

A HOLISTIC AND PROPHYLACTIC APPROACH AGAINST NEW INFECTIONS LIKE COVID-19

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ABSTRACT

Microbes/pathogens can evolve naturally or artificially and become resistant to various medicines. The structures and forms of organisms around us are continuously changing into other pathogenic forms. The novel corona virus is one such evolved pathogen of corona virus group. *Ayurveda* helps boost our immunity which is the most important line of defence against any disease. A strong immunity is needed to prevent or survive from COVID-19 pandemic, nowadays. *Ayurveda* provides ways for evolving physiological responses to build immunity. The present work is a brief attempt to increase insight in this field. This review was done based on the simple theory of evolution and recent updates regarding prevention of COVID-19.

Ayurvedic aspect toward infectious diseases and *Ayurvedic* methods towards prevention of infectious diseases with special reference to COVID-19. Persons with impaired immunity are more susceptible for COVID-19 and thus immunity is an important preventing factor. *Ayurveda Rasayana* (rejuvenation) herbs, *Yoga* exercises, *Pranayama* (special breathing exercise), daily regimen and personal hygiene guidelines can be helpful strategies in controlling the spread of COVID-19. The preventive aspects of pandemic situations are narrated in *Ayurveda* with enough details. They need to be scientifically explored and refined for precision. As prevention is always better than cure, *Ayurvedic* treatment can be considered for future strategies to avoid pandemics such as COVID-19.

KEYWORDS: *Ayurveda*, COVID-19, Holistic Approach, Immunity, *Rasayana* (rejuvenation).

INTRODUCTION

It is worthwhile to mention that almost all visible living species on the earth are surrounded by tiny species which are invisible to naked eyes and those are called as micro-organisms. Few species of micro-organisms are living synergistically in the body of macro-organisms. On the other hand, few species are responsible for causing various illnesses in immunocompromised individuals or even in healthy ones. The human body is not an exemption to this. The human body is a host for micro-organisms such as Bacteria, fungi and various viruses.

Every living species on the earth is continuously in contact with such micro-organisms no matter whether the species is aquatic, amphibian, or terrestrial. According to Darwin's theory of "Survival of the fittest" it is clear that all these microbes are constantly engaged in a war to overcome the immunity of the host to live and reproduce. Similarly, the body of the host (macro-organisms/human/animal) is also fighting the war and this war sharpens its immunity. In other words, there is a continuous evolution in all living organisms to develop physiological mechanisms required for survival. However, it is clear that the process of evolution is very slow, and it requires a longer duration to cause even the smallest physiological or anatomical change. In other words, smaller the animal more will be the reproduction rate and faster will be the process of evolution. In simple terms, mankind is evolving and also facing the evolving world of micro-organisms.

The past outbreaks of Anthrax, H1N1, SARS, and novel corona virus has highlighted the risk caused by genetically engineered viruses in various virology laboratories. Indeed, there are few significant positive outcomes from such researches, but the risk cannot be ignored. *Ayurveda* clearly states that properties and applications of knowledge, vapors, and water are depending on who is holding them. *Ayurveda* has already discovered and strongly recommended living harmonically with the rules of nature, and the same way has been found applicable in the pandemic conditions caused by the new strains of viruses. The *Rasayana* (rejuvenating drugs) of *Ayurveda* are significantly helpful in strengthening the immune system and thereby offers a natural way for the prevention of pandemic diseases. In this view, an attempt has been made to depict the relationship between evolution in living beings, *Ayurveda*, and prevention of emerging infectious diseases such as COVID-19.

MATERIAL AND METHODS

The present review was done based on the simple theory of evolution, recent updates regarding prevention of COVID-19, *Ayurvedic* aspect towards infectious diseases, and *Ayurveda* treatment towards prevention of infectious diseases with a special reference to COVID-19. Information collected from WHO, Ministry of AYUSH, news updates, and opinions of experts are utilized as sources for this review.

As immune-compromised persons having diabetes, hypertension, obesity, heart and lung problem and people of older age group are at a higher risk of COVID-19, the herbal *Rasayana* drug, which has proven immunomodulatory activity, is also compiled in the present study. Review of *Ayurvedic* formulations which might help in the prevention and cure of COVID-19 is mentioned with its relevant scientific evidence.

OBSERVATIONS AND RESULTS

Since the 18th century, the world has faced various pandemics caused by different viruses as can be seen in the Table 1^[1] below and resulted in a few thousand to million deaths. The world is currently facing COVID-19, and most of the countries have sealed their international borders to stop the spreading of the infection. The death rate due COVID-19 is the highest among economically top countries with the best health facilities. Personal hygiene, social isolation, few *Yoga* exercises, and administration of immunity booster medicines are the preventive aspects. The detailed treatment guidelines for mild to severe symptoms of COVID-19 is provided by the WHO regularly. Considering the significant role of immunity in the prevention of COVID-19, the Ministry of AYUSH, Government of India has been publishing guidelines keeping in view the changing situation of infected patient in the country. In *Ayurveda*, there are commonly utilized herbs which have proven immunomodulatory activity. These practices may help avoid exposure, reduce risk, and increase local (at the skin) and general immunity, which are major aspects for the prevention of COVID-19.

Table 1: History of Global Pandemics Till Date.

Name	Time Period	Type/ Pre-Human Host	Death Toll
Antonine Plague	165-180	Believed to be either smallpox or measles	5 Million
Japanese Smallpox Epidemic	735-737	Variola Major Virus	1 Million
Plague of Justinian	541-542	Yersenia Pestis Bacteria/ Rats, Fleas	30-50 Million
Black Death	1347-1351	Yersenia Pestis Bacteria/ Rats, Fleas	200 Million
New World Smallpox Outbreak	1520-Onwards	Variola Major Virus	56 Million
Great Plague of London	1665	Yersenia Pestis Bacteria/ Rats, Fleas	100 Thousand
Italian Plague	1629-1631	Yersenia Pestis Bacteria/ Rats, Fleas	1 Million
Cholera Pandemic 1-6	1817-1923	V. Cholera Bacteria	1 Million +
Third Plague	1885	Yersenia Pestis Bacteria/ Rats, Fleas	12 Million (China & India)
Yellow Fever	Late 1800's	Virus/Mosquitoes	100-150 Thousand (USA)
Russian Flu	1889-1890	Believed to be H2N2 (Avian Origin)	1 Million
Spanish Flu	1918-1919	H1N1 Virus/ Pigs	40-50 Million
Asian Flu	1957-1958	H2N2 Virus	1.1 Million
Hong Kong Flu	1968-1970	H3N2 Virus	1 Million
HIV/AIDS	1981-Present	Virus/ Chimpanzees	25-35 Million
Swine Flu	2009-2010	H1N1 Virus/ Pigs	200 Thousand
SARS	2002-2003	Coronavirus/ Bats. Civets	770
Ebola	2014-2016	Ebolavirus/ Wild Animals	11 Thousand
MERS	2015- Present	Coronavirus/ Bats, Camels	850
COVID-19	2019-Present (As of 25 th August 2020)	Coronavirus – Unknown (Possibly Pangolins)	814374

Inference

It is clear from the history of infectious diseases seen in Table 1, that pandemic infectious diseases such as COVID-19 are results of evolved viruses. The evolution is either natural: by law of survival of the fittest or by artificial i.e. induced by research laboratories with aim to find solution for some diseases. In both cases it is vivid that the micro-organisms are evolved but not human beings. Neither immunity nor the daily life of human beings is prepared to fight against such infections. It is because of the increased dependence on

medicines and very less focus on development of body. This is where *Ayurveda* holds its far major focus compared to other medical sciences. According to *Ayurvedic* principles, prevention of diseases by increasing immunity is of first priority and second priority is given to treating the disease. The distinguishing feature of *Ayurveda* in increasing body strength is the utilization of simple daily ways most of which are without medicines. For example daily *Yoga* exercises, rules regarding diet, personal hygiene, guidelines regarding awaking as well as sleeping etc. These ways helps in maintaining the strength of body (immunity) which in turn helps in combating pandemic conditions such as COVID-19.

Ayurveda has clearly narrated pandemic diseases under the heading *Janapadodhwansa*^[2] (epidemic). The cause varies but the medium through which such pandemics spread are the same which humanity has faced in the history of pandemic i.e. water, air, soil and living beings. *Ayurveda* has recommended boiling of water before its utilization for any purpose (disinfection of water), *Yajna*'s (rituals done in front sacred fire) were done to control spread of air born infections. Cow urine mixed with ash of specific herbs was utilized to control infection spreading through soil. *Ayurvedic* daily regimen are followed to avoid infection through contact as mentioned in the Table 2 below. Therefore it can be stated that *Ayurveda* deals with evolving physiological functioning of body and mind towards strengthening immunity and thereby prevention of pandemic infections such as COVID-19. These modalities have limitations, in that their exact extent of utility is not known and it can be discovered by undertaking retrospective survey studied during or after the pandemic is over.

Table 2: Ayurvedic Daily Practices for Prevention of COVID-19.

1	<i>Hasta-Pada Dhavan</i>	Washing of hands and legs when coming from outside or any guest who came from outside.	To avoid spread of infection which one gets from outside.
2	<i>Aushadhi Youkta Jala Snana</i>	Bathing by using medicated water such as by adding leaves of <i>Azadirachta indica</i> (Neem)	To avoid spread of infection which one gets from outside.
3	<i>Abhyanga</i>	Whole body massage by medicated oil	Same as above. It also strengthens skin by increasing blood flow. The sweating caused during massage helps to remove toxins from blood.
4	<i>Kavala-Gandusha</i>	Mouth rinses and gargles	Cleansing effect on oral cavity as well as removing extra mucous. Coronaviruses are abundant in the nasal and mouth mucosa, removing them may decrease severity of SARS

5	<i>Nasya</i>	Medicated nasal drops	Disinfection of the nose as well as it reaches to the blood stream and also helps in decreasing respiratory manifestations
6	<i>Trividha Kukshi Ahara</i>	Leaving 1/4th part of stomach empty for digestion	Improves metabolism and the nutrition of body, thus it increases immunity; which is an important factor for prevention of COVID-19.

Public Health Approach of Ayurveda

The coronavirus disease 19 (COVID-19) pandemic is unique and unprecedented in several aspects and has challenged all health care systems worldwide. At present, the global momentum is intense, and a second wave is anticipated. The experience and lessons learnt from the earlier severe acute respiratory syndrome (SARS) epidemics seem inadequate and necessitates better approaches and strategies in public health and medical care treatment. Conventional mainstream medicine is at the forefront when it comes to curbing this menace, especially at the critical care stage. The current prophylactic measures are insufficient, and suggested options are still under investigation. The prophylactic and therapeutic potential of traditional and complementary medicine systems such as *Ayurveda* and *Yoga* is not really being considered during this crisis and global hunt for effective preventive and treatment measures.

In this commentary, we have attempted to highlight the knowledge and practices from *Ayurveda* and *Yoga* that might be effectively utilized in the prophylaxis and adjuvant therapy of COVID-19. Several of our recommendations in this paper are driven by the emerging dynamics of the causative organism SARS coronavirus 2 (SARS-CoV-2) and the unravelling of the pathophysiology of COVID-19. While we focus here on prophylaxis and the protection of vulnerable target organs, *Ayurveda* and *Yoga* as an add-on therapy may support patients of COVID-19 by improving the quality of standard care. Research and therapeutic strategies for COVID-19 have focused on agents to attack the virus or immunize against it. This leaves aside the consideration of the host—one of the most important factors in disease dynamics. *Ayurveda* pays particular attention to the host and recommends measures for a holistic, healthy lifestyle rather than the mere prescription of medicine.

Progression in COVID-19

Human corona virus has been known since long time but the RNA of the current pandemic causing virus has evolved and thus it has been resistant to the medicines which are

generally indicated for human corona virus. The fact highlights, that there is a faster process of evolution among microbes either in an artificial or natural environment. In fact, the industrialization done by human has significantly changed the environment. It is a simple assumption that the body of every living organism is attempting to adapt to these changes. However, in case of human beings, the assumption varies based on developmental state of individual countries. The well developed countries have enough facilities to avoid continuous long contact with the changed environment and thus people of such countries have less chances or slower rate of adoption. On the other hand people of developing and underdeveloped countries are living more with nature. The difference in incident and mortality rate among developed, developing and under developed countries is supportive of the assumption of adoption. *Ayurveda* emphasizes on utilization of natural resources in natural forms and living with nature. In other words, *Ayurveda* recommends ways for adoption and thereby evolution to make us enough suitable to face pandemics.

Rasayana

A large numbers of immunomodulatory and rejuvenating anti-oxidant herbs have been discovered and readily available in *Ayurveda* treatise. This is a significant gift of *Ayurveda*; to increase the immunity especially in current pandemic situation for the healthy individuals. Administration of these herbs in specific dosage forms or the formulations prepared from them under *Ayurvedic* physicians guideline can be a strong measure for prevention of further spread of COVID-19 among healthy individuals. In other words, *Rasayana* herbs can be a strong effective tool in avoiding as well as fighting stage third of this pandemic. Some of these are mentioned in the Table 3 below, as recommended by AYUSH Ministry.

Table 3: Rasayana Herbs Recommended to Prevent COVID-19.

Drug/Medicine	Dosage
<i>Guduchi</i> ^[3] (<i>Tinospora cordifolia</i>)	Consume 500 to 1000 mg of aqueous extract is advised.
<i>Amla</i> ^[4] (Indian gooseberry: <i>Emblica officinalis L/ Phyllanthus emblica L</i>)	Consumption of fresh <i>Amla</i> fruit or <i>Amla</i> candy is advised.
<i>Haridra</i> ^[5] (<i>Curcuma longa L</i>)	Gargling with warm water added with turmeric powder (<i>Haldi</i>) and a pinch of salt is advised. Golden Milk: Half teaspoon turmeric powder in 150ml hot milk – once or twice daily is also advised.
<i>Ashwagandha</i> (<i>Withania somnifera</i>)	<i>Ashwagandha</i> root powder 3-5gm twice a day with warm milk or water is advised.
<i>Chyawanprash Avaleha</i> ^[6]	10-12 grams twice daily.
<i>Drakshavaleha</i>	10-12 grams twice daily

<i>Haridra Khanda</i>	3-5 grams intermittently with honey/ warm water.
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Yoga Exercises, Immunity and Respiratory System

One of the significant contribution of Indian ancient seers is the discovery of *Yoga*. Actually *Yoga* is systematic slow exercise which exerts slow but steady stress among all vital organs. In other words, *Yoga* is a way to strengthen vital organs and the immunity depends on normal functioning of all these vital organs. *Pranayama* includes several types of *Yoga* which are related to respiration such as *Bhastrika* (forceful fast breathing), *Anuloma-Viloma* (sequential breathing by alternate closing of each nostril), *Ujjayi* (ocean breath), *Sitali* (the cooling breath) etc. All these *Pranayama* are helpful in cleaning the excess mucus accumulated in bronchial alveoli and helps in increasing their elasticity. It means *Pranayama* is a tool to increase total lung capacity.

Other daily activities that can be followed to boost the immunity include the following, mentioned below.^[7]

Morning Regimen

- Waking up between 4:30-5:00 am or before sunrise.
- Drinking warm water throughout the duration of the day.
- *Gandusha/Kavala* (Oil Pulling) with one tablespoon of Sesame or Coconut oil followed by rinsing the mouth with warm water.
- Gargle with warm water added with a pinch of turmeric and salt, *Triphala*, and *Yashtimadhu*. For *Kavala Graha Shuddha Tankana* (2% aqueous solution), *Madhoodaka* (5% Aqueous solution) can also be used.
- Nasal Health – *Pratimarsha Nasya* (2 drops of sesame / coconut oil each nostril).
- Daily practice of *Yogasana*, *Pranayama* and meditation for at least 30 minutes as advised by Ministry of AYUSH.
- Bathing with warm water daily.

After Noon Regimen

- Daytime sleep is strictly contraindicated.
- An individual should keep busy in work from Home/Indoor or recreational activities like Studies, Reading, Painting, Gardening, Playing-listening Music, Social Media etc.

Evening Regimen

- An individual should do Meditation / *Pranayama* for at least 30 minutes per day.
- An individual should eat only when hungry, in the appropriate amount according to the digestive power (Neither too less nor more).
- Always take a fresh & warm diet.
- Eat easily digestible foods.
- Eat a night meal 3 hours after sunset or till 8 pm. Sleep at least 2-3 hours after dinner. Adequate sleep is very important for health.

Other General Measures as advised by AYUSH Ministry: *Dhupana* - (fumigation) of the house every evening with antimicrobials such as Neem leaf, *Sarshapa* (*Brassica campestris* L), *Loban* (gum bezamin/benzoin - *Styraxbezoin* Dryand), *Karpura* (*Cinnamomum camphora* (L) J.Presl.), *Ghee* etc. Also usage of *Aparajita Dhooma Choorna* (A.h. *Jwara Chikitsa*) as per availability can be adopted.

In case of COVID-19, SARS is a severe manifestation which is the cause for death. Therefore claim can be made that a person is likely to manifest SARS in less severe extent if he/she have better lung capacity. This will give chance and enough time to manage COVID-19 by the available medications and lifesaving care. Hence it is strongly advised to include *Pranayama* in preventive strategies suggested for COVID-19.

Emphasis on future

It is very hard and risky to prepare for a war when the actual war has begun. Those who care for safety always make arrangements before the problem emerges. Currently, the world is facing COVID-19 pandemic and thus it is necessary to follow preventive guidelines and ensuring the safety. *Ayurveda* guidelines offers a way to prepare mankind to get possible safety in the current situation but these guidelines promises much more safety in prevention of similar pandemic in future. Along with fighting current situation, the scientific minds in the world are expected to start preparing strategies for future too. *Ayurveda* can play significant role in future strategies because most of the preventive strategies for COVID-19 has clearly showed that the ancient seers of *Ayurveda* had already provided those guidelines and few more too which are yet to be accepted and recommended by world scientific committees.

CONCLUSION

Curing an illness is very important but prevention is always better than cure. *Ayurveda* offers simple natural ways (daily regimen), herbal combinations, herbo-mineral formulations and exercises such as *Yoga* for prevention of COVID-19. The curative role of *Ayurveda* needs to be systematically studied. However based on the precision in *Ayurvedic* principles, it can be claimed that *Ayurveda* may have a definite cure for COVID-19 and there is a great need to find and establish it.

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Conflict of Interest

There is no conflict of interest.

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