



ROLE OF MEDHYA RASAYANA IN RELATION TO CORONA VIRUS (OMICRON BF.7)

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ABSTRACT

The pandemic outbreak of Omicron BF .7 came with extensive health related hazards which lead to economical and psychological problems like fear, stress, sadness, anxiety, depression among the people and is a challenge for humanity to face and fight this comorbidity. Various clinical Observations indicate the interaction of SARS CoV-2 viruses with the immune system which plays a significant role in determining the outcome of infection and it is responsible for controlling the immune pathogenesis of corona virus infection. Early control of this contagious disease within the host, limits its spread. Yet no system of medicine has any evidence-based treatment for Omicron BF .7

All the doctrine of medicine in the world has tried to develop effective strategies to overcome this disorder. *Panchakarma* and *Rasayana* therapy are indicated as an effective management plan for *Janpdho dhwamsa Vyadhi* (epidemic disease). Preventive use of *Rasayana* in Corona virus Omicron BF7 in the current scenario to build strong immunity in the peoples and to explore how it modifies the immunity along with use of certain recipes for its management

Keywords: Omicron BF .7, immunity, *Rasayana* etc.

INTRODUCTION

On 30th January 2020, World Health Organization has declared novel corona virus disease (COVID – 19) Severe Acute Respiratory Syndrome Corona virus2 (SARS-CoV– 2).

It has now spread globally all over the world in 221 countries with more than, 103, 672, 967 confirmed cases and 2,241,041 deaths and in India, 10,764,177 confirmed cases and total deaths 154,472 as on dated on 2 February 2021¹.

Coronaviruses have become the greatest threat to the health of all human beings, and it has put the global economy into a recession, along with the effect on the global environment. In the last two decades the world suffered some diseases which were caused by different viruses belongs to the subfamily Corona virinae in the family Corona viridae like. Severe acute respiratory syndrome coronavirus (SARS – CoV) occurred in

2002 and Middle East respiratory syndrome corona virus (MERS – CoV) was first identified in 2012, with mortality rates of 10% for SARS – CoV and 37% for MERS CoV. ² Current estimated mortality of COVID – 19 for the overall infected population is 0.25–3.0% whereas it increases to >14% among elderly (over 80 years), 10% in associated CVD and 7% in associated diabetes. In 5% cases requiring Intensive care, the disease progression is gradual, and requires about 9–10 days to progress from symptoms of Upper Respiratory Tract Infection (URTI) to Acute Respiratory Distress Syndrome (ARDS). ARDS often is followed by un-correctable hypotensive shock, multi-organ failure and eventually death.³

COVID – 19 is a communicable disease for which no register treatment plan is available, however recently vaccine is introduced but its availability is limited .By several observations and Study, it has been proved that coronaviruses particularly affect the immune system and lower the immune responses of the body. Those people who have low immune systems come under the risk of this disease. Physicians and Doctors of the world are trying to stop the spread of pandemics, thus it's a need of time to provide clinically proven prophylaxis and therapeutic strategy. The dimensions of pandemic need an extreme utilization of all medical systems available in the world.

What do we know about BF.7?

When viruses mutate, they create lineages and sub-lineages — like the main trunk of the SARS-CoV-2 tree sprouting branches and sub-branches. The BF.7 is the same as BA.5.2.1.7, which is a sub-lineage of the Omicron sub-lineage BA.5.

A study published in 'Cell Host and Microbe' journal earlier this month reported that the BF.7 sub-variant has a 4.4-fold higher neutralisation resistance than the original D614G variant — meaning that in a lab setting, antibodies from a vaccinated or infected individual were less likely to destroy BF.7 than the original Wuhan virus that spread worldwide in 2020.

As per data from India's national SARS-CoV-2 genome sequencing network, BA.5 lineages accounted for only 2.5% of cases in November. At present, a recombinant variant XBB is the most common variant in India, accounting for 65.6% of all cases in November. The virus has mutated many times over since the beginning of 2020 and the Omicron variants are known to evade the immune response from most vaccines currently in use.

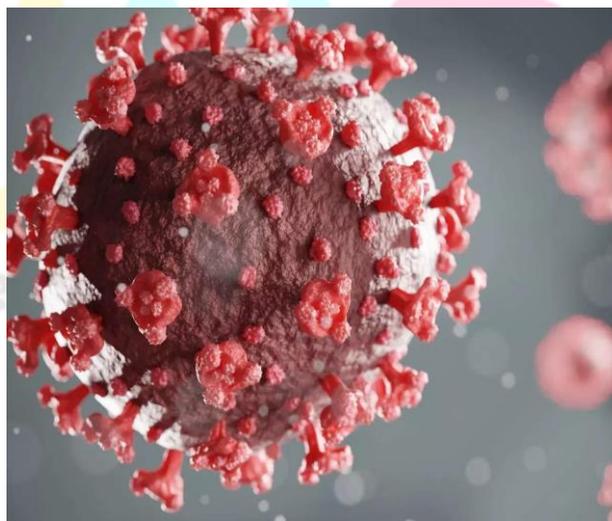


Fig 1. Corona Omicron BF7 Image

Omicron BF.7 is the latest sub variant of the Omicron variant, first detected in Northwest China's Inner Mongolia Autonomous Region. Also known as the 'Omicron spawn', this new variant is fast spreading and has even infiltrated the walls of several other countries including the United States, UK, Australia, Belgium. Three cases of Omicron BF.7 strain, that is driving the current wave of Covid infections in China, have been detected in India so far. The first case of the highly infectious strain with greater transmissibility was detected in Gujarat earlier in October 2022

Symptoms of Omicron BF7

- Sore Throat
- Cough
- Fatigueness
- Runny nose
- Fever

In *Ayurveda* the concept of communicable disease and its management is well defined in *Charak Samhita*, *Viman Sthan* under *Janapado dhwamsa*. Corona is a contagious disease which comes under the *Janpdho-dhwamsa Vyadhi*. In the present scenario human life has been terrifically affected by corona virus therefore it's a challenge for humankind to survive in this condition. For this situation preventive use of *Rasayana* therapy as a prophylaxis can be introduced because the corona virus mainly affects the human immune system and *Rasayana* has the power to increase immunity by promoting inner defence power of individuals. Several herbal formulations and its different preparations have been mentioned in ayurvedic text which acts as *Rasayana*. It has vigour to influence the immune effectors cells i.e. lymphocytes, macrophages, dendritic cells, natural killer cells, cytotoxic T lymphocyte cells by virtue of which they work as immune modulators. The *Rasayana Dravya* provides strength against the viral condition and improves the immune response against this pandemic disease that's why *Rasayana* therapy is an option for novel coronavirus. ⁴

What is medhya rasayanas? The term "Medhya Rasayanas" is derived from the Sanskrit terms "Medhya," which means "intellect or knowledge," and "Rasayana," which means "rejuvenation." Ayurvedic medicinal herbs are classified as braintonics or rejuvenators. According to previous studies, these plants are utilised in both herbal and traditional therapy and provide advantages that pharmaceutical medicines do not. Memory loss, cognitive impairments, decreased mental function, and other symptoms are common in neurological and psychiatric diseases.[11] The Medhya Rasayanas are believed to be good for intellectual development. Medhya Rasayana drugs are crucial in the treatment of mental and psychosomatic illnesses. The manner of this therapy entails the individual achieving drowsiness, relaxation, tranquillity, or a stimulation of brain activity. According to experimental and clinical studies, these medicines exhibit different degrees of psychotropic activity and are known to have antidepressant, sedative, and tranquillizing properties. Medhya Rasayana medicines are known to have a special impact on mental performance by increasing the functions

of "Buddhi" and "Manas" while correcting "Rajas" and "Tamas" disruptions.[12] This assists the mental patient in overcoming stress, anxiety, and depression. Medhya Rasayana is a collection of four medicinal herbs that can be used alone or in combination. 1. Mandukaparni (*Centella asiatica* Linn.)- take action in response to the behaviour. In addition to being a neuroprotective brain growth promoter, it also reduces the memory impairment caused by scopolamine by inhibiting AChE.[13] 2. Yastimadhu (*Glycyrrhiza glabra* Linn.)- it increases the circulation into the CNS system, improves learning and memory on scopolamine induced dementia.[14] 3. Guduchi (*Tinospora cordifolia* (Wild) Miers)- In a behavioural test, it improves cognition in normal and cognition-deficient animals by having learning and memory boosting, antioxidant, and anti- stress properties.[15,16] It can be used to cure Bhrama (vertigo), as well as to improve behaviour problems, mental deficits, and IQ levels. 4. Shankhapushpi (*Convolvulus Pleuricaulis* Chois)- effective in Chittodvega (anxiety disorders), reverses the social isolation stress-induced prolongation of onset and decrease in pentobarbitone- induced sleep[17] increased total motor activity and stress-induced antinociception in experimental model.[18]

Aim and Objectives:

This article aims to provide information about the preventive role of *Rasayana Dravayas* to build up immunity against corona virus Omicron BF.7 and use of certain recipes for it's management.

Materials and Methods

Material - Relevant literature is referred in Samhitas, Sangraha Granthas and contemporary literature.

Methodology - Review study Literature related to the title is explored from all reliable Ayurvedic journals and Modern journals from internet.

Conclusion has been drawn from comparison and rationale.

Discussion

Omicron BF 7 which infects peoples globally. Ayurveda which was evolved thousands of years ago described epidemics in the name of "Janapadodhvansa" [9] or "Marak".[10] In the treatment of said Rasayana therapy along with Swasthavritta Paripalana (Dinacharya and Ritucharya) were clearly mentioned. Satmya Ahara, Nidra (regular proper sleep), Yogic Asanas and Bramhacharya to be followed to boost up Vyadhiksamatwa. Here Rasayana therapy is discussed in brief. Rasayana therapy promotes and rejuvenate the physiology of body, produce resistance against disease both physically and mentally. Rasayana is made up of two words: Rasa and Ayana. Rasa primarily means essential seven vital tissues (Saptadhatu e.g. Rasa, Rakta, Mamsa, Medha, Asthi, Majja and Sukra). Ayana means the path or channel. So, Rasayanas are those that bring about proper uptake, growth and improvement of essential Saptadhatu. According to Acharya Charaka, a person undergoing Rasayana or rejuvenation therapy attains longevity, memory, intellect, freedom from diseases.[11]

Rasayana Chikitsa boosts the Ojas (immune system). Rasayana is the one that is concerned with the immunity enhancer. Rasayana is a treatment in which the body constituents are prepared to adapt to a selective tissue endowment program. This concept in modern scientific understanding would mean the enhancement of immune responsiveness of an organism against pathogens by non-specifically activating the immune system with immunomodulatory agents of plant origin. Rasayana improve the host resistance of an individual, helping to prevent aging and diseases. Rasayana Chikitsa or rejuvenation therapy helps to promote and preserve health and longevity in the healthy, and to cure disease in sick. Rasayana is helpful to increase the immunity of the person to keep him away from opportunistic diseases. The possible mechanisms by which action of Rasayana can be interpreted with modern aspects are as follows: nutritive function, immunomodulatory action, antioxidant action, antiaging action, neuro-protective action, haemopoietic effect etc. There are numbers of medicinal plants which play an important role to enhance immune system like;

Tinospora cordifolia - Commonly known as Guduchi or Amrita contain chemical constituents tinosporin, tinosporide and cordifolide. It has antioxidant, phagocytic activities, antipyretic action as well as immunomodulatory properties.[12] It is also mentioned as Medhya Rasayana in Charaka Samhita.[13]

Emblica officinalis - Commonly known as Amalaki or Indian gooseberry rich source of Vitamin-C. It contain low molecular weight hydrolysable tannins. It also contain ellagic acid, linolic acid etc. as chemical constituents showing activities against carcinogenesis, it also shows cytoprotective, anti-inflammatory, anti microbial, antioxidant and immunomodulator activities.[14]

Withania somnifera - Commonly known as Aswagandha or Indian ginseng contain withaferin A, withanone, withasomnine as major chemical constituents. It has established anti-inflammatory, antidepressant, antioxidant and immunomodulatory activities.[15]

Piper longum - Commonly known as Pippali or Long pepper which contain piperine, pipartine, pellitorine, caryophyllene etc. as major chemical constituents. In Atharvaveda, Pippali is mentioned as Rasayana. Acharya Charaka and Susruta also mention Pippali as Rasayana. It has anti-inflammatory, antispasmodic and immunomodulatory properties.[16]

Terminalia chebula - Commonly known as Haritaki or Harad contain chebulinic acid, anthraquinone, arachidic acid etc. as major chemical constituents. In Ayurvedic classics, Haritaki mentioned as Rasayana, Tridoshahara indicated for Swasa and Kasa. It has established antibacterial, antispasmodic, antioxidant and immunomodulatory activities.[17]

Allium sativum - Commonly known as Lahasun or Garlic contain alliin, vitamins (folic acid, niacin, riboflavin, thiamine, vit.c), allicin, allisatin etc. as major chemical constituents. It has anti-inflammatory, antimicrobial activity. It is mentioned as Rasayana in Ayurvedic classics and it's indicated for Shwasa, Kasa etc.[18]

Curcuma longa - Commonly known as Haridra or Haldi contain curcumene, curcumenone, curcone, eugenol, curcumins etc. as major chemical constituents. It has established antibacterial, antiinflammatory and antioxidant properties.[19]

Zingiber officinale - Commonly known as Sunthi or Ginger which contain α - and β - zingiberenes, zingiberol, zingerone, gingerol, α - curcumene etc. as major chemical constituents. It has anti-inflammatory, anticholinergic, antihistaminic, antioxidant activities and it also has bioavailability enhancer property.[20]

Azadirachta indica - Commonly known as Neem or Margosa tree contain azadirachtin, nimbin, nimbidin, azadirachtol and arachidic acid etc. as major chemical constituents. It shows anti-inflammatory, antimicrobial and immunostimulant activity.[21]

Moringa pterygosperma - Commonly known as Sigu or Sahijana contain sterols, moringine, moringinine, pteregospermine etc. as major chemical constituents. It has established antimicrobial, antioxidant, anti-inflammatory and antiviral activities.[22]

Glycyrrhiza glabra - Commonly known as Yashtimadhu or Liquorice which contain glycyrrhizin, glycyrrhizic acid, glycyrrhetic acid and glabrine etc. as major chemical constituents. It has anti-inflammatory, antipyretic and antioxidant properties. It also mention as Rasayana in Ayurvedic texts.[23]

Mangifera indica - Commonly known as Amra or Mango contain mangiferin, quercetin, gallic acid as chemical constituents which show antiviral as well as anti-influenzal activities.[24]

Ocimum sanctum - Commonly known as Tulasi or Holy basil contain bornyl acetate, cadinene, camphene, eugenol and limonene as major chemical constituents. It shows antibacterial, antifungal, adaptogenic, antiviral and immunomodulatory activities.[25]

Centella asiatica - Commonly known as Mandukaparni or Gotukola contain asiatic acid, centic acid, centellic acid, carotene etc. as major chemical constituents. It has established Rasayana (anabolic), analgesic and immunomodulatory properties. It has been mentioned as Medhya Rasayana in Ayurvedic classics.[26]

Terminalia bellerica - Commonly known as Vibhitaki or Bahed contain chebulagic acid, ellagic acid, gallic acid, mannitol as major chemical constituents. It has antispasmodic, antihistaminic, antibacterial, antiviral and antioxidant property.[27]

Albizia lebbek - Commonly known as Sirisa or Siris contain albigenin, albiziagenin, lebbecacidin, myricitrin as major chemical constituents. It shows anti-inflammatory, antihistamine, antioxidant and anticancer activities.[28]

Probable mode of action

Rasayanas are those that bring about proper uptake, growth and improvement of essential seven vital tissues, which ultimately increases Oja. Thus there is regeneration of cells and body tissues leading to increased immunity.

When Rasayana drugs of different Rasas are taken, they are digested by Jatharagni followed by Bhutagni. During this phase Vata, Pitta and Kapha produced along with Sara part i.e. Ahaara Rasa. This qualitative Ahaara Rasa produces pure Rasa Dhatu, which then continues the chain of production of other Raktadi Dhatus with the help of respective Dhatavagni upto Ojas formation. Therefore well formed Dhatus keep on nourishing the body till they are taken. Rasayana drugs act at the level of Rasa by improving the nutritional value of the Poshak Rasa which helps to obtain the best quality of Dhatu and some Rasayana drugs act at the level of Agni and Strotas by improving digestion and metabolism. The Rasayana drugs possessing the Ushna, Laghu, Ruksha, and Katu, Tikta, Kashaya Rasa acts at level of Agni, vitalizing the organic metabolism leading to an improved structural and functional pattern of Dhatus.[29] Drugs such as Pippali, Rasona, Haritaki mainly acts at level of Agni to improve the digestion and create excellence of Saptadhatu. Similarly Amalaki, Amrita, Pippali etc. are supposed to act the level of Dhatwagni also causing excellence of all Dhatus. Vyadhikshamatava is depends on the presence of Bala in the body. Rasayana drugs also

influence Oja which increases Sharira Bala. A person with appropriate amount of Bala is also said Saptadhatusara. This provides the capacity to resist the external disease causing agents. Thus Rasayana can act as immunomodulator, by strengthening the immunity.

Probable mechanism through which immunity prevents infections When a virus infects a person (host), it invades the cells of its host in order to survive and replicate. Once inside, the cells of the immune system cannot 'see' the virus and therefore do not know that the host cell is infected. To overcome this, cells employ a system that allows them to show other cells what is inside them - they use molecules called class I major histocompatibility complex proteins (or MHC class I, for short) to display pieces of protein from inside the cell upon the cell surface. If the cell is infected with a virus, these pieces of peptide will include fragments of proteins made by the virus. A special cell of the immune system called a T cell circulates looking for infections. One type of T cell is called a cytotoxic T cell because it kills cells that are infected with viruses with toxic mediators. Cytotoxic T cells have specialised proteins on their surface that help them to recognise virally-infected cells. These proteins are called T cell receptors (TCRs). Each cytotoxic T cell has a TCR that can specifically recognise a particular antigenic peptide bound to an MHC molecule. If the T cell receptor detects a peptide from a virus, it warns its T cell of an infection. The T cell releases cytotoxic factors to kill the infected cell and, therefore, prevent survival of the invading virus.[30]

Conclusion

Thus from the above we can conclude that Rasayana has important role in immunity enhancement and prevent infections whether bacterial or viral. So, it is required to create awareness among people about Rasayana drugs, which will prevent disease and promote health of the every individual and will help to fight against Omicron BF 7.

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