

**RASAYANA CHIKISTA: ANTIAGEING THERAPY OF AYURVEDA**Bagde A. B.\*<sup>1</sup>, Sawant R. S.<sup>2</sup>, Nikumbh M. B.<sup>3</sup>, Kale A. B.<sup>4</sup>, Dhimdhime R. S.<sup>5</sup><sup>1</sup>Assistant Professor, Dept. of Sanskrit Samhita Siddhant, Govt. Ayurved College, Osmanabad, India<sup>2</sup>Assistant Professor, Dept. of Rasa-Shastra & Bhaishajya Kalpana, Govt. Ayurved College, Nanded, M.S., India<sup>3</sup>Professor, Dept. of Rachana Sharir, Govt. Ayurved College, Osmanabad, M.S., India<sup>4</sup>Professor, Dept. of Balrog, Govt. Ayurved College, Osmanabad, M.S., India<sup>5</sup>Professor, Dept. of Sharir Kriya, Govt. Ayurved College, Osmanabad, M.S., India

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**ABSTRACT**

Ayurveda is the ancient system of Medicine in the world. Ayurved, the science of life deals with every aspect of life. Ayurveda has two aims i.e. prevention and promotion of health and secondly cure from the disease. Rasayana may be employed for fulfilling both of them i.e. protection and promotion of health and curing the diseases. Rasayana is one of its eight branches being practiced since time immemorial. Rasayana therapy has been described in Ayurved as a systematic and scientific medical discipline. Rasayana drugs are those medicines which are capable of imparting superior Rasas and Dhatus to the body and toning up the system of healthy persons. Rasayana aid in increasing natural immunity, enhancing general wellbeing, improving the functioning of all fundamental organs of the body and keep the signs of early aging at bay. The main purpose of Rasayana therapy is to impede the aging process and to delay the degenerative process in the body. Rasayana is the term given to special herbs, fruits or any other form of medication that are known to promote positive health and longevity. After taking Rasayana we can learn how to maintain a balance between the material and spiritual aspects of life and help others also to understand it. This will help in establishing the peace, happiness and love.

**Keywords;** Rasayana Chikitsa, Rejuvenation Therapy, Jara-Chikitsa, Anti Ageing Therapy

**INTRODUCTION**

Ayurveda has two aims i.e. prevention and promotion of health and secondly cure from the disease.<sup>1</sup> Everyone wants to give the impression of being young forever and increase life-span by staying healthy.<sup>2</sup> But various cells and tissues of the body undergo changes as age advances. So it is necessary to rejuvenate the body systems for a better harmony of the Body, Mind and Soul. Rasayana or vitalizes, as they are called, do exactly the same.

Rasayana Chikitsa is also known as Rejuvenation Therapy. It is one of eight branches of Ayurveda, described under Jara-Chikitsa, which aims at achieving a long and healthy life. Ayurveda has philosophy to establish good health rather than just curing diseases. Rasayana is an active step towards achieving this. Rasayana claims that it retards the process of aging. It basically boosts the Oja (vital force of life) and the immune system. It helps the person to maintain good health. Most of these Rasayana can be used regularly as a food for maintaining balanced mental and physical health. They may be used either alone or along with other modalities of treatment as an adjuvant.

**Definition**

The word 'Rasayana' is composed of two words i.e. Rasa and Ayana. 'Rasa' means fluid or juice<sup>3</sup> and 'Ayana' means Pathway<sup>4</sup>. Hence the word 'Rasayana' means 'path of the juice'. It also means by which one gets the excellence of Rasa is known as Rasayana. Literally the technical term Rasayana refers to the means of obtaining the optimum nourishment to the Dhatus.

According to Acharya Sushruta, the substances which decreases the aging process increases the longevity and increases the mental as well as physical strength and which destroys the disease process is called as Rasayana.<sup>5</sup>

According to Acharya Charak, the substance which invigorates a healthy person by producing the best quality of Rasa, Rakta dhatu and other dhatus are called as Rasayana.<sup>6</sup> In the Ayurvedic text books, definition of Rasayana in Ayurveda is described as: "Drug, diet and regimens which destroys the old age and disease is called Rasayana." That means by taking Rasayana we always remain healthy and young. This did not mean that you will not die. It means that even when you are in your 80's or 90's you are able to perform your normal duties and you don't have to depend on others. According to Ayurveda, rejuvenation takes place so that a person can become healthy and explore the spiritual aspect of life.

**Classification of Rasayana**

There are various classifications for Rasayana therapy. Some of them are as follows-

**As per scope of use-**

**Kamya Rasayana** - Kamya Rasayana is used to fulfill a wish or desire or to serve a special purpose (Kama - desire). It is also used to promote general physical & mental health<sup>7</sup>. It is of three types:

- Prana kamya Rasayana** – It is used for achieving or maintaining the best quality of Prana (life energy) in the body.
- Medha kamya Rasayana** - It is used for enhancing the memory and intellect.
- Srikamya Rasayana** - Promoter of complexion

**Naimittika Rasayana** - Naimittika Rasayana is given to combat or balance a specific cause, which is causing a disease in the body. Some examples of this Rasayana are Dhatri Rasayana, Mandookaparni Rasayana, Brahmi Rasayana and Triphala Rasayana.

#### As per method of use -

1. **Kuti-praveshika Rasayana** – Which can be administered by keeping the individual inside a cottage. It is also called as In-door therapy<sup>8</sup>
2. **Vatatapika Rasayana** – This can be administered even if the individual is exposed to the wind and the sun. It is also called as Open air therapy or Out-door therapy<sup>8</sup>

#### As per contents of Rasayana-

1. **Aushadha Rasayana** - Based on drugs and herbs
2. **Ahara Rasayana** - Based on diet and nutrition
3. **Acharya Rasayana** - Based on conduct and behaviour

There are two types of Rasayana therapy according to administration

#### Kutipraveshika Rasayana

Kutipraveshika is made up of two words i.e. Kuti meaning "A hut or cottage"<sup>9</sup> and Praveshika means "To enter"<sup>10</sup>. In this method, the person has to reside in a specially prepared cottage for a long period while receiving various Rasayana herbs. Elaborate arrangements are made there. The person has to strictly follow the prescribed diets and other instructions given by the physician. He should undergo Panchakarma therapy before taking the rejuvenation. Therefore this type is not suitable for a person who has to carry on his profession or family responsibilities. This method strictly abides by the laws of nature; positive results can be obtained in shorter period of time. Before taking this form of rejuvenation therapy, the person has to undergo Panchakarma therapy.<sup>11</sup>

#### Construction of Kuti

Kuti should be constructed in a good site inhabited by the king, physician, Brahmins, saints and those who perform virtuous acts and place well ruled and freed from disturbances. The place having adequate water storage. The kuti should face towards the east or the north direction. It should have three concentric courts 'Garbhagrihas' (inner homes) and should be furnished with narrow ventilators. It should not be very tall, long or low. The wall should be thick and it should be pleasant to reside in all season. It should be well lighted and pleasant to the mind and be free from undesirable noise etc. The most important point in the construction is 'Ritu Sukha' that means heat, cold and light should be adequate. The seasonal changes outside should not affect the Kuti inside.<sup>12</sup>

The Kuti should be surrounded by compound wall, having lot of useful trees and medicinal herbs grown in the compound. The outer Griha should have its entrance in east, the centre Griha should have the entrance in west and the inner one should have the entrance in north. It is designed so because north is the conceptual abode of Lord of Medicinal herbs. Also one can easily enter the inner house clockwise. Whatever may be the style it should be in such a way that there will be only minimum exposure to light and wind. None other than the physician and patient should be allowed to enter the kuti during the course of treatment. Toilet and washing facilities should be there inside the kuti. Only warm water should be used for all needs. If needed, a believable attendant can be employed. The physician should either stay there or come and visit the patient quite often.

#### Vatatapika Rasayana

Vatatapika Rasayana, on the other hand, does not bear stringent rules and can be practiced in your routine life. This is rightly indicated in the name "Vatatapika", where "Vata" means air<sup>13</sup>, and "atapa" means heat or sun<sup>14</sup>. So this is a method of taking Rasayana, while a person remains exposed to air and heat and this type can be taken while working and doing your normal routine work.

Because of scarce availability of time, resources and finances, staying in health resorts may not be suitable for some people. Therefore this method is best and suitable for those people. It comprises of different types Ayurvedic herbal preparations. Vatatapika Rasayana can be given for even without undergoing the Panchakarma therapy.

#### Importance of Shodhana

It is very essential for a person who wishes to undergo Rasayana therapy to undergo samshodhana as a preparatory procedure. Rasayana is more effective when it is given after Panchakarma therapy.<sup>15</sup> The person is strongly advised to undergo Snehana, Swedana & Panchakarma i.e. Vamana, Virechana, Basti, Nasya, Rakta-mokshana. The samshodhana process detoxifies both body and mind. This helps in the initial detoxification of the body and prepares it for the Rasayana regime. A detoxified body and mind is like a clean cloth which readily absorbs the color in which it has been dipped unlike a soiled cloth which looks soiled even after coloring with best colors.<sup>16</sup>

But when a person is not eligible for samshodhana or is not able to get samshodhana then he can also consume Rasayana preparations which still boost the qualities of rassa in his body.

#### Benefits of Rasayana Therapy

According to Acharya Charak, a person undergoing Rasayana therapy attains<sup>17, 18</sup> -

- It enhances the intelligence, memory power, will power, body strength, skin luster, sweetness of voice and physical strength.
- It nourishes the blood, lymph, flesh, adipose tissue and semen and thus prevents chronic degenerative changes and illness. It gives freedom from chronic degenerative disorders like Arthritis and senile diseases.
- Rasayana is thought to improve metabolic processes, which results in the best possible biotransformation and produce the best-quality bodily tissues and eradicates senility and other diseases of old age.
- Helps to attain optimal physical strength and sharpness of sense organs.
- Rasayana which has marked action on reproductive organs and also nourishes Shukra dhatu
- Rasayana nourishes the whole body and improves natural resistance against infection by increasing Immunity power.
- Rasayana invigorates the body in general by sustaining the required balance between anabolism and catabolism.
- Rasayana Therapy which regulates the circulation of vital fluid and eliminates the waste materials, rejuvenate the nervous system and keep vigour and stamina.
- Prevents wasting of muscles, delays the ageing process, keeps strong bones, tendons etc. Prevents osteoporosis, improves whole body circulation, prevents graying of hair and provides good sleep and appetite.
- Rasayana Therapy keeps the body and mind pleasant.

**Some special preparations used as a Vatatapika Rasayana are as follows**

- Chyavanaprasha<sup>19</sup>
- Amalaki Rasayana<sup>20</sup>
- Haritaki Rasayana<sup>21</sup>
- Pippali Rasayana
- Vidanga Rasayana<sup>22</sup>
- Shilajitu Rasayana
- Brahma Rasayana<sup>23</sup>
- Loha shilajitu Rasayana.<sup>24</sup>

- Laziness
- indigence
- Triflers of medicine

The above seven types of persons are unfit to take Rasayana drugs on account of their respective ignorance, inactivity, poverty, vacillations, intemperance and inability to secure the genuine medicine<sup>25</sup>.

**Some Commonly Used Rasayana Herbs**

Rasayana brings about a striking improvement in the mental and physical health. Here is list of herbs used for Rasayana therapy and their actions<sup>26</sup> –

**Rasayana Therapy is contraindicated in person with following inadequacies**

- Intemperance

**Table 1: Decade wise ageing mentioned by Sharangdhara**

Age (Yrs)	Loss of impact	Useful Rasayan
1-10	Balyam (Childhood)	Vacha ( <i>Acorus calamus</i> ), Swarna bhasma,
11-20	Vridhhi (Growth & Development)	Ashwagandha( <i>Withania somnifera</i> ), Bala ( <i>Sida cordifolia</i> )
21-30	Chhavi (Luster/Complexion)	Amalaki( <i>Embelica officinalis</i> ), Lauha bhasma
31-40	Medha (Sharpness In Perception)	Shankhapushpi ( <i>Convolvulus pluricaulis</i> ), Jyotismati ( <i>Celastrus panniculatus</i> )
41-50	Twak (Skin)	Bhringraj ( <i>Eclipta alba</i> ), Priyal ( <i>Buchanania lanzan</i> ), Jyotismati ( <i>Celastrus panniculatus</i> )
51-60	Drishiti (Visual Acuity)	Triphala, Shatavari( <i>Asparagus racemosus</i> ), Jyotismati ( <i>Celastrus panniculatus</i> ) Saptamrut lauha
61-70	Shukra (Potency & Fertility)	Atmagupta ( <i>Mucuna prurita</i> ), Ashwagandha ( <i>Withania somnifera</i> )
71-80	Vikram	Amalaki ( <i>Embelica officinalis</i> ), Bala ( <i>Sida-cordifolia</i> )
81-90	Buddhi (Memory)	Brahmi ( <i>Centella asiatica</i> )
91-100	Karminidriya (Physical Capacities)	Bala( <i>Sida-cardifolia</i> ), Ashwagandha ( <i>Withania somnifera</i> )

**Table 2: Specific Rasayana [Herbal drugs & metallic preparation] for specific tissues**

Rasa	Draksha( <i>Vitis vinifera</i> ), Shatavari ( <i>Asparagus racemosus</i> ), Dates( <i>Phoenix sylvestris</i> )
Rakta	Amalaki( <i>Embelica officinalis</i> ), Bhringaraj( <i>Eclipta alba</i> ), Suvarnamakshik Bhasma
Mamsa	Masha, Ashwagandha( <i>Withania somnifera</i> ), Bala( <i>Sida-cordifolia</i> ), Kupilu ( <i>Nux vomica</i> ), Rajat bhasma
Meda	Guggulu, Shilajit, Haritaki ( <i>Terminalia chebula</i> ), Guduchi,
Asthi	Shukti bhasma, Kukkutandatwak bhasma, Vamsharochana,
Majja	Shankhapushpi, Loha bhasma, Swarna bhasma
Shukra	Kapikacchu ( <i>Mucuna prurita</i> ), Vidarikanda ( <i>Pueraria tuberosa</i> ), Shatavari, ( <i>Asparagus racemosus</i> ), Ashwagandha ( <i>Withania somnifera</i> ), Swarna bhasma, Ghee and Cow milk.

**Table 3: Rasayana [Drugs &Formulations] for specific channel-systems**

Respiratory System	Chyavanaprasha, Vardhaman pippli
Water Metabolism System	Fresh Ginger, Cardamom
Digestive System	Pippali ( <i>Piper longum</i> ), Bhallataka ( <i>Semicarpus anacardium</i> ), Haritaki, ( <i>Terminalia chebula</i> )
Circulatory System (lymphatic portion)	Draksha( <i>Vitis vinifera</i> ), Shatavari ( <i>Asparagus racemosus</i> ), Dates ( <i>Phoenix sylvestris</i> )
Circulatory System (blood portion)	Amalaki( <i>Embelica officinalis</i> ), Dhatri lauha, Bhringaraj ( <i>Eclipta alba</i> ), Suvarnamakshik Bhasma
Muscular System	Masha, Ashwagandha ( <i>Withania somnifera</i> ), Bala ( <i>Sida-cordifolia</i> ), Kupilu ( <i>Nux vomica</i> ), Rajat bhasma
Adipose System	Guggulu ( <i>Commiphora mukul</i> ), Shilajit, Haritaki, Guduchi
Skeletal System	Shukti bhasma, Kukkutandatwak bhasma, Vamshalochana,
Nervous System	Ashwagandha( <i>Withaniasomnifera</i> ), Loha bhasma Shankhapushpi ( <i>Convolvulus pluricaulis</i> ), Swarna bhasma
Reproductive System	Ashwagandha ( <i>Withania somnifera</i> ), Kapikacchu ( <i>Mucuna prurita</i> ), Shweta Mushali, Shatavari ( <i>Asparagus racemosus</i> ), Vidarikanda ( <i>Pueraria tuberosa</i> ), Swarna bhasma, Go- Ghrita ( <i>Butyrum departum</i> ) and Cow milk.
Urinary System	Punarnava ( <i>Boerhavia diffusa</i> ), Gokshura ( <i>Tribulus terrestris</i> )
Excretory System	Kutaj( <i>Holarrhena antidyserterica</i> ), Vidanga ( <i>Embelica ribs</i> ), Triphala
Sweat System	Basil, Kupilu ( <i>Nux vomica</i> )
Menstrual System	Ashoka( <i>Saraca asoca</i> ), Lodhra ( <i>Symplocos racemosa</i> ), Shatavari( <i>Asparagus racemosus</i> )
Lactation System	Shatavari( <i>Asparagus racemosus</i> ), Jeeraka ( <i>Cuminum cuminum</i> ), Milk

**Table 4: Rasayana [Drugs &Formulations] for senses and other organs**

Eye	Triphala, Shatavari( <i>Asparagus racemosus</i> )
Nose	Nasya of Anu oil
Skin	Tuvarak( <i>Hydnocarpus laurifolia</i> ), Khadir( <i>Acacia Catechu</i> ), Bakuchi( <i>Psoralea corylifolia</i> )
Brain	Calamus
Heart	Guggul( <i>Commiphora mukul</i> ), Swarna bhasma
Neuro-Muscular System	Bala( <i>Sida-cordifolia</i> ), Nagbala( <i>Grewia hirsuta</i> ), Garlic ( <i>Allum sativum</i> )

**Table 5: Rasayana according to constitution**

Vata	Bala ( <i>Sida-cordifolia</i> ), Ashwagandha ( <i>Withania somnifera</i> )
Pitta	Amalaki( <i>Embelica officinalis</i> ), Shatavari ( <i>Asparagus racemosus</i> ), Guduchi( <i>Tinospora cordifolia</i> )
Kapha	Bhallataka ( <i>Semicarpus anacardium</i> ), Guggul, Pippali ( <i>Piper longum</i> ) and Garlic ( <i>Allum sativum</i> )

### Medhya Rasayana

Medha is to have proper correlation and understanding about the knowledge of the existing objects. Due to Medha a person will be able to obtain the knowledge of existing object and hence person becomes learned. Majority of Medhya Rasayana drugs possess varied properties. Hence it appears difficult to explain the effect of all the Medhya drugs.<sup>27</sup>

Nagarjuna has mentioned that Medhya drugs mainly act by their Achintya Veerya i.e. Prabhava. The effect of Medhya Rasayana is also at different levels such as at level of Rasa, Agni, and Srotasa. At the level of Agni these drug act by stimulating and improving the function of Agni. At level of Srotasa, these drugs improve the circulation of Rasa by opening and cleaning the micro channel and then ultimately improve the function of Medha. These drugs have beneficial effect on body as well as on mind. Various Medhya Rasayana drugs used are Mandukparni Svarasa, Shankhpushpi Kalka, Guduchi Svarasa and Mulethi Churna. These Medhya Rasayana are described in Charaka Samhita. Some of the Rasayana drugs act by Panchbhautika composition, Some by Rasa, Guna Veerya, and Vipaka. Pharmacological properties of drugs are the resultant of different combination of Bhoota. Panchamahabhoot are said to have characteristic of three Mahaguna Satva, Raja, and Tama. Medha are attributed to predominance of Satva Guna, Hence Aakashiya, Taijus, Aapya drugs having Satva guna predominance improve Medha. On the basis of Rasa Tikta Rasa has direct action on the promotion of Medha. It performs their function by its Laghu property and Deepana-Paachana and Srotoshodhaka action. Madhura Rasa also by promoting the formation of Oja nourishes five sense, mind and medha. Hence Medhya Rasayana Drugs appear to be predominantly Tikta-Madhura Rasa. Amla, Lavana and Katu Rasa are having least importance in Medhya action. Similarly Ushana Veerya drugs stimulate Saadhak Pitta which promotes Medha. Ushana Veerya drugs improve Grahan Shakti (power of reception) and Samriti (Power of recalling). Majority of drugs are having Madhura Vipaka which nourishes Medha by formation of Oja. So all the Medhya Rasayana drugs improve mental faculties, improve mental function and intellect.

### Acharya Rasayana

Acharya Rasayana is described in various texts. It means good conduct. A careful analysis of qualities of Acharya Rasayana reveal that most of them are related with Mana, Dhi, Dhriti along with good conduct and these results in maximum benefit. A person must be truthful, free from anger, which is devoid of alcohol, sex indulgence; a person must not indulge in violence or exhaustion. A person may regularly offer prayers to Gods, Teachers, Preceptors and old people. A person must be absolutely free from barbarous acts, his period of awakening and sleep is regular, must take milk and Ghee regularly, should be free from ego, Whose conduct is good, must not be narrow minded, Should have love for spiritual Knowledge, must have excellent sense organ, having self control, who regularly read scripture, must have regard for elderly people, must take milk and Ghee regularly. If a person endowed with these qualities takes rejuvenation therapy they get all the rejuvenation benefit.

### DISCUSSION

Rasayana drugs are used for preservation of positive health. Sushruta defines a healthy man as one who has equilibrium of Doshas, normal functioning of Agni, normal condition of seven Dhatus, beside his soul, the sense organs and mind

should be happy and cheerful. Rasayana stands as an answer to solve the problem of healthful longevity including mental development and resistance against disease. Rasayana is a specialized type of treatment influencing the fundamental aspect of body i.e. Dhatu, Agni and Srotasa. It is a possible that different Rasayana drugs may act with predominance effect at different levels. These comprehensive effects are brought about with the help of the varied Pharmacodynamic properties of these drugs. Rasayana effect is not a specific pharmacological action but is a complex phenomenon operating through a Comprehensive mechanism involving the fundamental factors like Rasa-Samvahan, Dhatus, Agni and Srotasa. It may ultimately be leading to the achievement of the comprehensive effect as stated by Charaka “labhopyo Hi Shastanam - Rasadinam Rasayanum”

It produces the Rasayana effects mentioned in term of Vayasthapana and Ayushkara, Medhakara, Urjaskara so that Rasayana drugs acting at level of Rasa by improving Specific nutritional values of Poshak Rasa. Probably Rasayana drugs are having Madhura, Guru, Snigdha, and Sheeta properties act as Rasayana at level of Rasa by promoting the nutritional value of the Rasa which in term helps in obtaining the best qualities of Dhatus. The example of such drugs may be Shatawari, Madhuyashti, Bala, Dugdha, Ghrita etc. Rasayana drugs have a fundamental effect at level of Agni or digestion and metabolism. The Rasayana drugs possessing the Ushana, Laghu, Ruksha and Katu, Tikta, Kashaya Rasa may be acting at level of Agni, Vitalizing the organic metabolism leading to an improved structural and function pattern of Dhatus and Production of the Rasayana effects. Drugs such as Pippali, Guggulu, Rasona, Bhallataka, Rudanti mainly acts at level of Agni so improve the digestion and create excellence of Saptdhatu. The Rasayana Drugs like Vidang, Chitraka, and Haritaki are experienced to enhance Agni at level of Jaathragni. Similarly Amalaki, Amrita, Pippali, Kumari are supposed to act at level of Dhatu, Agni also causing excellence of all Dhatus.

The Rasayana drugs with Katu, Tikta, Kashaya Rasa, Vishada, Ruksha, Laghu Guna, Ushana Veerya and Katu Vipaka may cause Srotoshodhana and may help in the evaluation of the Rasayana effect in the body. Rasayana drugs which influence oja are supposed to induce Bala and Vyadhiksamatava or Immunity. Drugs used are Jivaniya Gana drugs, Swarna and Pippali. Similarly improvement in mental faculty (Medhakara effect) is a benefit of Rasayana Therapy.

### Current Features of Rasayana Therapy

Rasayana Chikitsa means rejuvenation therapy. Rejuvenation literally means to return to youthful conditions or to the normal from diseased state. Rejuvenation therapy helps to promote and preserve health and to Cure disease in sick. The therapy enhances one's energy and is even known to have cured the sick. It also increases a healthy person's mental and physical capabilities. It is known to have improved skin complexion and texture, modulates the voice and increases sensing capacity of sense organs. They replenish the vital fluids of our body thus keeping us away from diseases. Taking Rasayana is helpful to increase the immunity of the person to keep him away from diseases. The person became healthy and strong. Some of Benefits of rejuvenation therapy are as follows:

- Long life
- Increase in memory power
- Good health

- Young looks
- Glowing skin
- Modulated voice
- Calmness
- Resistance to disease

The possible mechanisms by which action of Rasayana can be interpreted with modern aspects are as follows:

- Antioxidant action
- Immuno-modulatory action
- Hemopoietic effect.
- Adaptogenic action
- Antiaging action.
- Anabolic action
- Nutritive function
- Neuroprotective action
- Antioxidant Action

Rasayana drugs acts as Antioxidants. Antioxidants are substances that reduce oxidative damage such as that caused by free radicals. Free radicals are highly reactive chemicals that attack molecules by capturing the electrons and thus modifying chemical structures. Well known Antioxidants include a number of enzymes and other substances such as vitamin C, Vitamin E and beta carotene (which is converted to vitamin A) are capable of counteracting the damaging effect of oxidation. Antioxidants are also commonly added to food products like vegetable oils and prepared foods

Researches show that Antioxidants are useful for protection of heart disease. This is because oxidation plays a big role in formation atherosclerotic plaque which is a main Pathological event in coronary heart disease. So there is significant role of antioxidant in coronary heart disease. Antioxidants are having role in preventing diabetes mellitus. Antioxidant rich diet may prevent Diabetes. Taking Antioxidants rich food especially vitamin E, may lower risk of Type II DM. A new study show that people whose diets had the highest levels vitamin E were 30% less likely to develop type II DM. In addition, researchers found that people who ate a lot of carotenoids, a type of antioxidant found in colorful fruits and vegetables, also had a lower risk of developing type II DM. Oxidative damage to cells is also important phenomenon in aging process. So Antioxidants are also helpful in delaying aging. Antioxidants may possibly reduce the risk of cancer and age related macular degeneration. Many Rasayana drugs like Amla, Ashwagandha acts are Antioxidants. Main constituents of Amla are vitamin C, carotene, and riboflavin. It is having a role in cellular oxidation reduction. They have also a role in collagen fibrin synthesis, helps in formation of fibrin, Absorption of iron. Withanolide in Ashwagandha also acts as Antioxidants by increasing levels of three natural Antioxidants like super oxide- dismutase, Catalase, Glutathione peroxidase.

#### Immunomodulatory Action

Rasayana drugs also acts as immunomodulator. An immunomodulator is a drug used for its effect on the immune system. Clinical problems that require an evaluation of immunity include chronic infections, recurrent infection, unusual infecting agents and certain autoimmune syndromes. The type of Clinical syndrome under evaluation can provide information regarding possible immune defects

Certain Rasayana drugs at as Immunomodulator strengthening of immunity is done in various ways - by

promoting bodily defense Mechanisms like increasing the WBC count, improving immune function. Bodily defense mechanism is promoted. Certain Rasayana drugs also increase number of immune cells known as T cells & B cells helping to fight infections.

#### Antiaging Action

Aging is progressive change related to passage of time. By age 50-60 age related changes to begin to reflect like reduced power of muscle, reduced vision, memory, locomotion function, there is gradual decline in homeostasis and immune function predisposes them to infection, digestive problem and malignancy.

Free radicals cause oxidative damage to various biological molecules e.g. hydroxyl radicals can damage cell membrane and lipoproteins by a process called lipid peroxidation which may contribute to aging process. Certain Rasayana drugs likes Ashwagandha inhibits copper induced lipid peroxidation and also inhibits oxidative protein modification. Rasayana also acts as Antioxidants so they help in delaying Aging

Vayalil PK et al mentioned that emerging data suggest that the possible mechanisms may be by immune-stimulation, quenching free radicals, enhancing cellular detoxification mechanisms; repair damaged non-proliferating cells, inducing cell proliferation and self-renewal of damaged proliferating tissues, and replenishing them by eliminating damaged or mutated cells with fresh cells.<sup>28</sup>

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