

Immunity Boosting Measures Against Coronavirus Disease 2019 (COVID- 19) in the Light of Unani Medicine.

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ABSTRACT

COVID-19 is a new viral disease caused due to severe acute respiratory syndrome, coronavirus 2 (SARS-CoV-2), first occurred in Wuhan city of China, in late December 2019. It emerged as a global public health concern, due to a large-scale community-based outbreak across countries within a short period of time. This is a new coronavirus, which spreads primarily through contact with an infected person through respiratory droplets generated by coughing or sneezing, which can be inhaled or as well as contaminate hands and surfaces. There is no medicine or vaccine for COVID-19 as of now, it is better to adopt preventive measures and also take certain steps which will help to boost our immunity. Unani medicine, being the science of life, propagates the gifts of nature in maintaining healthy and happy living. Unani's extensive knowledge based on preventive care derives from the concepts of "*Tabiyat*" to maintain a healthy life. In this paper, we present an overview of the concept of immunomodulation in Unani system of medicine for disease prevention and health promotion.

Keywords: Coronavirus, Wuhan, Unani medicine, Immunomodulation, Health promotion,

INTRODUCTION

COVID-19 stands for Corona Virus Disease 2019. It has emerged as a global public health concern due to a large-scale community-based outbreak across countries, within a short period of time. This is caused by the severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2).^[01, 02] It is a new coronavirus. World Health Organization (WHO) reported the first confirmed case, had been diagnosed on 8 December 2019 in Wuhan city of China. On March 11, 2020, the WHO classified the outbreak as a pandemic^[03]. The virus spreads 1000 times faster^[04] than the other viral strains inside the body and shows wide range of sign and symptoms (mentioned in Table No 01)^[04]. Not a single drug is known for the treatment of this highly contagious disease COVID 19, while various animal trials and clinical trials are going on but, it may take time to come in the market for about 6 months or even upto a year, so it is very difficult to manage this disease. By May 31, 2020, there had been more than 6,218,664 confirmed cases and more than 372,340 deaths and 2,776,259 recovered world widely due to COVID-19. This corresponds to a 5.8% death rate and 44.64% recovery rate^[05, 06]. It has been reported that COVID-19 is more likely to occur in older men with co-morbidities, who have weaker immune functions^[07]. As a new type of highly contagious disease in human, the pathophysiology of unusually high pathogenicity for COVID-19 has not yet been thoroughly understood^[08].

As per the data shown, the recovery rate is almost 44.64% till date. The sole responsible factor for this recovery is within the human body, which is called immunity. Immunity may be defined as the body's ability to identify and resist large number of infectious and potentially harmful microorganisms, enabling the body to prevent or resist diseases and inhibit organ and tissue damage. Immunomodulator are biological or synthetic substances that can stimulate, suppress or modulate any aspect of the immune system including both adaptive and innate arms of the immune system^[09, 10].

Unani medicine describes the concept of *Tabiyat*, which is a supreme planner of the body to create a healthy environment within the body and prepare it to fight against disease. If *Tabiyat* is strong, then a man does not suffer from a disease easily, if it weakens, a man becomes prone to several disease. The *Tabiyat* may be defined as the sum total of structural, functional and psychological character of the human being. According to Hippocrates, there is a special ability hidden in every individual, called the defensive mechanism of the body or in the language of Unani

Pathy, *Tabiyate Muddabire Badan*. This *Tabiyat* is the best physician, and maintains the equilibrium of four body humours. Broadly speaking *Tabiyat* is considered as the real healer of the body and the role of the *Tabeeb* (physician) is to facilitate this *Tabiyat* ^[11,12].

A well known Unani Scholar, Rabban Tabri in his treatise, *Firdousal Hikmat* has mentioned that, practically *Tabiyat* is regarded as an administrative power of the body. The function of administration of the body is accomplished by *Tabiyat*, with the help of many powers called *Quwwa* of the body like *Quwwat tabaiyya* (Physical faculty), *Quwwate haiwania* (Vital faculty) and *Quwwate nafsania* (Nervous faculty). Thus the main role of the *Tabiyat* is to provide the general administration as well as defense or immunity to the body. Immunity is a part of this *Tabiyat*. Unani physicians recommended improving or strengthening the *Tabiyat* for restoration of health and the management of diseases. For this purpose they have mentioned various drugs under the headings of *muqawwe azae raisa* (tonic for vital organs), *muqawwe badan* (general body tonic), *muqawwe asab* (nervine tonic), *muqqawwe qalb* (cardiac tonic), *muqqawwe jigar* (liver tonic), etc ^[13-16].

Unani medicine offers a number of drugs of plant, mineral and animal origin that have immunomodulatory activity and efficacy (The details of these drugs are mentioned in Table 02) to strengthen the immunity system ^[17], hence such drugs can be safely used for prophylaxis of COVID-19. In contemporary systems of medicine, the concept of immunomodulators means the sources of the enhancement of the immunity.

IMMUNITY BOOSTING MEASURES

General Measures ^[18, 19]

- ❖ Drink warm water throughout the day.
- ❖ Daily practice of light exercise (*Riyazat*) for at least 30 minutes.
- ❖ *Hamam* (Turkish bath).
- ❖ Maintain sanitation and general hygiene.
- ❖ Practice stress relieving techniques such as light exercise meditation and spiritual work.
- ❖ Fumigation of the house with combination of *Sandal* and *Kafoor*.
- ❖ Use Seer/Garlic (*Allium sativum*) and Kalonji (*Nigella sativa*) in diet.

Specific Measures

'Ilāj bi'l-Dawā' (Pharmacotherapy)

- ❖ A decoction prepared from boiling Behidana (*Cydonia oblonga*) 3 gm, Unnab (*Zizyphus jujube*) 5 in number, and Sapistan (*Cordia myxa*) 9 in number in 250 ml of water to till it remains half. Keep in a glass bottle after filtering and use it lukewarm. This decoction may be taken twice a day for 14 days ^[20].
- ❖ Prepare AYUSH joshanda (decoction) by boiling Raihan/Tulsi (Basil) leave 4 part, Darchini (Cinnamon) stem bark 2 parts, Filfil siyah/ Kalimirch (Black pepper) fruit one part, Zanjabeel/Adrak (Dry Ginger) rhizome 2 part in 250 ml of water until it reduces to half. Add Jaggery or fresh lemon juice to your taste, if needed sip once or twice a day ^[21].
- ❖ Gul Surkh (*Rosa damascena*, Mill.), Sandal (*Santalum album*, Linn.), Nilofar (*Nymphaea lotus*, Linn.) in equal quantity used as infusion with *Sharbat-i Sandal* and '*Arq-i Gulāb*.

Compound formulations ^[22-25]

S. NO	NAME OF DRUGS	DOSE OF DRUGS
1.	Khamira Marwareed	3-5 gm. in morning.
2.	Khamira Gauzban	7 gm. in morning.
3.	Khamira Abresham Hakim Arshad Wala	3-5 gm. in morning.
4.	Sharbat Unnab	10-20 ml twice a day
5.	Majoon falasifa	5 gm. in morning and evening
6.	Jawarish Shahi	5 gm. in morning and evening
7.	Laboob kabeer	5 gm. in morning and evening
8.	Majoon muqawwi	5 gm. in morning and evening
9.	Majoon Aarad khurma	5 gm. in morning and evening
10.	Maa-ul- laham	20 ml morning and evening
11.	Dawaul misk	7 gm. in morning with 'Arq-i Gāozabān 72 ml.

12.	Kushta e tilan kalan	As directed by physician
13.	Murabba Amla, Murabba Behi	2 piece in a day
14.	Habbe jadwar , Habbe jawahar	As directed by physician.
15.	Tiryaq arba	As directed by physician.
16.	Tiryaq wabayi	5 g morning and evening
17.	Roghan Badam shereen	2-5 ml with Luke warm milk once in a day.
18.	Roghan Baboona/Roghan Mom/Kafoori Balm	massage on scalp and chest
19.	Roghan Banafsha	gently in the nostrils

Dietary recommendations ^[13, 26]

- ❖ Take healthy and balanced diet regularly.
- ❖ *Mā' al-Sha 'īr* (barley water).
- ❖ *Zardī-i Bayza-i Murg* (egg yolk).
- ❖ Shahed (honey).
- ❖ Use dry fruits such as Badam, Kaju , Kishmish, Akhrot, Khubani, Pista.
- ❖ Use of seasonal fruits.

Dietary restrictions: ^[13, 26]

- ❖ *Aghziya Hāmiza* (Sour diets).
- ❖ *Aghziya Kasīfa*.
- ❖ Cold, frozen and heavy foods.

DISCUSSION AND CONCLUSION

COVID 19 is highly transmissible, new pandemic disease. It has not been mentioned in any of the classical Unani literature. The symptoms of this disease closely resemble to those of *nazla-e-wabaiya* described in Unani books. Fever, malaise, cough, etc. are the initial symptoms. People with an underlying disease or a weak constitution have been described by Ibn Sina (980–1035 CE) as being more susceptible to epidemic diseases and having a poor prognosis ^[27]. It is possible to save millions of lives from SARS-CoV-2 infection by enhancing host defense ^[28].

Unani pays particular attention to the host and recommends measures for a healthy lifestyle rather than the mere prescription of medicine. *Al Qanoon fil tib* the classic of Unani, describes epidemic management and defines immunity as the ability to prevent disease and arrest its progress to maintain homeostasis. The concept of building strength of mind and body to cope with various stressors, including infection, is a cornerstone of unani practice [13].

The Unani System of Medicine which is holistic in nature has its own approach in describing the concepts of immunomodulation. It also has its own approach of managing conditions related to health and disease prevention. Unani medicine strives to find the best possible ways, by which a person can lead a healthy life with minimum or zero sickness. It is totally based on the holistic approach to health and the major approaches of health promotion include improvement of immunity by immunomodulators, maintenance of balance in the quality and quantity of humours, moderation of six essential factors of life and adoption of regimental and dieto- therapies which are conducive to the maintenance and promotion of positive health as well as the prevention and cure of disease [29].

There is an extensive review of the literature on “*Tabiyat*” to improve health and wellness in the Unani system of medicine. A number of therapeutic regimen is prescribed in unani system of medicine but only a few aspects have been covered in this review. It has not been possible to have mentioned them all and thoroughly as they should have been in an otherwise exhaustive study. These reviews though not very exhaustive, gives a cue to the scientists working in this field and form a base for further studies towards successful management of health and the related problems during COVID-19 pandemic through improving immunity.

Conflicts of Interest

No conflicts of interest exist for the Authors.

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Table 1: Clinical features associated with COVID – 19.

Most common symptoms	Less common symptoms	Serious symptoms
Fever Dry Cough Tiredness Fatigue	Aches and Pains Sore Throat Diarrhoea Conjunctivitis Headache Loss of Taste or Smell A rash on skin, or Discoloration of fingers or toes Nausea or Vomiting	Difficulties in Breathing or Shortness of Breath Chest Pain or Pressure Loss of Speech or Movement
Note: Symptoms may appear 2-14 days after exposure to the virus.		

Table 02: List of Common Single Drugs of Unani Medicine having immunomodulatory potential

S No	Unani Name	Common Name	Scientific Name	Parts used	Reference
1.	Amla	Amalaki	<i>Emblica officinalis</i>	Fruit	Manish K and Singh MK, <i>et al.</i> 2013
2.	Kalonji	Mangrella	<i>Nigella sativa</i>	Seeds	Boskabady MH, <i>et al.</i> 2011
3.	Qaranfal	Clove	<i>Syzygium aromaticum</i>	Fruit	Debazer SP <i>et al.</i> , 2014.
4.	Gul Surkh	Gulab	(<i>Rosa damascena</i> , Mill.)	Flower	Arokiaraj MC, Menesson E. 2019
5.	Sapistan	Lasora	<i>Cordia myxa</i>	Fruit	Ali WR, Al-Asady ZT and Ibrahim AA. <i>et</i>

					<i>al.</i> 1015
6.	Balela	Beheda	<i>Terminalia bellerica,</i>	Fruit	Choudhary GP. <i>et al.</i> 2012
7.	Halela siyah	Harra	<i>Terminalia chebula</i>	Fruit	Shivaprasad HN, <i>et al.</i> 2006
8.	Jaifal	Nutmeg	<i>Myristica fragrans</i>	Nut	R. Checker. <i>et al.</i> 2008
9.	Ajwain desi	Ajwain	<i>Trachyspermum ammi</i>	Seed	Shruthi <i>et al.</i> 2016
10.	Sazaj hindi	Tejpat	<i>Cinnamomum tamala Linn</i>	Leaf	Chaurasia JK, <i>et al.</i> 2010
11.	Zanjabeel	Adrak	<i>Zingiber officinale</i>	Rhizome	Carrasco FR. <i>et al.</i> , 2009
12.	Zardchob	Turmeric	<i>Curcuma longa</i>	Rhizome	Sengupta M, <i>et al.</i> 2011
13.	Filfil siyah	Black Pepper	<i>Piper nigrum</i>	Fruit	Majdalawieh AF. <i>et al.</i> 2010
14.	Heel khurd	Cardamom	<i>Elettaria cardamomum</i>	Pod	Vaidya A, and Rathod M., <i>et al.</i> 2009.
15.	Hulba	Fenugreek	<i>Trigonella foenum graecum</i>	Seed	Hafeez BB., <i>et al.</i> 2003
16.	Jadwar	Jadwar	<i>Delphinium denudatum</i>	Root	(Zafar., <i>et al.</i> , 2003).
17.	Asgand	Ashwagandha	<i>Withania</i>	Root	Roshan N and

			<i>somnifera</i>		Savitri.2013
18.	Toot	Mulberry	<i>Morus alba</i>	Fruit, Leaf	Bharani SE, <i>et al.</i> , 2010
19.	Hashishatu suaal	Arusa	<i>Adhatoda vasica</i>	Whole Plant	Vinothapooshan G, <i>et al.</i> , 2011.
20.	Bisehri booti	Bhui	<i>Aerva lanata</i> (Linn.) Juss.	Whole Plant	(Nevin KG & Vijayammal PL <i>et al.</i> 2005b
21.	Giloy	Guduchi	<i>Tinospora cordifolia</i>	Leaf, Stem	Sinha K, <i>et al.</i> , 2004
22.	Raihan	Besil/ Tulsi	<i>Ocimum sanctum</i>	Seed, Leaf	Mondal S, Varma S, Bamola VD, <i>et al.</i> , 2011
23.	Berg suddab	Garden Rue, Herb of Grace	<i>Ruta graveolens</i>	Leaves	Pandey <i>et al.</i> , 2016
24.	Darchini	Cinnamon	<i>Cinnamomum zeylanicum</i>	Stem bark	Qadir MMF, <i>et al.</i> , 2018
25.	Unnab	Ber	<i>Ziziphus jujuba</i>	Fruit	M. S. Ganachari <i>et al.</i> , 2004
26.	Neem	Neem	<i>Azadirachta indica</i>	Leaf, Fruit, Bark	Shah AS, <i>et al.</i> , 2009
27.	Resha e bargad	Bargad	<i>Ficu benghalensis L.</i>	Aerial Root	Gabhe SY., <i>et al.</i> , 2006
28.	Gudhal	Rose mallow	<i>Hibiscus Rosa</i>	Flower	Gaur K., <i>et al.</i>

			<i>sinensis L.</i>		2009.
29.	Fowah/ Majith	Manjistha	<i>Rubia cordifolia</i> <i>L</i>	Root, Fruit	Kannan M., <i>et al.</i> ,2009
30.	Shatavar	Shatavari	<i>Asparagus</i> <i>recemosus wild.</i>	Root	Veena N., <i>et al.</i> 2014.
31.	Musli safed	Safed Musli	(<i>Chlorophytum</i> <i>borivilianum</i>)	Root	Thakur M., <i>et al.</i> 2011
32.	Elwa/ Ghikawar	Aloe vera	<i>Aloe</i> <i>barbadensis Mill.</i>	Leaf pulp	Chandua AN., <i>et al.</i> 2011
33.	Zafraan	Saffron	(<i>Crocus sativus</i>)	Stigma of flower	Kianbakht S, <i>et al.</i> 2011
34.	Kath	Kaththa	<i>Acacia catechu</i>	Extract of heartwood	Ismail S and Asad M., 2009
35.	Waj Turki	Vach, Sweet flag	<i>Acorus calamus</i>	Rhizome	Vellayutham ravichadiran., <i>et al.</i> 2015
36.	Aaqarqarha	Pyrethrum root	<i>Anacyclus</i> <i>pyrethrum (L.)</i>	Root	Yousaf F., <i>et al.</i> 2017.
37.	Arjun	Arjun	<i>Terminalia</i> <i>arjuna</i>	Bark	Halder S., <i>et al.</i> 2009
38.	Kutki	Kutki	<i>Picrorhiza</i> <i>kurrooa</i>	Rhizome	Sharma ML., <i>et al.</i> 1994
39.	Habbul qalb	Baladur/Marking Nut	<i>Semecarpus</i> <i>Anacardium</i>	Fruit	Singh D, <i>et al.</i> 2006
40.	Sahjan	Drumstick tree	<i>Moringa oleifera</i>	Leaves	Obi A., <i>et al.</i>

					2018
41.	Abresham	Silk cocoon	<i>Bombyxmori</i> L.)	Cocoon	Soumya M., <i>et al.</i> 2018
42.	Afsanteen Roomi	Wormwood	Artemisia absinthium	Whole Plant	Amat., <i>et al.</i> 2010
43.	Joz Bua	Walnut	Juglans regia	Fruit	Soussi A, <i>et al.</i> 2018
44.	Gazar	Carrot	Daucus carota L.	Root, Seed	Cherng JM., <i>et al.</i> , 2008
45.	Karafs	Celery	Apium graveolens L	Root	Cherng JM., <i>et al.</i> , 2008
46.	Kishneez	Coriander	Coriandrum sativum L	Seed	Cherng JM., <i>et al.</i> , 2008
47.	Badiyaan	Fennel	Foeniculum vulgare Mil.)	Seed	Cherng JM., <i>et al.</i> , 2008
48.	Teen	Anjeer	Ficus carica	Fruit	Patil VV., <i>et al.</i> , 2010
49.	Brahmi	Pennywowort	<i>Centella asiatica</i> (L.) Urban	Whole Plant	Husain A., <i>et al.</i> , 2017
50.	Rumman	Anar	<i>Punica granatum</i> Linn	Fruit, Flower, Seed	Sibi PI, Varghese P. <i>et al.</i> , 2014
51.	Papita	Papaya	<i>Carica papaya</i> Linn.	Leaf Fruit	Otsuki N., <i>et al.</i> , 2010
52.	Neelofer	Lotus	<i>Nelumbo</i>	Rhizome,	Mukherjee D.,

			<i>nucifera Gaertn</i>	Seed	<i>et al.</i> , 2010
53.	Aslus soos	Mulethi	<i>Glycyrrhiza glabra Linn.</i>	Root	Wagner H, Jurcic K., 2002
54.	Babuna	Camomilla	<i>Matricaria chamomilla Linn.</i>	Flower	Ghonime M., <i>et al.</i> , 2011
55.	Bartang	Isabgol	<i>Plantago major Linn.</i>	Seed	Chiang LC., <i>et al.</i> , 2003