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Chyavanprash: A Multimodal Approach to COVID-19 Management

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Authors' contributions

This work was carried out in collaboration among all authors. All authors read and approved the final manuscript.

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ABSTRACT

The word Chyavanprash (CP) comprises of 'Chyawan' and 'Prasha'. Chyavan represents 'degenerative change' and Prasha symbolises a drug. Enhancement of immunity and longevity of life were the main reasons for which CP was consumed since ancient times. CP has about 50 herbs, spices and minerals along with a range of pharmacological activities on almost all organ systems of the human body.

COVID-19 actually means coronavirus disease 2019. COVID-19 targets and affects multiple organs like lungs, heart, kidney etc, thus increasing the mortality and morbidity rates. The medication cost and side effects have made the allopathic system of medicine the least sought after. The rapid spread rate of the infection has urged mankind to look at alternative remedies to fight the novel coronavirus.

AYUSH is a government organisation under the Ministry of Ayurveda, Yoga & Naturopathy, Unani,

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Siddha and Homoeopathy which aims to promote indigenous alternative medicine systems in India. AYUSH recommends various measures to fight the novel coronavirus infection.
Chyavanprash is one such important formulation proposed by the AYUSH for COVID-19. The purpose of our review is to highlight the constituents and pharmacological activities of CP in the prophylaxis, manage and treatment of COVID-19 by collecting and compiling the published research on COVID-19. The review also focuses on understanding the mechanism behind the multimodal activity of CP. References relevant to our topic were screened based on relevance to our topic.

Keywords: Chyavanprash; COVID-19; AYUSH; alternative medicine systems; coronavirus and coronaviruses.

1. INTRODUCTION

In the recent past, numerous diseases have emerged in various parts of the earth. The examples of disease-causing pathogens include Nipah virus, Zika virus, Ebola virus and coronaviruses (CoVs). The most recent pathogen which originated from Wuhan, China did not match with the previously identified CoVs, indicating that this is a novel strain of CoV (2019-nCoV). It was later termed as severe acute respiratory syndrome CoV-2 (SARS-CoV-2) [1].

The novel coronavirus or SARS-CoV-2 (Severe Acute Respiratory distress Syndrome coronavirus 2) must be considered as a serious threat to mankind due to the severity of the complications on lungs, heart and other organ systems [2]. Furthermore, the asymptomatic nature of the disease in considerable number of patients and the spread rate of the infection increases both mortality and morbidity rates (*COVID Research Updates: Dense Cities Should Brace for Long Coronavirus Outbreaks*, n.d.).

The allopathic system of medicine suggests measures like frequent hand washing, social distancing and wearing of a mask, but does not provide any drugs or modalities to improve immunity and help in reducing the infection rates [3].

The interdisciplinary AYUSH R & D task force recommends various simple yet effective measures with respect to Ayurveda, Yoga, Naturopathy, Unani, Siddha and Homoeopathy for treatment, management and prevention of Covid-19(*Guidelines for Clinical Trials on AYUSH Interventions for COVID-19 – by ID-AYUSH-R&D Task Force*, n.d.).

This review targets to collect available published data to explore the scientific effectiveness and mechanism of action of AYUSH recommeded Chyavanprash in COVID-19 [4].

2. CHYAVANPRASH (CP)

Chyavanprash is a combination of nutrient-rich herbs and minerals and is considered to be a standard ayurvedic health product. It is an all-in-one supplement which preserves strength and stamina of the body. Chyavanprash contains approximately 50 medicinal herbs including Amla which is a rich source of Vitamin C. Prominent plant ingredients present in CP includes Ashwagandha, Amla, Bala, Guduchi, Pippali, Shatavari, Gokshru, Brahmi, etc. CP has a wide range of pharmacological properties like antioxidant, antiaging, immuno-booster, anti-diabetic, cardiotonic, respiratory system rejuvenator, digestive, aphrodisiac, nootropic etc [5].

2.1 Dosage

AYUSH recommends taking Chyavanprash 10gm (1tsf) in the morning. Diabetics should take sugar-free Chyavanprash [4].

2.2 Folkloric Claims of CP

Traditionally CP was clamied to be effective in cough, asthma and few other respiratory diseases. CP addditionally was thought of promoting vigor, vitality and decelerate aging process. The acient literatures describes that CP could be used to attain memory, intellect, freedom from disease, enhanced sexual strength, improve digestion and restore body fuctions like circulations, movements and neuroconductive functions [5](Kumar et al., 2012).

3. MECHANISM OF ACTION AND EFFECTIVENESS OF CHYAVANPRASH IN COVID-19

[6] [7] [8] [9] [10] [11] [4] [12] [13] [14] [15] [16] (“Characterizing the Antioxidant Activity of Amla

(Phyllanthus Emblica) Extract," 2001) [17] [18] [19] [20] [21] (*Diabetes and COVID-19*, n.d.) [5]

3.1 Effects on the Respiratory System

Chyavanprash protects and strengthens the respiratory system. CP helps in the management of symptoms of the novel infection like allergic cough, respiratory infections, bronchospasm, asthma (shortness of breath), common cold, etc [6][7][8].

Amla, sesame oil, Shalparni, Agnimanth, Pushkarmul, Prishnaparni, Bhumyamalaki, Vasa, Kantakaari, Kakdasingi and Pipali aids in nourishing the respiratory system(Sharma et al., 2003)[22][23][11].

Clinical trial study on 90 pulmonary tuberculosis patients and an observational study on 99 newly diagnosed pulmonary tuberculosis patients showed augmentation of the bioactivity of the antitubercular agents, prevention of their side effects and diminished the symptoms of tuberculosis[8][24],[15].

3.2 Immune Boosting Properties of CP

CP enhances immunity and aids in the healing process. Due to the substantial quantity of Amla which is rich in flavonoids, vitamin C and hence exhibits prominent antioxidant and free radical scavenging activity which in turn improves immunity to combat infection [16],.

3.3 Anti-Inflammatory and Antioxidative Activities of CP

Inflammation is considered to be an adaptive response triggered by stimuli which are noxious like infection and tissue damage. The strong interconnections between oxidative stress and inflammation are also proven. Oxidation or oxidative stress can lead to inflammation. So an increase in oxidative stress could result in inflammation [14]. Antioxidant phytoconstituents present in CP like flavonoids, carotenoids, phenolic compounds and tannins could equally contribute to significant anti-inflammatory activity. CP contains minute quantities of responsible spice ingredients for antioxidative and anti-inflammatory properties [25] [14] [26] ("Characterizing the Antioxidant Activity of Amla (Phyllanthus Emblica) Extract," 2001). Free radical scavenging assays of CP also yielded fruitful results [17].

Table 1. Modes of action of Chyavanprash in COVID-19

Modes of action of CP in COVID-19				
Respiratory system Useful **in** allergic cough, respiratory infections, bronchospasm, asthma, common cold	**Immune system** Immunobooster, antioxidant and free radical scavenging activity	**Inflammation and Oxidative stress** antioxidative and anti-inflammatory activities	**Cardiovascular system** Cardiotonic, anti-hyperlipidemic, antiatherogenic, antioxidant, antihypertensive, vasodilatory	**Diabetes** reduces the postprandial glucose levels

3.4 Effects of CP on Heart

COVID- 19 is known to cause deleterious effects on the heart like acute cardiovascular injuries such as acute myocarditis and heart failure and chronic cardiovascular injuries like hyperlipidaemia and cardiovascular system abnormalities [18].

CP acts as a powerful cardiotonic. It adds strength and vigour to heart by correcting its pumping rhythm. CP additionally possesses antihyperlipidemic activity and aids in metabolic disorders [19] [20]. The rejuvenation and restoration effects of CP is attributed to components like Neelkamal, Amla, Pushkarmul, Punarnawa, Vasa, Kachur, Bala, Pithawan, Sarivan, Gokshur and Barikateri [9] [23]. Amla exclusively has antiatherogenic, hypolipidemic, antioxidant, antihypertensive and vasodilatory effects [21].

Table 2. Prophylaxis, Management and Treatment of COVID-19 [5]

Prophylaxis, Management and Treatment of COVID-19				
Prophylaxis Amla (rich in flavonoids, vitamin C) is responsible for the immuneboostin g and antioxidant properties of CP	**Management** Amla, sesame oil, Shalparni, Agnimanth, Pushkarmul, Prishnaparni, Bhumyamalaki, Vasa, Kantakaari, Kakdasingi and Pipali are helpful managing allergic cough, respiratory infections, bronchospasm, asthma, common cold which are the common symptoms in COVID-19 patients.	**Treatment** Antioxidative and anti-inflammatory properties of CP of flavonoids, carotenoids, phenolic compounds and tannins could be useful in treating Necrotizing pneumonia which is a complication of COVID-19.	**Treatment** Cardiotonic, antihyperlipide mic, antiatherogenic, antioxidant, antihypertensiv e activites of Neelkamal, Amla, Pushkarmul, Punarnawa, Vasa, Kachur, Bala, Pithawan, Sarivan, Gokshur and Barikateri aids in the treatment of acute myocarditis, heart failure, hyperlipidaemia and cardiovascular system abnormalities associated with COVID-19.	**Treatment** Anti-diabetic effects of Neem, Tulsi and Cardamom is advantageous to prevent the progression of serious complications in diabetic patients infected with COVID-19.

3.5 Diabetes and Chyavanprash

It is not that diabetics are more likely to be infected by the COVID- 19. The risk of getting infected by the virus is the same for the normal population and diabetics. The higher risk of experiencing severe complications by the novel coronavirus in patients with pre-existing diabetes is a matter of concern(*Diabetes and COVID-19*, n.d.).

Although CP is contraindicated in diabetic patients, as per reports CP reduces the postprandial glucose levels in oral glucose tolerance test. Neem, Tulsi and Cardamom of Chyavanprash are responsible for its anti-diabetic effects [5].

4. CLINICAL TRIALS ON CP

Ayurvedic supplement and FMCG (Fast-moving consumer goods) giant Dabur India has obtained permission and has started to conduct a clinical on 600 volunteers to test if CP formula could help prevent healthy volunteers from contracting the novel coronavirus. The results will ascertain the prophylactic role of CP in COVID-19 [5].

5. TOXICITY PROFILE of CP

There have several studies carried for ascertaining the toxicity of CP, but no evidence of toxicity has been available. CP if consumed at the prescribed dose is safe. A report reveals that Amla if consumed during bedtime may cause ill-effects to teeth [27].

6. CONCLUSION AND FUTURE PROSPECTS

The demand for formulations/products from plants is increasing day by day owing to their low cost and fewer side effects. Pharmaceuticals, nutraceuticals, cosmetics and other related products originating from natural sources are the most sought after nowadays. Availability of standardization techniques along with pre-clinical and clinical evidence for safety and efficacy of natural products makes them more reliable and trust-worthy.

Chyavanprash may be considered as a powerful anti-COVID-19 modality due to its multimodal actions which include its prophylaxis, management and treatment prospects. Even though our review brings to light the probable mechanisms underlying the positive effects of CP in COVID-19 infections, researchers warn that the evidence supporting the mechanisms are still not clear. Hence more elaborate pharmacological evaluations on human subjects will help in proving the effectiveness of the CP in COVID-19 [27].

DISCLAIMER

The products used for this research are commonly and predominantly use products in our area of research and country. There is absolutely no conflict of interest between the authors and producers of the products because we do not intend to use these products as an avenue for any litigation but for the advancement of knowledge. Also, the research was not funded by the producing company rather it was funded by personal efforts of the authors.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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