



# AYUSH: International Research Journal of Ayurveda Teachers Association

Journal Home Page: [www.airjata.org](http://www.airjata.org)

Open  Access Full Text Article

Review Article

## Title of Article: Role of Rasayanas as Immunomodulator and Antioxidant: A Conceptual Study

**Santosh N. Belavadi**

MD. Ph.D Professor & H.O.D Department of P.G Studies in Kayachikitsa, D.G.M Ayurveda Medical College, Hospital & Postgraduate, Ph.D Studies and Research Centre Gadag-582103 Karnataka

### Article Info:

#### Article History:

Received: 10 January 2023

Accepted: 26 Feb 2023

Published: 1 April 2023

#### Address for Correspondence:

Dr. Santosh N. Belavadi.

D.G.M Ayurveda Medical College,  
Hospital & Postgraduate, Ph.D Studies  
and Research Centre Gadag - 582103  
Karnataka

Email- [hardikasnb@gmail.com](mailto:hardikasnb@gmail.com)

ISSN No.: 2583-5971

### ABSTRACT

The free radicals are formed because of improper metabolism results production of the toxins in the body because of that may produce different condition which may be thought of Amavisha (Free radicals). Ultimately may lead to destruction of cell and weakened body tissues. To overcome of this Different Rasayana (rejuvenation therapy) may help in dissolving free radicals and boost up the cells and body tissue. This Article enlightens the concept of Rasayana, Importance, Kayakalpa (renewal of body), Benefits, Rasayana based on Age, Rasayana according to disease, Active constituents present in Rasayana and Immunomodulators etc.

**Keywords:** Rasayana, Kayakalpa, Free radicals, Antioxidants, Immunomodulator

### INTRODUCTION

Rasayanachikitsa is considered one among Ashtanga Ayurveda. Acharyas have explained many Rasayana, ingredients, method of preparation; dose and indications in different classics. The Rasayana yoga/ Kalpa or formulation consists of different ingredients different active principles present in plant stimulate immune mechanism example Ashvagandha Saponins and acylsteryl glucosides etc are active principles present. These are consumed both by healthy individual to maintain health and diseases person to treat disease.

To live healthy and happy to extend the aging process, to enhance the quality of life and to cure many diseases, Acharyas have explained different types of

Rasayana which act as Antioxidants and prevent damage to the body's cells.

This article highlights about basic aspects of Rasayana, about Free radicals, Immunomodulator, some of the drugs like Amalaki, Guduchi, Haritaki, Pippali, Ashvaganadha, different active principles present, each active principle and its action and Mechanism of Immunomodulators has been discussed.

#### Definition of Rasayana<sup>1</sup>:

- Rasayana is one which nourishes Rasaraktadisaptahatu (healthy body tissues) (Shashtanam-Prashastha)
- The Medicine which cures old age as well as diseases is called rasayana

- Rasayanatreatment is one which gives strength to the body, sense organs and teeth eliminates skin folding , Alopecia and graying of hairs and hair fallis known as Rasayana . Ha.Sam. 1/22.Acharya Yogaratnakara added Chakshushya.

#### Classification of Rasayana:

1. a. Kutipraveshaka  
b. Vatatapika
2. a. Medhya Rasayana  
b. Dhronipraveshika  
c. AcharaRasayana
3. a. Shodhana (Does doshashodhana)  
b. Shamana (Nagabalarasayanadi)
4. a. kamyā (Bala-Buddhi nVruddhi)
  - i. ShreeKamyā(Lavanyyakara)
  - ii. Medhakamyā
  - iii. Ayukamyā
- b. naimittika (Vyadhihara)
- c. Ajasruk (Ksheera, Ghritaetc)

#### Importance of Rasayana<sup>2</sup>:

There are two types of treatments explained by Acharya Charaka one which enhances and maintain health of a person and another which cures the disease of the patient. Chakrapani commented on roganut as Jwaradiharam.

#### RasayanaBenefits<sup>3</sup>:

Deerghayu, Deha indriya balakara, Smruti, Vaksiddi, Medhakara, Pranati (loka vandyata), Arogya Mana & Shareera, Vrushyatam, Taruna vāya, Kanti, Prabha, Varna and Smruti. Chakrapani commented on pranati as lokavandya means the person will be identified in the society.

#### Poorvakarma for Rasayana prayoga<sup>4</sup>:

**Importance of Shodhana:** The person has to undergo Vamanadi Samshodhana karma and later when he attains normal strength, Rasayana is advised.

“Without Shodhana if Rasayana is administered it becomes useless like ‘Maleenavastrerangaivaphalaha’ AcharyaBhavamishra and Yogaratnakara also opine the same. After purification of the body Rasayana is advocated.

#### Hriyamanadhathu avastha<sup>5</sup>:

During 6<sup>th</sup> decade of life Loss of vision and Acharya Vagbhata said Netrashakti that to during 7<sup>th</sup> decade of lie. In such stage medicines like Chakshushya and Saptamritaloḥa are best Rasayana

#### Rasayana as Kayakalpa (Renewal of body):

Kayakalpa (renewal of body) is a specific field of practice profoundly honoured within the Ayurveda and Siddha medical systems of India as the ideal treatment for Health, Vitality, Longevity and higher consciousness. Kayakalpa means transformation of body. Kayakalpa (renewal of body) means specific set of different treatment modalities in Vedic literature and in classicwhich can reverse the physical degeneration caused by age factor. Kayakalpa treatment-transforms old cells into new one. Kayakalpa is form of treatment which restores the aged and debilitated body to its pristine youth and vigor, potentialities of the senses organs and gives good health. Kayakalpa adds new life to years and new years to life. In ancient time Acharyas use to take Kayakalpa treatment to rejuvenate and to live longevity. In Puranas Shukracharya used to treat old age with Kayakalpatreatment

#### Telomere Testing- To test the Patient Age:

Telomere test can determine a person's or patient's age. It is blood test which reveals about individual's health,

#### Rasayana in Netravikara:

In case of Mandadhrishti Dhrishti becomes sharp sight

- Vachaghrita Rasayana<sup>6</sup> Dose: 10ml two times before food, Anupana: Milk
- Narasimhachurna<sup>7</sup>- Dhrishti becomes sharp sight
- Dose: 2gram three times Anupana: Milk
- Vijayasaradi Rasayana- Dhrishti becomes sharp sight Su. Chi. 27/10
- Amalakiras Rasayana<sup>8</sup>- Timira
- TriphalaRasayana- Dhrishtivardhaka
- Kalyanakaraka/ Rasayanadikara
- Lashunarasayana- Timira, Naktandya Dose: 4,6,8 phalavara, madhyama, pravaramatra respectively.
- Anupana: Jala, Ksheera, Takra, Ka. Sam. Kalp.
- ShivagutikaRasayana-Peenasa, Mukharoga, Netraroga, Shiroroga Dose: 6grams, Anupana: Ksheera, Mamsarasa, Madu, Sheetajala C.D. Rasayanadhikara
- Varshika Rasayana<sup>9</sup>- Duradhrishti, Chakshushya
- Dose: 6-12grams Anupana: Water
- Mayuradhyaghrita<sup>10</sup>: Netraroga,Karnaroga,
- Dose: 10grams, Anupana: Milk, Warm water
- Acharya Vagbhata said Madhutailikabasti-Rasayana and Chakshushya. A.S.Kal.Si. 4/27-28

#### Rasayana in Pranavahasrotas

In Swarabedha, Vaishvarya, Kasa, Swasa and Peenasa ShatapakaVacharasayana, HaritakiRasayana - Dose: 10ml two times before food Anupana: Milk, Su.Chi. 28/7, Cha.Chi.1/1/35

Pippalirasayana and Vardhamanapippali Rasayana<sup>11</sup>-

Vaishwarya, Swarabedha

Dose: 5, 7, 8, 10 Pippali and 3, 6, 10 Pippali.

Anupana: Milk, Ghee, Honey, Ksheera

Vyaghriharitakirasayana- Kasa, Swasa, Peenasa,

Swarakshaya Dose: 5-10gram, Anupana: Warm water,

Ksheera Bai. Rat.15/161-172

Agastyaharitakirasayana- Kasa,Swasa, Peenasa

Dose: 5-10 gram, Anupana: Warm water

A.H.Chi.31/125-128

Chyavanaprasharasayana<sup>12</sup>- Kasa, Swasa and

Swarakshaya, Dose: 12-24grams, Anupana: Water, Milk

Kusmandarasayana<sup>13</sup>- Swarabedha, Dose: 5- 10 gram,

Anupana: Milk, Water

Saraswatarishta- Swarakshaya- Dose: 12-24ml,

Anupana: Water Bai.Rat. Rasayanaprakarana

Tilarasayana<sup>14</sup>- Danta becomes strong

Krishnatilarasayana- Danta becomes strong

Rasayana for Twakroga- Shivagutika,

Madhusnuhirasayana, Gandhakarasayana

In case of Smritikshaya-Medhyarasayana,

Vacharasayana, Tilarasayana, Bhramirasayana.

## RASAYANA IN PAEDIATRIC CONDITION:

### Medhya Rasayana (Nootropic herbs)<sup>15</sup>

Bramhi, Mandukparni, Triphala, Chitraka, Vacha, Shatapushpa, Shatavari, Nagabala (any one) with honey and ghrita. Panchagavyaghrita, Kalyanakaghrita,

Bramhighrita. Triphala, Bramhi, Bala, Atibala,

Chitraka is given along with honey and ghrita as

Anupana. Balashuskaroga<sup>16</sup>-Yashtyadi ghrita -

Brimhana, Balakari Balakadourbalya<sup>16</sup>-

Ashvagandhaghrita Pustikara, Varnya, Balya and

Sukakaram. Bhudhijadya -Mahasarasvatichurna

VakpatiSahasragranthadhari, and Bhudhijadyaparam

hitam<sup>16</sup>.

### Immunomodulator and Antioxidant effect<sup>17</sup> :

Immunomodulator means substance that modifies the immune system to help the body to respond against disease. They work by stimulating or suppressing the immune system. The modulation of immune system by various medicinal plant products are called as herbal Immunomodulator.

### Antioxidant

A substance (such as beta-carotene or Vitamin C) that inhibits oxidation or reactions promoted by oxygen, peroxides, or free radicals.

**Free radicals:**Free radicals are like robbers which are deficient energy. Free radicals attack and snatch energy

from the other cells to satisfy them. "In the body free radicals are high-energy particles that wildly damage cells".

### Factors of Immune system

Lymphocytes	Lymph
Immunoglobulin	Spleen
Cellular immunity	Thymus
Humoral immunity	

### Immunomodulator properties of herbal plants

Multiple immunomodulatory actions including Cytokine secretion, Immunoglobulin production and Histamine release cellular co-receptor expression Lymphocyte Phagocytosis, promotion Proliferation

### Mechanism of Immunomodulators:

The main target- macrophages (A large phagocyte; some are fixed and other circulate in the blood stream). Stimulation of Phagocytosis and activation of macrophages. killing of pathogens by producing effector molecules like free radical and nitric oxide and cytokine production. These cytokines may have direct function of other immune cell population such as activation of natural killer cell mediated cytotoxicity or generation of cytotoxic T- lymphocyte.

### Antioxidant:

Prevents ROS (reactive oxygen species), remove ROS before cell damage, Aids the human body Natural defence mechanism, repair oxidative damage, Eliminate the damaged molecule, Prevent mutations (an organism that has characteristics resulting from chromosomal alteration)

### Active principles:

#### Amalaki:<sup>18, 19, 20</sup>

Chemical constituents: Ascorbic acid, tannins, trigalloyl glucose, flavanoids etc.

Root: ellagic acid, lupeol, oleonic aldehyde.

Bark: tannin

Fruit: Vit-C, linolic acid, ascorbic acid, flavonoids, phyllemblic acid, acetic acid, salts.

Ellagic acid, as a powerful antioxidant present in E. officinalis (Amalaki).

#### Haritaki:

Glycosides have been isolated from haritaki, including the triterpenes, chebulosides, gallic acids chebulin, as well as other phenolic compounds and Chebulic acid.

Active principles present in Haritaki- Like Chebulin, chebulagic, ferulic, vanillic acid have antioxidant and

immunomodulatory activities thus capable of protecting cells from oxidative damage.

#### **Guduchi:**

Chemical constituents: Alkaloids, glycosides and phenolics are having Anti-oxidant property.

The active principles of Guduchi (*Tinosporacordifolia*), gave rise to significant increase in IgG antibodies in the serum.

#### **Pippali:**

Chemical constituents: Alkaloids and amides: The fruit of *P. longum* contains piperine, together with methyl, iperonaline, piperettine, asarinine, pellitorine, piperundecalidine, piperlongumine,

Alcoholic extract of the fruits and piperine are cytotoxic found protection against externally induced stress.

#### **Ashvagandha:**

Chemical constituents: Alkaloids, saponins, glycosides, withanolides, steroidal lactones (withanolides, withaferins).

The active principles like sitoindosides VII-X and withaferin A (glycowithanolides), having antioxidant activity and observed as increased enzymatic activity in brain.

#### **Major Active constituents present in Rasayana drugs:**

**Alkaloids:** Alkaloids serve as defence chemical against herbivores and to lesser defence against bacteria, Fungi and viruses.

**Tannin:** Tannins are powerful antibiotic that can defend the plant tissue. The antioxidant activity tannins possess their capacity to act as oxidizable substrates and free radical scavengers to protect cellular constituents by oxidation.

**Saponin:** Saponins are one of the most numerous groups of plant natural products. They serve a range of ecological roles including plant defence against diseases and herbivores.

**Flavonoids:** Any of a large class of plant pigments having a chemical structure based on or similar to flavone. They also act as antioxidant.

**Immunomodulator:** Immunomodulator means substance that modifies the immune system to help the body to respond against disease. Inhibits Mast cells, Stimulates Antibody production. Stimulates lymphocyte proliferation, Decreases serum level of Allergen specific IgE and enhances Phagocytic activity of monocyte.<sup>18,19,20</sup>

**Results: Table showing Role of Active principles and their action:**

SL.NO.	Drugs	Chemical constituents/ Active principles	Action
1.	Amalaki	Ascorbic acid, tannins, trigalloyl glucose and flavanoids etc.	Ellagic acid, as a powerful antioxidant present in <i>E. officinalis</i> , has the ability to repairs the chromosomal abnormalities.
2.	Haritaki	Chebulin, chebulagic, ferulic, vanillic acid	Antioxidant and immune boosting thus capable of protecting cells from oxidative damage.
3.	Guduchi	Alkaloids, glycosides and phenolics are having Anti-oxidant property.	The active principles of Guduchi ( <i>Tinosporacordifolia</i> ), gave rise to significant increase in IgG antibodies in the serum.
4.	Ashvagandha	Alkaloids, saponins, glycosides, withanolides, steroidal lactones (withanolides, withaferins).	The active principles like sitoindosides VII-X and withaferin A (glycowithanolides), having antioxidant activity and observed as increased enzymatic activity in brain.

## DISCUSSION

The drug Amalaki (Indian gooseberry) is consists of tannins and flavanoids are the active principles

Flavonoids mediate their antioxidant effects by scavenging free radicals and chelating metal ions. They also act as antioxidant defence system in plant tissue.

Tannins are powerful antibiotic that can defence the plant tissue. The antioxidant activity tannins protect cellular constituents by oxidation.

Rasayanas act as Antioxidants which prevent damage to the body's cells. The free radical theory of ageing implies that antioxidants like Vitamin A, Vitamin C, Vitamin E, and Superoxide dismutase will slow the process of ageing by preventing free radicals from oxidizing sensitive biological molecules or reducing the formation of toxin. The probable action of Rasayana act at dosha level, nourishes body tissues, improves digestion and metabolism, and improves the micro-circulation (Srotoshodhaka). The action will be based on Rasa, Veerya and Prabhava.

## CONCLUSION

- Rasayana which keeps healthiness of the body tissues, which extends the Old age, cures diseases and enhances the quality of life, is Rasayana.
- Rasayanadrugs have the ability of protecting the body against external factor that induce diseases.
- Rasayanas they act as Antioxidant and immunomodulator as they consisting of different active principles they nourishes the body. Ex- Amalaki-Ascorbic acid.
- Different Rasayanas kalpas told in samhithagarnthas definitely act on Natural and Acquired immunity.

## REFERENCES

1. Kasinatha Shastri, editor Charakasamhita Chakrapanidatta with vidhyotini Hindi commentary of Chikitsasthana 1<sup>st</sup> chapter, 1<sup>st</sup> pada, 8<sup>th</sup> verse, Part-2, 1<sup>st</sup> edition 1970, Chowkambha Sanskrit series Varanasi. P.No.3
2. Kasinatha Shastri, editor Charakasamhita Chakrapanidatta with vidhyotini Hindi commentary of Chikitsasthana 1<sup>st</sup> chapter, 1<sup>st</sup> pada, 5<sup>th</sup> verse, Part-2, 1<sup>st</sup> edition 1970, Chowkambha Sanskrit series Varanasi. P.No.2
3. Ambikadatta Shastri Bhaishajya Ratnavali with Vidyotini Hindi vyakhya, vimarshaparishishta sahita, Rasayanaprakarana 4<sup>th</sup> verse Published by Choukumbha Sanskrit Bhavana 14<sup>th</sup> edition.P.No.1102
4. Vaidya Sri Lakshmiopathi Shastry Yogaratnakara Vidyotini Hinditeeka Rasayanadhikara 1<sup>st</sup>- 2<sup>nd</sup> verse 8<sup>th</sup> edition, 2004. Chauwkambha Samskritasamsthana Varanasi. P.No.498
5. Pandit Parashuram Shastryvidyasagar Sharangadhara, Sharangadhara Samhita, prathamakhanda Kasirams Gudarthadipika 4<sup>th</sup> chapter 20<sup>th</sup> verse with Adhamalla'sdipika and, 5<sup>th</sup> Edition 2002, Chaukambha Orientalia Varanasi,
6. KavirajAmbikadattaShastry, Sushruta, Chikitsasthana 28<sup>th</sup> Chapter, 17<sup>th</sup> verse Ayurveda tatvasandipikavyakhyana 11<sup>th</sup> edition1997, Chowkambha Sanskrit SansthanVaranasi. P.No.125
7. Vangasena, Vangasenasamhita, Rasayanadhikara 424-429<sup>th</sup> verse Jain Sankaralji Vaidya, Mumbai KhemarajSrikrishnadas publishers; P.No. 948
8. Vaidya Sri Lakshmiopathi Shastry Yogaratnakara Vidyotini Hinditeeka Rasayanadhikara 8<sup>th</sup> edition, 2004. Chauwkambha Samskritasamsthana Varanasi.P.No.501
9. The Ayurvedic Formulary of India Part-1, 2<sup>nd</sup> edition 2003, Government of India Ministry of Health and Family Welfare Department of Indian System of Medicine and Homeopathya.
10. Ambikadatta Shastri BhaishajyaRatnavali with Vidyotini Hindi vyakhya, vimarshaparishishta sahita 65<sup>th</sup> chapter 77<sup>th</sup>-80<sup>th</sup> verse11<sup>th</sup> edition 1997, Published by Choukumbha Sanskrit Bhavana Varanasi. P. No.1023
11. Vaidya Shodala Gadanigrahavidyotini Hindi edited by Indradeva Tripathy and Gangashaya Pandeya Rasayanadhikara verse Chauwkambha Sanskrit Series Varanasi. Reprint 2005.
12. Kasinatha Shastri, editor Charakasamhita Chakrapanidatta with vidhyotini Hindi commentary of Chikitsasthana 1<sup>st</sup> chapter, 1<sup>st</sup> pada, 70-74<sup>th</sup> verse, Part-2, 1<sup>st</sup> edition 1970, Chowkambha Sanskrit series Varanasi. P.No.2
13. The Ayurvedic Formulary of India Part-1, Taila 2<sup>nd</sup> edition 2003, Government of India Ministry of Health and Family Welfare Department of Indian System of Medicine and Homeopathya.
14. Brahmanand Tripathi Vagbhata, AsthangahridayaUttarasthana39<sup>th</sup> chapter, 158<sup>th</sup> verse

- Choukambha Sanskrit SansthanDehli, Reprint 2003. P.No.1202
15. Vriddajivaka, Kashayapasamhita edited by Pandit Hemaraja Sharma Lehanaprakarana, 29-37<sup>th</sup> verse, Varanasi: Choukambha Sanskrit Sansthan 8<sup>th</sup> edition 2002.
  16. Dr.Indradeva.Tripathi, Rasaratna Sammucchaya Balaroga, 147<sup>th</sup> and 149<sup>th</sup> verse 2<sup>nd</sup> edition 2003 Choukambha Sanskrit Bhavana Varanasi. P.No. 302
  17. <https://www.herbal immunomodulator-in>
  18. G.S.Lavekar, M.M.Padhi, A.K.Mangala at.al, Database on Medicinal plants used in Ayurveda and Siddha, Vol 1- 8, 1<sup>st</sup> edition: 2002, reprint-2008,published Central Council for Research in Ayurveda and Siddha department of AYUSH ministry of health, and family welfare Government of India.
  19. K.M Nadakarni editor Indian Material Medica A.K. Nadakarni reprint 1989, Bombay popular prakashana.
  20. P.V. Sharma editor Dravyagunavignana, Vol-2 Reprint-1999, Chowkambha Bharati Academy Varanasi.

**How to cite article:**

Santosh N. Belavadi. Role of Rasayanas as Immunomodulator and Antioxidant: A Conceptual Study. AYUSH: International Research Journal of Ayurveda Teachers Association. 2023;2(1)52-57.