn.'s anti-inflammatory effectiveness against all stages of inflammation. Additionally, it has been noted that the animal treated with Semecarpus anacardium extract does not develop gastrointestinal mucosal ulcers.

Anti-atherogenic effect[18]

Sharma et al. showed that SA has cardiac activity because it inhibits intestinal cholesterol absorption and peripheral elimination, which lowers tissue and serum hyperlipidemia and has anti-artherosclerotic properties.

Anti-microbial activity[19]

According to Nair et al, the alcoholic extract of dry Semecarpus anacardium nuts exhibited bactericidal action against two-gram positive strains (Corynebacterium diphtheriae and Staphylococcus aureus) and three gram negative strains (Escherichia coli, Salmonella typhi, and Proteus vulgaris) in vitro. Later research has demonstrated that the alcoholic extracts of the plant's leaves, twigs, and green fruit, particularly the leaf extract, have antibacterial qualities as well.

Anti-carcinogenic activity[20]

Mathivadhani and colleagues investigated the usage of Semecarpus anacardium nut extract to suppress the T47D human breast cancer cell line. These alterations are accompanied at the molecular level by an increase in Bax, cytochrome c, caspases, and Bcl(2) and a decrease in PARP cleavage, followed by the fragmentation of internucleosomal DNA.

Hypoglycemic effect[21]

Using both normal (hypoglycemic) and streptozotocin-induced (antihyperglycemic) rats, Arul et al. examined the impact of an ethanolic extract of dried nuts of SA on blood glucose. The ethanolic SA extract (100 mg/kg) decreased the normal rats' plasma glucose levels.

At 0, 1, 2, and 3 hours following therapy, blood glucose levels were assessed, and the antihyperglycemic effect of SA was contrasted with that of tolbutamide, a sulfonyl urea derivative used to treat diabetes mellitus.

The primary goals of *Ayurveda* are to preserve a healthy individual's health and treat a sick person's. The distinctive idea of *Ayurveda* is called *Rasayana*, or Rejuvenation. In *Sheet Kala*, *Bhallataka* can be used as an Immunomodulator to prevent disease; as *Naimittika Rasayana*, it can be used to treat Autoimmune illnesses.

Conclusion

The potential of *Bhallataka* as an Immunomodulator in Autoimmune illnesses is highlighted in this review. The herb is a promising adjuvant therapy for Autoimmune Disorders because of its capacity to control Immune cell function, cytokine synthesis, and Antioxidant defenses.

Though more investigation is required to completely comprehend its mechanisms and effectiveness in human. The data that is now available indicates that *Bhallataka* might be a useful supplement to the conventional therapy regimen for autoimmune diseases.

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