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Rasayana Effects of Herbs Mentioned in *Dhavantari Nighantu* along with Conventional Interpretations

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ABSTRACT

Ayurveda is the most ancient and well documented system of medicine which has two aims-maintenance of positive health and the cure of diseases. In current scenario, we are faced with a host of health problems. The herbs which are used to enhance the resistance of body against infections have been a leading theory of Ayurveda and for this there is an independent group of immunomodulatory drugs called as *Rasayana*. According to modern science, *Rasayana* can be compared to anti-oxidant, anti-stress, immunomodulatory drugs etc. Immunomodulatory drugs alter the response of the immune system by promotion of health as well as prevention and extermination of the diseases. They act at various levels of immune system by inhibiting or intensifying immune responsive cells- lymphocytes, neutrophils, macrophages, natural killer (NK) cells, and cytotoxic T lymphocytes which play a key role in the front line defence against invading pathogens. Antioxidant drugs are having ability to put a break on the oxidation that damages the cells. Antioxidants such as vitamin C and vitamin E boost our immune system. Similarly in Ayurveda, *Rasayana dravyas* are also act at various levels like *Rasa*, *Agni* and *Srotasa*. The aim of *Rasayana* is to maintain and preserve positive health and prevent varied diseases. *Dhanvantari nighantu* is the advanced (8th -10th AD) Ayurvedic material medica and is the first *Nighantu* which covers the complete knowledge of the drugs with its clinical applications. It has mentioned 13 herbal drugs as *Rasayana*. Some of the medicinal plants listed in modern system of medicine for their therapeutic potential have been scientifically investigated with the results. The purpose of this review is to justify the findings of investigations done on immunomodulatory activity and antioxidant activity of the plants which had been justified and used in herbal remedies in the past. Here an effort has been carried out to explore the mode of action of *Rasayana* herbs listed in *Dhanvantari Nighantu* in relation with modern pharmacology.

Key Words: *Ayurveda, Rasayana, Dhanvantari Nighantu, Immunomodulatory herbs*

INTRODUCTION

Health is a complete state of physical, mental and social well being of a person and not merely the absence of the diseases [WHO]. Today we are facing various non communicable diseases like

stress, diabetes, heart diseases, degenerative changes, ageing etc. So it is important to study the ancient concept of *Rasayana*. The word *Rasayana* consist of two words-*Rasa* means fluid and *Ayana* means path. The *rasa* nourishes the body and

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restores the immunity of the body. *Rasayana* is one of the branches of *Ashtanga Ayurveda*¹ and a great importance of *Rasayana* has been shown in the classics. *Dhanvantari nighantu* [8th -10th AD] is the first *Nighantu* which has described the drugs with their properties and therapeutic indications. So it is necessary to validate the screened information from this *Nighantu* and explore the actions of the herbs. The actions of the herbs depends on *Rasapanchaka* (Five inherent tools to access the drug-*Rasa, Guna, Veerya, Vipaka* and *Karma*) and it can be considered as pharmacodynamics of the drug. *Rasayana* acts at the various levels like *Rasa, Agni* and *Srotas*. At the level of *Rasa*, they increase the nutrient fluid, blood, flesh, fat, bone marrow, semen and overall vital essence of the body. The herbs which are having *Madhura rasa* (sweet taste); *Sheeta veerya* (cold potency); *Guru, Snigdha guna* (heavy, unctuous property) will act at the level of *Rasa*. As a result the herb promoting nutritional value and

regeneration of the tissues. At the level of *Agni*, they improve the metabolism and digestion. The herbs having *Katu rasa* (pungent taste); *Ushna veerya* (hot potency); *Laghu* and *Ruksha guna* (Light and dry in nature) will act at the level of *Agni*. *Agni* has a significant role in bio-transformation. The herbs which are having *Katu, Tikta, Kashaya rasa* (pungent, bitter and astringent in taste); *Laghu, Ruksha, Vishada, Vyavayi guna* (light, dry, clearness and parvasive in nature); *Ushna veerya* (hot potency) act at the level of *Srotas* which are used as channels, they clean and activate microcirculation and improve tissue perfusion. A physician should keep in mind these things to choose the proper *Rasayana* herb for a particular patient. In modern science, the action of *Rasayana* can be compared to immunomodulatory activity, anti-oxidant activity etc. The published pharmacological activities in explanation with *Rasayana* are given as below.

Table 1 The correlation of *Rasayana dravyas* mentioned in *Dhanvantari nighantu* with modern pharmacology

Sr No.	Plant	Part used	Classical reference	Modern Pharmacology
1.	<i>Guduchi</i> ² (<i>Tinospora cordifolia</i> Willd.)	Stem	It has <i>Tikta, Kashaya rasa; Guru, Snigdha guna, Ushna veerya & Tridosahara</i> properties. So it can be said that it will work at the level of <i>Rasa, Agni and Srotas</i> level and perform the activity.	Immunomodulatory activity: <i>Tinospora cordifolia</i> stem alters the level of enzymes such as catalyse and stimulates lymphocyte cells maintaining the immune strength, so exhibiting the immunoprotective role of the herb ³ .
2.	<i>Bakuchi</i> ⁴ (<i>Psoralea corylifolia</i> Linn.)	Seed	Due to having <i>Sheeta veerya</i> and <i>Tikta rasa</i> (taste) it may be increased <i>Rasa</i> and act as <i>Rasayana</i> .	Immunomodulatory activity: The seed extract of <i>P. corylifolia</i> in alcohol was reported to stimulate the immune system in mice by increasing cell mediated and humoral immune responses ⁵ .
3.	<i>Amalaki</i> ⁶ (<i>Phyllanthus emblica</i> L.)	Fruit	It possesses <i>Snigdha guna, Sheeta veerya, Madhura vipaka</i> and <i>Tridosahara</i> property. It may be increased the nutritional value which in turn facilitate the synthesis of the tissues (<i>Rasa</i> level).	Immunomodulatory activity: In <i>Emblica</i> treated albino mice, it is observed that the dose dependent raise in haemagglutination antibody titre, macrophage migration index, hypersensitivity reaction, respiratory burst activity of the peritoneal macrophages, total leukocyte count, percentage lymphocyte distribution, serum globulin and relative lymphoid organ weight. It is indicating its

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4.	<i>Shatavari</i> ⁸ (<i>Asparagus racemosus</i> Willd.)	Root	It is mentioned as “ <i>Rasayanavara</i> ” (best in <i>Rasayana</i>). Due to having <i>Madhura</i> , <i>Tikta rasa</i> ; <i>Snigdha guna</i> , <i>Sheeta veerya</i> , <i>Madhura vipaka</i> it acts on <i>Rasa</i> by promoting nutritional value and providing nourishment to the tissues (at the level of <i>Rasa</i>).	ability to stimulate humoral and cell mediated immunity along with macrophage phagocyte ⁷ . Immunomodulatory activity: The steroidal saponins, Shatavaroside A (26) and Shatavaroside (B) were isolated from the methanolic extract of <i>Asparagus racemosus</i> and with the help of polymorphonuclear leukocyte function test. At 5 ng/mL concentrations, steroidal saponins discovered to be immunostimulant ⁹ .
5.	<i>Pippali</i> ¹⁰ (<i>Piper longum</i> Linn.)	Fruit	Having <i>Katu rasa</i> and <i>Tridoshahara</i> property it acts as <i>Agni</i> enhancers. It encourages the metabolism by <i>Agni dipana</i> resulting in improved structural and functional form of the tissues.	Immunomodulatory activity: Alcoholic extract of the fruits of <i>P. longum</i> and its constituent piperine were accessed for their immunomodulatory activity and they both were detected to be cytotoxic ¹¹ .
6.	<i>Kakamachi</i> ¹² (<i>Solanumnigrum</i> Linn.)	Fruit	Due to having <i>Tikta rasa</i> , <i>Ushna veerya</i> and <i>Tridoshahara</i> properties it should act as <i>Rasayana</i> at the level of <i>Agni</i> .	Immunomodulatory activity: In mice which are suffering from U14 cervical cancer, it was observed that the polysaccharides isolated from <i>Solanum nigrum</i> Linn. exhibited antitumor activity by triggering different immune responses rather than attacking cancer cells directly. So polysaccharides of <i>Solanum nigrum</i> perform the activity and it can be used. ¹³
7.	<i>Varahikanda</i> ¹⁴ (<i>Dioscorea bulbifera</i> Linn.)	Tuber	It should act at <i>Rasa</i> level having <i>Sheeta veerya</i> and <i>Tikta rasa</i> .	Anti oxidant activity: It was observed that the collected tubers from Nepal are having the chemical constituents like oxalic acid (67 ± 9 mg/100g), malic acid (266 ± 20 mg/100g), citric acid (282 ± 24 mg/100g), polyphenols (166 ± 10 mg/100g) and succinic acid (2510 ± 108 mg/100g). So it may be having antioxidant activity ¹⁵ .
8.	<i>Mamsarohini</i> ¹⁴ (<i>Soymida febrifuga</i> A. Juss.)	Bark	It is mentioned as “ <i>Rasayanaprayogat sarvarogahara</i> ” (use as <i>Rasayana</i> can cure all the diseases). Due to having <i>Katu</i> , <i>Tikta rasa</i> ; <i>Ushna veerya</i> and <i>Tridoshahara</i> property it can be worked at the level of <i>Srotas</i> and <i>Agni</i> and exhibited the activity.	Anti-oxidant activity: The hydroalcoholic bark extract of <i>Soymida febrifuga</i> produced a dose dependent inhibition of free radical generation of superoxide anion, hydroxyl radical and DPPH radical In vitro antioxidant activity ¹⁶ .
9.	<i>Shankhapushpi</i> ¹⁴ (<i>Convolvulus pluricaulis</i> Choisy.)	Whole plant	It has <i>Katu</i> , <i>Tikta rasa</i> ; <i>Ushna veerya</i> . So it can be said as <i>Agni</i> enhancer and showed the activity.	Anti-oxidant activity: The methanolic extract of whole plant of <i>Convolvulus pluricaulis</i> exhibited considerable anti-oxidant activity ¹⁷ .
10.	<i>Jalamadhuca</i> ¹⁸ (<i>Madhuca longifolia</i> Macbr.)	Seed	It has <i>Sheeta veerya</i> , <i>Madhura rasa</i> so it may be increased the <i>Rasa</i> and provides nourishment to the tissues.	Immunomodulatory activity: It was assessed that the ethanolic extract was tested and showed there is significant increase in antibody titre value (p<0.01) and delayed type hypersensitivity response in albino mice at a dose of 100 and 200 mg/kg ¹⁹ .

DISCUSSION

Ayurveda is complementary system of medicine which deals with every aspects of life. *Rasayana* is responsible for total health of a person because they are not only taking care about the body but

mind and spirit also. It is a unique stream of medication for providing better quality of life. In *Dhanvantari nighantu*, there have been total 13 plants mentioned as *Rasayana* and they have worked at various levels. Out of them, 10 plants

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have been reported as they perform immunomodulatory activity and some of them antioxidant activity. The plants *Amalaki*, *Bakuchi*, *Shatavari* and *Jalamadhuca* showed the activity at the level of *Rasa*; *Pippali*, *Kakamachi* and *Shankhapushpi* are *Agni* enhancers, while *Mamsarohini* exhibit the activity at both level of *Srotas* and *Agni*. *Guduchi* acts as *Rasayana* at *Rasa*, *Agni* and *Srotas* level. In Ayurveda system of medicine, *Acharyas* have enlightened the concept, established the theory and utilized the principles in explaining the mode of action of drug. Probably this era is a conclusive phenomenon of ancient scientific basis.

CONCLUSION

In current review, a due note is made to explain how rationale the Ayurvedic explanation of drug action along with modern medicine. It is only with a view to clearly understand the mode of action of a drug from the point of ingestion till its excretion to lead a physician to facilitate him to utilize the drugs more precisely in a stated pathological condition to relieve him of the pathetic state without disturbing the physiology and creating idiosyncrasy. The comparison will be useful for understanding the screening by using Ayurvedic mode of action which is stated here.

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