



Review Article

CRITICAL ANALYSIS OF *CHARAKOKTA MAHAKASHAYA* IN THE MANAGEMENT OF RESPIRATORY SYSTEM DISORDERS W.S.R. COVID-19 PANDEMIC

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ABSTRACT

The World Health Organization (WHO) declared the outbreak a Public Health Emergency of International Concern on January 30, 2020. There is currently no specific drug or targeted intervention available, and current therapy consists solely of symptomatic treatment and supportive care. **Objective:** The goals of this theoretical research, which grew out of this literature review, were to critically review *Charakokta Mahakashaya* in the management of respiratory system disorders w.s.r. COVID-19 pandemic and interpret its significance in the modern era. **Methodology:** The present work is primarily based on theoretical research using related research articles, standard textbooks of epidemiology and classical treatises of Ayurveda. **Discussion:** The COVID-19 pandemic has posed several challenges to the Indian healthcare system. In Ayurveda, the concept of epidemic was well defined under the heading of *Janapadodhwansa*. It has been discovered that deaths in COVID-19 were caused by a lack of immunity. The *Rasayana* drug, which provides passive immunity based on *Ojas*, antagonises the strength of disorders and prevents them. The AYUSH ministry has issued numerous guidelines regarding COVID-19 potential treatment, which must be statistically studied. Along with combating the current situation, objective assessment of the scientific plausibility of botanical interventions for prevention and treatment is critical, and the world's scientific minds are expected to begin planning strategies for the future as well. **Conclusion:** To combat this pandemic, the prophylactic and therapeutic potential of traditional and complementary medicine systems such as Ayurveda and Yoga can be demonstrated as effective COVID-19 prophylaxis and adjuvant therapy.

INTRODUCTION

In December 2019, an outbreak of COVID-19, caused by a novel severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) infection attacking mainly on the immune system of a body, occurred in Wuhan City, Hubei Province, China.^[5] This potentially fatal disease spreading worldwide at an exponential rate making it a serious pandemic situation.^[1] On January 30, 2020 the World Health Organization (WHO) declared the outbreak as a Public Health Emergency of International Concern.^[22] There is no specific drug or targeted intervention is available yet, however, current

therapy for Covid-19 involves only symptomatic treatment and supportive care.^[10] Research is ongoing in many countries to develop effective vaccines and drugs for the COVID-19. However, In Ayurvedic classics, *Acharya Charaka* explained the concept of an pandemic condition under the heading of *Janapadodhwans Adhayaya* and also described the three main principles to tackle pandemic conditions are *Rasayana Chikitsa* (immune-modulators therapy), *Panchakarma* (five procedures of purification and *Sadvritta* (good conduct).^[1] Especially, herbal drugs that hold antipyretic, anti-inflammatory, anti-histaminic, mast cell stabilizer and immune-modulatory properties should be utilized in the prevention and management Covid-19.^[1,31] Ayurveda has a large number of herbal drugs that possess these properties and can serve as a mainstay of treatment for Covid-19. Treatment with herbal drugs not only control symptoms but improve the quality of life. Hence there is utmost need to utilize these herbs with

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evidence-based practice guidelines to yield better results.^[31] The present paper is focused towards critical analysis of herbal agents of the above *Mahakashayas* to justify their efficacy and safety in the management of COVID-19 on the basis of available data.

OBJECTIVE

The idea of such a theoretical research stemmed out with this literature review.

Methodology Objectives of this review were to

- Summarize the current understanding of COVID-19 including etiopathogenesis, clinical manifestations, diagnosis and prevention and control strategies.
- Critically review the *Mahakashaya* (group of decoctions) in COVID-19 pandemic and interpret their significance in present era.

An initial phase of study was made to review related scholarly articles pertaining to the above said subject by using systematic internet based search engines. The present work is primarily based on theoretical research. Classical treatises of Ayurveda and AYUSH guidelines for COVID-19 were used for the study. The classical texts of Ayurveda do not use such modern terminology; hence, approximate corresponding terms were obtained from Central Council of Indian Medicine, India.

DISCUSSION

Etiopathogenesis: CORONA virus (SARS-CoV-2) is a Coronaviridae family enveloped, positive-sense single-stranded RNA (ssRNA) virus.^[12] The source of the infection was a seafood wholesale market in China. It appears that the infection was first spread by zoonotic agents (from animal to human). Furthermore, it spreads from person to person via respiratory droplets (associated with human respiratory activities such as breathing, talking, coughing, and sneezing) that typically travel less than two metres and are the most likely transmission routes.^[13,23] COVID-19, on the other hand, can be classified as *Agantuja vyadhi* (exogenous disease) by onset, caused by *Bhoota* (pathogenic microorganisms)^[15,16] and transforming to *Nija* (endogenous) causing disequilibrium of *Kapha*, *Vata*, and *Pitta doshas*. Based on clinical manifestations and ongoing disease progression, the COVID-19 may be classified as a *Vatakapha pradhana tridoshaja vyadhi* involving *Pranavaha*, *Rasavaha*, *Raktavaha strotas* and respiratory system disease.^[17]

Clinical Manifestations: Incubation period can take up to 14 days after exposure to virus.^[23] Patient with mild infection shows symptoms like fever, non-productive cough and sore muscles. Headache, dizziness, abdominal pain, diarrhoea, nausea, and

vomiting are some of the less common symptoms.^[5,7,13] Patients with severe infections exhibit symptoms such as shortness of breath, myalgia or fatigue, lymphopenia, and radiographic evidence of pneumonia around day nine. Corona virus infection causes extensive alveolar damage as well as progressive respiratory failure.^[6] Ultimately, develop respiratory failure or shock and multi-organ dysfunction leads to death. Older individuals with weak immunity and those with underlying medical complications like cardiovascular disease, diabetes, chronic respiratory disease, and cancer are more likely to develop serious illness.^[23]

Diagnosis: The most commonly used method for diagnosis is RT-PCR (Real Time Polymerase Chain Reaction). Molecular methods, serology, and viral culture are examples of precise tests. Lower respiratory tract samples are superior to upper respiratory tract samples because they contain a higher viral load.^[11,13]

Prevention and Control Strategies: Aside from screening, additional preventive measures such as social distancing and mask use are mentioned in the Indian Medicine System, like *Dhoopan* (fumigation) and sanitization of natural herbs like *Azadirachta indica*, *Cinnamomum camphora* (L.), *Lauraceae*, *Hymenaea verrucosa* Gaertn., *Leguminosae*, *Santalum album* L., *Santalaceae*, *Rosa damascena* Herrm., *Rosaceae*, etc.^[4]

Mahakashaya Importance: Ayurveda has a huge database of medicinal plants that are extremely effective in the prevention and management of a variety of diseases and conditions. In his classical treaty *Charak samhita*, Acharya Charaka summarised 500 *Kashayas* into 50 *Mahakashayas* (50 groups of drugs). All classes of *Mahakashaya* that cure various diseases or contribute to positive health are mentioned in this section. Acharya Chakrapani investigated it further and discovered that each group of herbal drugs has specific pharmacological actions, with the same pharmacotherapeutic actions, to combat a specific disease or disorder. *Kasahara* (relieve cough), *Shwasahara* (relieve dyspnea), *Shothahara* (relieve inflammation), *Jwarahara* (relieving fever)^[19,40]

Shwasahara, *Kasahara*, and *Jwarahara mahakashaya* can be screened for their effectiveness in the Covid-19 pandemic. *Shwashar* and *Kasahar mahakashaya* can be used directly for respiratory disorders, whereas *Jwarahara mahakashaya* acts as an anti-pyretic. The current paper focuses on a critical analysis of the above *Mahakashayas'* herbal agents to justify their efficacy and safety in the management of COVID-19 based on available data. (Table 1).

Table 1: Pharmacological Properties of Shwashara Mahakashaya. [3,17,29,31]

S.N.	Drug with their Latin name	Action on Respiratory System
1	<i>Shati - (Hedychium spicatum)</i>	Mast cell stabiliser, expectorant, anti-asthmatic, anti-histaminic
2	<i>Pushakarmula - (Inula racemose)</i>	Anti-histaminic, expectorant, anti-catarrhal, anti-asthmatic, mast cell stabilizer
3	<i>Amlavetasa- (Garcinia pedunculata)</i>	Cough & other respiratory disorders
4	<i>Elaichi- (Elletaria cardamomum)</i>	Anti-asthmatic
5	<i>Hingu- (Asafoetida)</i>	Expectorant, anti-asthmatic
6	<i>Agaru- (Aquilaria agallocha)</i>	Anti-asthmatic
7	<i>Myrrh- (Balasmodendro myrrha)</i>	Expectorant
8	<i>Bhumyamalaki-(Phyllanthus niruri)</i>	Anti-asthmatic
9	<i>Jivanti- (Leptadenia reticulata)</i>	Anti-histaminic, mast cell stabilizer, expectorant
10	<i>Chorak -(Angelica archangelica)</i>	Expectorant, anti-histaminic

The pharmacological actions of the herbal drugs that comprise *Shwashara Mahakashaya* are depicted in the table above. All of the *Mahakashaya* herbs have been shown to help with respiratory allergies in studies. Cough, bronchitis, and asthma can be treated safely and effectively with herbs such as *Inula racemosa*, *Garcinia pedunculata*, *Ellataria cardamom*, *Ferula foetida*, and *Phyllanthus niruri*. [31] Gargling with *Balasmodendron myrrha* has been shown to help with tonsillitis, the common cold, gingivitis, and other ailments. All *Shwashara Mahakashaya* have anti-histaminic, anti-asthmatic, bronchodilator, expectorant, and mast cell stabilizer properties, which are essential for respiratory disorder management. Herbs such as *Inula racemosa* are effective as an adjuvant in the respiratory system (Table 1). [3,17,29]

Table 2: Pharmacological Properties of Kasahar Mahakashaya [3,17,29,30,32,33]

S.N.	Drug with their Latin name	Action on Respiratory System
1	<i>Draksha- (Vitis vinifera)</i>	Anti-histaminic, use in cough & respiratory tract infection
2	<i>Haritakki- (Terminalia chebula)</i>	Anti-asthmatic, Mast cell stabilizer
3	<i>Amalaki- (Embelica officinalis)</i>	Anti-asthmatic, anti-tussive
4	<i>Pippali (Piper longum)</i>	Anti-asthmatic, Mast cell stabiliser property, bronchodilator, anti-histaminic, bio availability enhancer
5	<i>Dhanvayaas- (Fagonia cretica)</i>	-
6	<i>Karkatshringi- (Pistacia integerrima)</i>	Anti-histaminic, expectorant
7	<i>Karkatashrungi- (Solanum xanthocarpum)</i>	Anti-histaminic, expectorant, Mast cell stabilizer
8	<i>Punarnava - (Boerhavia diffusa)</i>	Expectorant
9	<i>Bhumyamalaki- (Phyllanthus niruri)</i>	Anti-asthmatic
10	<i>Vrushchira- (type of Boerhavia diffusa)</i>	-

Table 5: Pharmacological Properties of Jwarahar Mahakashaya [3,3,17,29,4,35,36,37,38]

S.N.	Drug with their Latin name	Action on Respiratory and thermoregulatory system
1	<i>Sariva- (Hemidesmus indicus)</i>	Antipyretic, immunomodulatory
2	<i>Patha- (Cissampelos pareira)</i>	Antipyretic
3	<i>Manjishtha- (Rubia cordifolia)</i>	Antipyretic, blood purifier
4	<i>Draksha- (Vitis vinifera)</i>	Antipyretic, anti-inflammatory
5	<i>Pilu- (Salvadora persica)</i>	Antipyretic, antioxidant,
6	<i>Parushaka- (Grewia asiatica)</i>	Antipyretic, antioxidant, immunomodulatory
7	<i>Abhaya- (Terminalia chebula)</i>	Anti-asthmatic, Mast cell stabiliser, anti-pyretic
8	<i>Amalaki- (Embelica officinalis)</i>	Anti-asthmatic, anti-tussive, antioxidant, immunomodulatory
9	<i>Bibhitaki- (Terminalia belerica)</i>	Antipyretic, bronchodilatory, anti-asthmatic
10	Sugar	-

Nine of the ten herbs in *Jwarahara mahakashaya* have antipyretic activity, as evidenced by clinical and experimental studies. Fever (*Jwara*) is well understood in Ayurvedic canonical texts, such as the Charaka Samhita. In this case, the fever was diagnosed as a *Vata Kapha* predominant one based on his presenting symptoms^[26], necessitating appropriate management. The patient later tested positive for COVID-19. In anaemia, jaundice, dyspepsia, constipation, haemorrhagic diseases, gout, cough, dyspnoea, and alcoholism, the Ayurvedic Pharmacopoeia of India recommends dried *Draksha* mature fruits.

CONCLUSION

A superior way to treat the specific problem. Shwashara, Kasahara, and Jwarahara mahakashaya are herbal remedies that have demonstrated anti-histaminic, anti-asthmatic, expectorant, antipyretic, and mast cell stabilizing characteristics. Since the COVID-19 virus mostly affects the respiratory system, these herbal medications can be utilized just as successfully against the ailment. Additionally, these medicinal plants offer superior possibilities for formulating medicines because of their pharmacological effects. Both minimizing recurrent respiratory allergies and enhancing the respiratory system depend on their ability to act as immunomodulators. Numerous allopathic medications are currently being investigated for preventive use against COVID-19 as it appears that existing prophylactic strategies are insufficient. The preventative and therapeutic capacity of conventional medical systems, such as Ayurveda, has been demonstrated through successful adjuvant therapy and prevention of COVID-19. As the novel infection spreading all over the world, objective assessment of the scientific plausibility of nutraceutical and botanical interventions for prevention and treatment is important.

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