

**POTENTIAL DRUGS FOR COVID-19 IN UNANI SYSTEM OF MEDICINE: A
PHARMACOLOGICAL ACTIONS-BASED REVIEW****¹Qutubuddin Khan, *²Manzoor Ahmad Mir and ³MD. Hashmat Imam**¹Dept. of Amraze Jild wa Tazeeniyat (Skin & Cosmetology), National Institute of Unani Medicine, Bangalore, K.A., India²Dept. of Tahaffuzi wa Samaji Tib (Preventive and Social Medicine), National Institute of Unani Medicine, Bangalore, K.A., India.³Regional Research Institute of Unani Medicine (RRIUM), Patna, India.***Corresponding Author: Manzoor Ahmad Mir**

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ABSTRACT

The virus that causes coronavirus disease (COVID-19) was first identified in December 2019 and has since spread worldwide to at least 187 countries and territories. It is a newly emerging disease and became highest health threat of the 21st century to the whole world. World health organization declared it as pandemic. It is ranging in severity from the common cold, fever, dry cough to difficulty in breathing, pneumonia and if not managed properly may lead to respiratory distress, hypoxemia, multi-organ failure and death. Evidence based vaccines and antiviral drugs are not available yet for the treatment of COVID-19. In Unani System of Medicine, many drugs used are time tested in all kind of *Humma-i-Waba'i* (Epidemic Flue) since centuries. These drugs contain many identified active constituents with proven pharmacological activities. Here are some potential Unani drugs which may be used as prophylaxis and supportive treatment of COVID-19. These drugs are proposed on the basis of their proven anti-viral, immunomodulator, anti-microbial, anti-pyretic and anti-inflammatory properties. **Objective;** To explore the hidden potential of Unani System of Medicine in the prophylaxis and the treatment of COVID-19.

KEYWORDS: COVID-19 Prophylaxis; Supportive Treatment; Unani Medicine; Immunomodulator; Antioxidant.**1. INTRODUCTION**

A combination of altered human behaviors, environmental changes, and inadequate global public health mechanisms now easily turn obscure animal viruses into existential human threats.^[1] Novel corona virus (2019-n cov) is a new strain that has not been identified in humans. It has raised world concern since it emerged in Wuhan Hubei China in December, 2019. Coronaviruses (cov) are large family of viruses that cause illness ranging from common cold to more severe diseases such as Middle East Respiratory Syndrome (MERS-Cov) and Severe Acute Respiratory Syndrome (SARS-cov). It is manifested with fever, dry cough, coryza, sore throat and difficulty in breathing, some patients may develop pneumonia, respiratory distress. The most common symptoms are fever and dry cough. It affects all age groups and both the sexes,^[2] but persons with co-morbid conditions, like Diabetes, Hypertension, Cardiovascular disease, Tuberculosis, COPD and age above 65 years are more likely to develops respiratory distress, multiorgan failure and death. Studies show that persons having weak immunity are by and large affected.

W. Guan et. al. 2020 reported lymphocytopenia in 83.2% of the patients. The degree of severity of disease was categorized as non-severe in 926 patients and severe in 173 patients. Patients with severe disease were older than those with non-severe disease. The most common patterns shown on chest CT are ground-glass opacity (56.4%) and bilateral patchy shadowing (51.8%).² AST (5 [27.78%] of 18), ALT (5 [27.78%] of 18), γ -GT (8 [44.4%] of 18) and LDH (6 [31.58%] of 19) had abnormally increased.^[3]

Zunyou Wu classified COVID-19 as mild (81%; ie, non-pneumonia and mild pneumonia). However, 14% were severe (ie, dyspnea, respiratory frequency 30/min, blood oxygen saturation 93%, partial pressure of arterial oxygen to fraction of inspired oxygen ratio <300, and/or lung infiltrates >50% within 24 to 48 hours), and 5% were critical (i.e. respiratory failure, septic shock, and/or multiple organ dysfunction or failure).^[4]

2. METHODOLOGY

According to Unani System of Medicine (USM), *Waba* is defined as a widespread transmission of a particular disease in a large population (epidemic or pandemic). It

is caused by extreme abnormal conditions of air, earth and weather. Humid atmosphere favors the spread of Waba.^[5] Fever caused by Waba is known as *Humma-i-Waba'i* (*Humma* means fever in Arabic). Common symptoms of *Humma-i-Waba'i* described in USM are dry cough, fever, lethargy, difficulty in breathing, bad breath, restlessness and dizziness.^[6,7,8] According to Zakriya Razi, in *Humma-i-Waba'i*, persons with excessive *Akhlai-i-Radiya* (Metabolic wastes) are more prone to *Tadiya* (Infection) which may lead to various acute sign and symptoms of fever with involvement of respiratory tract compounded with grievous complications leading to death at higher rate.^[5] He Quoted Jalinoos (Galen) in his book *Kitabul Hawi* that *Nazla-i-Waba'i* (Epidemic Influenza) may cause death in

elderly patients.^[5] Similarly, high mortality rate in COVID-19 is reported in the individuals above 65 years of age and with co-morbid condition like diabetes, cardiovascular and respiratory diseases.^[1,2]

Medicinal plants have been widely used to treat various infectious and non-infectious ailments. Natural plant polysaccharides, which are polymeric carbohydrate molecules composed of long chains of monosaccharide units, have different biological activities, including anti-inflammatory activities, immunological regulation, oxidation resistance, anti-microbial and antiviral activities. An urgent need therefore exists for the research and development of alternative treatment in this disease.

2.1 Regimes for prophylaxis and treatment of COVID-19.

Table 1:

S. N.	Groups	Drugs	Doses
1.	Prophylaxis in low risk individuals	Tiryaaq-i-Waba'i	25 mg/kg body weight (KBW) twice a week
2.	Prophylaxis in high risk individuals	-Tiryaaq-i-Waba'i - Decoction in water* Asalassoos (<i>Glycyrrhiza glabra</i>) 5 gm Gauzaban (<i>Borago officinalis</i> Lin.) 5 gm, Unnab (<i>Ziziphus jujuba</i> Mill) 5 piece, Sapistan (<i>Cordia myxa</i>) 9 piece	-50 mg/KBW daily -once in morning BBF
3.	Mild COVID-19 patients /Under Screening Patients	- Tiryaaq-i-Waba'i - Lauq Khayar Shamber (Table- 3) - Decoction in water* Afsanteen (<i>Artemisia absinthium</i>) 3 gm, Zoofa (<i>Hyssopus officinalis</i> Linn.) 5 gm, Asalassoos (<i>Glycyrrhiza glabra</i>) 5 gm, Gauzaban (<i>Borago officinalis</i> Lin.) 5 gm, Unnab (<i>Ziziphus jujuba</i> Mill) 5 piece, Sapistan (<i>Cordia myxa</i>) 9 piece	-50 mg/KBW daily -5 gm, four times per day once in morning BBF
4.	Severe COVID -19 patients	-Tiryaaq-i-Waba'i -Lauq Khayar Shamber - Decoction in water* Afsanteen (<i>Artemisia absinthium</i>) 5 gm, Zoofa (<i>Hyssopus officinalis</i> Linn.) 7 gm, Asalassoos (<i>Glycyrrhiza glabra</i>) 7 gm, Gauzaban (<i>Borago officinalis</i> Lin.) 7 gm, Unnab (<i>Ziziphus jujuba</i> Mill) 5 piece, Sapistan (<i>Cordia myxa</i>) 9 piece	-50 mg/KBW twice a day -5 gm, 3 hourly twice a day

* Preparation of decoction- Soak the mentioned herbs in 400 ml of water for 1 hour, then boil it for 10 minutes, filter it, take the lukewarm decoction orally as advised.

3. POTENTIAL UNANI DRUGS

3.1 Tiryaaq-i-Waba'i (Synonyms Tiryaaq-i-Afa'i)

Table 2: Composition of Tiryaaq-i-Waba'i.^[7,9]

S. N.	Ingredients	Scientific Name	Ratio
i.	Sibr	<i>Aloe barbedensis</i>	250 mg
ii.	Zafran	<i>Crocus sativus</i>	125 mg
iii.	Murmakki	<i>Commiphora myrrha</i> . Synm- <i>C. molol</i>	125 mg
	Rose water	-	as binder

*Tab of 500 mg

Dose. 1- 3.5 gm in morning.^[7,9]

Immune-stimulating effects of *Tiryaaq-i-Waba'i* (Table-2) has been documented in a clinical trial, showed

statistically significant increase in TLC ($P < 0.001$), lymphocyte percentage ($P < 0.001$), ALC ($P < 0.001$) and CD4 count ($P < 0.001$).^[10]

3.1.1 Sibr/Aloe Vera (*Aloe barbadensis*)

Antiflu.^[11] Antibacterial, wound healing-promoting and immunity-enhancing functions.^[12,13,14,15] Anti-inflammatory and antioxidant.^[16] Gonzalez et al found that *A. barbadensis* increases the proliferation of T-lymphocytes in involuted thymus.^[17]

3.1.2 Zafran (*Crocus sativus*)

In Unani medicine, the stigmas of this plant have been used as antitussive, expectorant and antioxidant.^[14] Saffronal, picrocrocin, crocetin and crocin are some active constituents of saffron.^[16] Active constituents of saffron, crocetin and crocin,^[18] are useful in the treatment of neurodegenerative disorders accompanying memory impairment.^[16,19] Antitussive effect of saffronal and crocin present in stigma and petals of saffron (*Crocus sativus*) has been documented in an experimental study in guinea.^[20] Hypolipidemic effects, radical scavenging

properties, Antinociceptive,^[21] anti-inflammatory,^[21] and antidepressant effects.^[19] Antihyperglycaemic activity, anticoagulant activity, Cell proliferation inhibition, tranquillizing of Constituents of Saffron extracts have also been reported in animals,^[22] and human.^[23]

3.1.3 Murmakki (*Commiphora myrrha*, Syn- *C. molol*)

Murmakki is used as an effective antimicrobial, Antiseptic, anti-inflammatory, bacteriostatic, Antiviral and leucocytogenic agent.^[16] It has Antitumour,^[24] Anticoagulant,^[11] and Anti-inflammatory activities^[11] Traditionally, myrrh is used in common cold to relieve nasal congestion and cough due to the Modulation of immune reactivity^[25] and Antimicrobial activity.^[26] Antioxidant effects are a possible mediator in the protection against myocardial necrosis,^[25] inhibition of platelet aggregation^[25] as well as increased fibrinolysis by extract of myrrh resin^[25] It was also found effective in fascioliasis^[27] and in the treatment of *Schistosomiasis haematobium*^[28] in animal studies. The extracts of *Commiphora myrrha* was found having promising result against the MCF-7 breast cancer cell line.^[29]

3.2. Lauq Khayar Shamber

Table 3: Composition of Lauq Khayar Shamber.^[9]

S. N.	Ingredients	Scientific Name	Ratio
i.	Sapistan	<i>Cordia myxa</i> Roxb.	1.5 gm
ii.	Asalassoos	<i>Glycyrrhiza glabra</i> Linn.	1.5 gm
iii.	Maghaze Amaltas	<i>Cassia fistula</i> Linn.	2 gm
iv.	Kateera	<i>Cochlospermum gossypium</i> DC.	1 gm
-	Sugar	-	1 gm

Dose. 10-20 gm (in the form of Lozenges).^[9]

3.2.1 Sapistan (*Cordia myxa*)

It has astringent, demulcent, expectorant, diuretic, anthelmintic, mucilaginous properties.^[16] Therefore, useful in the diseases of the chest and dry cough.^[16,30]

3.2.2 Aslassoos (*Glycyrrhiza glabra*)

Dose- 3-7 gm (to be use as Decoction)

Aslassoos is used in bronchitis, dry cough, respiratory infections, catarrh, tuberculosis and sore throat for its demulcent, expectorant, antiallergic, anti-inflammatory, spasmolytic, mild laxative, anti-stress, anti-depressant, antiulcer, liver protective, estrogenic, antidiabetic, Expectorant and Immunomodulator properties.^[16,28]

3.2.3 Maghaze Amaltas (*Cassia fistula*)

Pulp of the pod contains anthraquinone glycosides, sennosides A and B, rhein, glucoside, barbaloin, aloin, formic acid, butyric acid, their ethyl esters and oxalic acid.^[14] As an Anti-inflammatory, it is used in Pharyngitis and diphtheria.^[30]

3.2.4 Kateera (*Cochlospermum gossypium*)

It is a Gum which is used in cough, hoarseness of throat, diarrhea, dysentery and scalding urine due to its cooling, sedative and bechic properties.^[14,30]

3.3 Afsanteen (*Artemisia absinthium*).^[30,31,32,33,34,35,36,37]

Dose. 2-5 gm (to be use as Decoction).^[30]

It has Antimicrobial,^[38] Antifungal, Anticancer, Antimalarial, Hepatoprotective,^[39] Immunomodulator,^[39] Anti-oxidant,^[40] Anti-inflammatory,^[41] Antidepressant,^[42,43] Neuro-protective/ Brain tonic,^[44] Anti-bacterial,^[45] Antiviral^[45] Antipyretic^[47,48] and Cell stability properties.^[49]

3.4 Zoofa (*Hyssopus officinalis* Linn.)

Dose. 5-7 gm (to be use as Decoction)^[30]

It is Anti-inflammatory, antiallergic, expectorant, Bronchodilator, Blood Modifier and Hepatoprotective.^[30] Therefore, used for cold, chronic cough, bronchitis and respiratory distress.^[16,30]

3.5 Gauzaban (*Borago officinalis* Linn.)

It is Antioxidant, Febrifuge, expectorant, demulcent and emollient.^[16,30]

3.6 Unnab (*Ziziphus jujuba* Mill)

It has nourishing, tonic, emollient, antitussive, antiallergic and hepatoprotective properties and prevents stress ulcer formation. The Seeds are used for dry cough and skin eruptions.^[16]

5. CONCLUSION

From the above discussion we can draw-out the following inferences:

1. The set of similar symptoms has been encountered in the classical reference books of USM like Al Qanoon, Al Hawi, Kulliyate Qanoon and Hummiyate Qanoon, so basis on these findings we can draw-out classical way of Treatment for such set of symptoms.
2. As per the research conducted on various herbs by Unani and Modern experts we found various effectives herbs depicting the required pharmacotherapeutic effects (Immunomodulator, Antioxidant, Anti-inflammatory, Antipyretic, Hepatoprotective, Cardiotonic and Antiviral) which can be exploited in the preparation of a protocol for COVID-19 treatment.
3. At several places Tiryaq-i-Waba'i has been advocated by eminent physicians during epidemic and pandemic. Strikingly the studies done on its ingredients suggested efficacy in prevention and supportive treatment, which furthermore has been substantiated by the exclusive studies on Tiryaq-i-Waba'i. (Table- 2)
4. Different Regimes has been prescribed for prophylaxis in Low & High Risk Groups, and management for Mild and Sever COVID-19 Patient groups. (Table- 1)

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