International Journal of Science and Research (IJSR)
ISSN: 2319-7064
SJIF (2020): 7.803

# Role of Devdarvyadi Ghanavati as Immunity Booster in Amavata

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**Abstract:** ***Rheumatoid Arthritis is chronic, immuno - inflammatory systemic disease that affects synovial joints with extra - articular manifestations. The clinical presentation of Amavata described in Ayurvedic verses closely resembles Rheumatoid arthritis. The word Amavata is derived from word Ama and Vata. Vitiated Ama and Vata due to various factors involves Koshtha, Trika, Sandhi and creates joint pain, loss of appetite, indigestion, stiffness of joints, swelling in joints, weakness, heaviness in chest region. This condition can be said to be as Amavata. Devdarvyadi Ghanawati as mentioned in Amavata rogadhikarin Bhaishajyaratnavali. The Action of Devdarvyadi Ghanawati as immunity booster is reviewed in this study.***

**Keywords:** Rheumatoid Arthritis, *Amavata*, *Devdarvyadi Ghanavati*, Immunity

## 1. Introduction

Rheumatoid arthritis (RA) is chronic, immuno - inflammatory systemic disease that affects synovial joints with extra - articular manifestations. Bilateral, peripheral symmetrical joint involvement with early morning stiffness is the characteristic feature of RA. The Rheumatoid Factor (RF) is present in sera of approximately 75% patients [1].

The primary event is inflammation of the synovium which is immunologically mediated. The putative antigen is presented by an antigen presenting cell like macrophage to the CD4 helper cell. This event leads to release of interleukin - 2 (IL2) which amplifies helper T cell response by positive feedback mechanism. Cytokines like IL - 4, IL - 6 and tumor necrotic factor - alpha (TNF - α) also amplify and perpetuate inflammation. These cytokines stimulate activation, proliferation and differentiation of B cell into plasma cells which produce antibodies against Fc fragments of IgG called the rheumatoid factor [2].

The clinical presentation of *Amavata* described in Ayurvedic verses closely resembles Rheumatoid arthritis. The word *Amavata* is derived from word *Ama* and *Vata* [3].

Vitiated *Ama* and *Vata* due to various factors involves *Koshtha, Trika, Sandhi* and creates pain in joints, loss of appetite, indigestion, stiffness of joints, swelling in joints, weakness, heaviness in chest region these are the symptoms of*Amavata* [4].

Following are signs and symptoms of *Amavata* [5]

- Pain and inflammation at joints (one or more joints)
- Scorpion bite like (*vrischikadanshvatvedana*)
- Loss of appetite
- Indigestion
- Fever
- Feeling of heaviness in body
- Disturbance in sleep
- Pain in chest region
- Constipation

*Devdarvyadi Ghanawati*is described in *BhaishjyaRatnavali* [6]

Contents of *Devdarvyadi Ghanawati* are as follows [7]:

| S. No | Contents | Latin Name |
|---|---|---|
| 1 | *Devdaru* [8] | Cedrus Deodara |
| 2 | *Vacha* [9] | Acorus Calamus |
| 3 | *Musta* [10] | Cyprus Rotundus |
| 4 | *Nagar* [11] | Zingiber Officinale |
| 5 | *Ativisha* [12] | Aconitum Heterophylum |
| 6 | *Haritaki* [13] | Terminalia Chebula |

**Devdaru [14]:** It consist of dried heartwood of *Cedrus deodara*.
*Rasa: Tikta*
*Guna: Laghu, Snigdha*
*Virya: Ushna*
*Vipaka: Katu*
*Karma: Vatahara, Kaphahara, Dushtavranashodhak*

**Mode of Action:** Volatile oil of cedrus deodara at a dose 50 and 100mg/kg significantly inhibit neutrophil adhesion to nylon fibres and also inhibit type III hypersensitivity reaction i. e., arthus reaction induced by methylated bovine serum albumin and it also inhibit the sheep erythrocytes and oxazolone induced delayed type hypersensitive reaction [15].

**Vacha [16]:**
*Rasa: Katu, Tikta*
*Guna: Laghu, Tikshna*
*Virya: Ushna*
*Vipaka: Katu*
*Karma: Balances Kapha and Vata dosha*
*Prabhava: Medhya*

**Mode of Action:** In vitro immunomodulatory property of the ethanol extract of AC rhizome was evaluated. The extract was found to inhibit antigen (purified protein derivative) stimulated human peripheral blood mononuclear cells. Intracytoplasmic interferon - c (IFN - c) and expression of cell surface markers, CD16 and HLA - DR, on human peripheral blood mononuclear cells were not affected

on treatment with AC extract, but CD25 expression was down regulated (Mehrotra et al., 2003) [17].

**Musta [18]:**
*Rasa: Tikta, Katu, Kashyay*
*Guna: Laghu, Rooksha*
*Virya: Sheeta*
*Vipaka: Katu*
*Karma: Balances Kapha and Pitta*

**Mode of Action: [19]**The anti - inflammatory, antiarthritic, analgesic and anticonvulsant (for treatment of epilepsy) effect of essential oils of C. rotundus. The anti - inflammatory activity was determined using carrageenan - induced paw oedema in Swiss albino rats. A dosage of 500 mg/kg was found to be comparable to the control (indomethacin 10 mg/kg). The aqueous, ethanol and ether extracts of C. rotundus showed good activity at 400 mg/kg with the ethanol extract exhibiting best inhibitory activity at 65.4%. These studies validate the use of C. rotundus as an anti - inflammatory drug in traditional medicine.

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**Nagar [20]:**
*Rasa: Katu*
*Guna: Guru, Rooksha, Teekshna*
*Virya: Ushna*
*Vipaka: Madhura*
*Karma: Balances Kapha*

**Mode of Action**: [21] Inflammation is a complex immune process and various mediators such as interleukin - 1 (IL1), tumour necrosis factor (TNF) and antiinflammatory cytokines involve in this process. Currently non steroidal anti - inflammatory drugs are commonly used to treat the inflammation but this drug shows an adverse side effect and gastric ulcer. Various medicinal plants and their constituents have shown a vital effect in the prevention of inflammatory process. Earlier study has shown that ginger oil (33 mg/kg), administered orally to rats for 26 days, showed significant repression of paw and joint swelling associated with severe chronic adjuvant arthritis [29]. Ginger also shows a vital role in the suppression/inhibition in synthesis of pro - inflammatory cytokines such as IL - 1, TNF - α, and IL - 8 [13, 30, 31]. Another finding revealed that, the elevated expression of TNF - α in liver cancer rats was blocked when treated with ginger extract (100 mg/kg body weight) [32]. In addition to that, Ginger play a role in the inhibition of COX and 5 - lipoxygenase, essential for arachidonate metabolism, and down - regulating the induction of inflammatory genes. [21]

**Ativisha [22]:**
*Rasa: Katu, Tikta*
*Guna: Laghu, Rooksha*
*Virya: Ushna*
*Vipaka: Katu*
*Karma: Balances tridosha specially Kapha and Pitta*

**Mode of Action**: The immunomodulatory activity of ethanolic extract of A. heterophyllum tubers along with other medicines of the Ayurveda and Unani systems of medicine were investigated on delayed type hypersensitivity (DTH), humoral responses to sheep red blood cells, skin allograft rejection and phagocytic activity of the reticuloendothelial system in mice. It was found that the extract appeared to enhance the phagocytic function and to inhibit the humoral component of the immune system. The results obtained from these preliminary studies show that, A. heterophyllum has immunomodulatory activity, which could possibly lead to new immunomodulating agents of herbal origin [23].

**Haritaki:**
*Rasa: Madhura, Amla, Katu, Tikta, Kashaya*
*Guna: Laghu, Rooksha*
*Virya: Ushna*
*Vipaka: Madhura*
*Karma: Balances Tridoshas*

**Mode of Action:** Crude extract ofTerminaliachebula stimulated cell - Mediated immune responseinexperimental amoebicliver abscess in golden hamsters, aqueous extract ofTerminaliachebula produced an increase in humoralantibody titer and delayed type hypersensitivity in mice.

## 2. Discussion

Here the contents of devdarvyadighanavati are elicited on the basis of their active principles and its immunomodulatory and anti - inflammatory actions are studied. The Contents of *Devdarvyadi Ghanavati* are as follows: *Devdaru, Vacha, Musta, Nagar, Haritaki, Ativisha.* The volatile oil of Cedrus deodara significantly shows neutrophil adhesion and also inhibit type III hypersensitivity reaction. Theimmunomodulatory property of the ethanol extract of Acorus Calamus rhizome was evaluated, Intracytoplasmic interferon - c (IFN - c) and expression of cell surface markers, CD16 and HLA - DR, on human peripheral blood mononuclear cells were not affected on treatment with AC extract, but CD25 expression was downregulated. It was found that the extract of Aconitum Heterophylum appeared to enhance the phagocytic function and to inhibit the humoral component of the immune system. The results obtained from these preliminary studies show that, A. heterophyllum has immune - modulatory activity, which could possibly lead to new immune - modulating agents of herbal origin. ThusDevdarvyadiGhanavati can be used as an immunity booster and also useful in *Amavata.*

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