

## Review On Antiviral and Immuno Booster Herbs Used During Covid- 19

<sup>1</sup>Nowfa Firoskhan, <sup>1</sup>Drisy M K

<sup>1</sup> Student, Division of Pharmacognosy and Phytochemistry Research Laboratory, Nehru College of Pharmacy, Pampady, Thiruvilwamala, Thrissur-680588, Kerala, India

Corresponding author: Nowfa Firoskhan

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**ABSTRACT:** Severe Acute Respiratory Syndrome Coronavirus 2 (SARS-CoV-2, known as nCoV, is the causative agent of Coronavirus Disease 2019 (COVID-19)). It has spread around the world, creating an epidemic outbreak. Because there are no specific antiviral drugs for COVID-19, supportive care and non-specific treatment is an alternative method to escape from this dreadful coronavirus besides the vaccines. Naturally occurring molecules from herbs with antiviral and immune-boosting properties are found to be effective for the supportive treatment of COVID-19. The herbal approach is very beneficial for any diseases even from the historical period it had been proven. In this article, very few herbs from nature's treasure is reviewed out. This article will lead to focusing on the preparation of herbal anti-coronal formulation in the future to escape from this pandemic situation.

**KEYWORDS:** Coronavirus, dreadful, herbal approach, antiviral, immune booster

### I. INTRODUCTION

The pathogenic virus – novel coronavirus (n CoV) whose causative agent is SARS-CoV-2 (Severe acute respiratory syndrome coronavirus-2) creates a pandemic situation in the world through the disease named “COVID-19” [1].

SARS-CoV-2 is a single-stranded RNA virus whose virulence is in the non-structural and structural protein in its viral envelope. This virus comes under the genus  $\beta$ -coronaviruses [2]. They have projecting spikes on their surface and these spike proteins have a great affinity to ACE-2 (Angiotensin-converting enzyme-2). SARS-CoV-2 will bind to the human receptor angiotensin-converting enzyme 2 (ACE2) through the receptor-binding domain (RBD) and helps the virus to invade the host cells. Through this, the coronavirus invades to respiratory mucosa of humans [3]. The incubation period of this virus is an average of 5 days or vary from 1 to 14 days. This virus got

transmitted to humans by the means of droplet infection [2].

Once it got invaded to the human body it mayhap symptomatic or asymptomatic. The manifestations of COVID-19 encompass dry cough, shortness of breath, tiredness, fever, sore throat, bronchitis, pneumonia, severe acute respiratory distress syndrome, multiorgan failure, and even death [2,5]. The viral genome is encoded by the proteins, the spike (S) glycoprotein, main protease enzyme (the Mpro), and the RNA-dependent RNAPolymerase (RdRp) and are considered as promising druggable and vaccine targets and also have a role in viral replication and infection. Remedies of coronavirus act in two ways. Firstly, they could block or inhibit the binding of coronavirus with human cell receptors, thus preventing the virus invasion and spreading. Secondly, they act on viral structural and functional proteins, enzymes, or their genetic material thus inhibiting RNA synthesis, replication, or virus self-assembly [10].

SARS-CoV-2 has an effect on humans without any age difference. As we have known that this COVID-19 is a spreading disease among humans and this leads to an outbreak of our economic, social, medical, educational, the financial status of our world. For this terrific infection, there is no precise treatment method is available. The only way now available is crime prevention. Along following with the measures suggested by WHO (World Health Organization), we can find out relief from this terrific disease with the use of some natural or traditional methods [6]. A huge treasure of natural herbs is easily available with the power of antiviral activity and to boost our immunity. Various herbs were already mentioned in articles with antiviral potential against viral conditions like a common cold, hepatitis, smallpox, etc... [7]. Besides these, many natural immune boosters create a shield to coronavirus attacks. Herbs like Amla, Neem, Ashwagandha, Tinospora, etc. were found to be potential against COVID-19.

As we were aware that our nature is a pharmacy with enormous medicines that give light to novel drug discovery processes for any diseases, we should utilize this gift to obtain relief from this pandemic situation COVID-19. Some herbs that may give relief to this terrific virus are reviewed below.

## II. HERBS FOR A RELIEF FROM COVID

### 19

From the prehistoric period onwards, we are depending on our nature for the prevention and treatment of various diseases and ailments. Herbal medicine has a vital role in managing infectious diseases [11]. Today, our world is facing an epidemic outbreak 'COVID 19'. This outbreak is now producing a crucial effect on humans [1]. Various researches are in progress worldwide to obtain the vaccines or an accurate treatment for this epidemic outbreak [2]. To mitigate the symptoms of patients, supportive care and non-specific treatments are the currently available option for us [8]. Plant-based sources have achieved positive effects with future inventions for the control of COVID-19. Herbs are now attaining great focus in this pandemic situation due to the great therapeutic potentials like antiviral, immunomodulatory, antioxidant properties [9]. Herbs show the notable result in the treatment of SARS coronavirus [11]. The study of herb's effect in controlling COVID-19 is conducting based on many case reports, case series, observational studies [12].

#### AMLA

*Embllica officinalis* (Indian gooseberry) contain an abundant source of vitamin C. It can be used as a remedy for a variety of ailments like fever, common cold, hair growth, dyspepsia, liver diseases, etc. Pre-clinical studies of amla showed that it had anti-inflammatory, antioxidant, immune enhancer, antipyretic, antitussive, hematinic, neuroprotective activities as it contains phytoconstituents like ascorbic acid, ellagic acid, gallic acid, nor sesquiterpenoids, gearaniin, prodelphinidins, iron, calcium, and so on. It is accepted as the best immune booster herb and is powerful against viral infections [2].

#### NEEM

*Azadirachta indica* is used widely for a variety of medicinal uses. It possesses various activities like antiseptic, antipyretic, antimicrobial, analgesic, blood purifier, anti-inflammatory, antifungal, antibacterial, immunomodulatory as it

contains nimbin, nimbidin, nimbolide, limonoids,  $\beta$ -sitosterol, quercetin, etc. In vitro studies of neem showed that it had potent viricidal activity [2].

#### ASHWAGANDHA

*Withania somnifera* proved its medicinal properties from the traditional periods onwards. It can be utilized as a body tonic, nerve tonic, aphrodisiac, anti-inflammatory, antarthritic, antivenom drug. It includes alkaloids, sterols, saponins, amino acids, and polysaccharides. It is an efficient immune-boosting herb. Because of its immune-enhancing properties, many in vitro studies revealed that it is powerful against infectious viral diseases [2].

#### TURMERIC

*Curcuma longa* has immense therapeutic effects. It possesses anti-inflammatory, antioxidant, antimicrobial, anticancer, immune-modulatory due to the presence of constituents like curcumin, dihydrocurcumin, hexahydrocurcumin. Its major component curcumin is useful in acute respiratory disease syndrome and also it is efficient against viruses [2].

#### GUDUCHI

*Tinospora cordifolia* possesses lots of medicinal effects and is used traditionally for immune boosting, blood purifying, anti-inflammatory, analgesic, and for treating chronic cough, breathlessness, tuberculosis, leprosy, gonorrhoea, syphilis. It is composed of steroids, diterpenoid, sesquiterpenoids, polysaccharides, phenolics. It has indomethacin and a non-steroidal anti-inflammatory activity. Its in vivo studies showed that *tinospora* is beneficial for histamine-induced bronchospasm and is utilized with regular antiviral therapy [2].

#### BLACK CUMMIN

*Nigella sativa* has various activities like a bronchodilator, immune booster, analgesic, antibacterial, anti-inflammatory. It includes components like thymoquinone, p-cymene, sesquiterpene, carvacrol, alpha-pinene, terpineol, saponins. Its antiviral activity was studied by Salem et al. using murine cytomegalovirus [2].

#### SAFFRON

*Crocus sativus* used for its expectorant, cardiogenic, anti-inflammatory, body tonic. Various in vivo and in vitro studies showed that it has anti-aging, anti-inflammatory, antiviral, antimicrobial, cardioprotective, hepatoprotective,

nephroprotective, and is a potent immune enhancer. Its bioactive components include safranin, crocin, picrocrocin [2].

#### CINCHONA

*Cinchona officinalis* traditionally used for fever, inflammation, malaria, common cold, influenza, etc. It is supposed to possess immunomodulating activity. It was found to be used against the coronavirus as it contains cinchonine, quinine, cinchonidine, quinidine [2].

#### LIQUORICE

*Glycyrrhiza glabra* traditionally being utilized as an expectorant, mucolytic, anti-inflammatory, antipyretic, diuretic, immune empowering, nerve stimulant. Recent researches were showed that it possesses anti-microbial, antiviral, antioxidant, antitumor properties. Its activities are due to the presence of glycyrrhizin, glabridin, 18-beta-glycyrrhetic acid, liquiritigenin, licochalcone A, and E [2].

#### III.CONCLUSION

The present challenge facing our world is an epidemic outbreak, known as COVID-19. One of the best ways of prevention methods is to enhance our body's immune power. Natural herbal medicines were the most efficient as they had proven their valuable effect in treating various ailments from the pre-historically time itself. Usage of various herbs with antiviral and immune booster activity is considered to be very beneficial against this dreadful disease, COVID-19. Presently, there are some allopathic therapies effective against COVID-19 vaccines too. Even though the design and development of drugs and vaccines need to be made clear of the mechanism of SARS-CoV-2. Many works of literature showing evidence for herbal medicine as successful antivirals against SARS-CoV-2 and as preventive agents against COVID-19. Therefore, herbal medicine would be a complementary preventive therapy for COVID-19.

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