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Analysis of COVID-19 pandemic - Origin, global impact and Indian therapeutic solutions for infectious diseases

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The first case of COVID-19 was reported in China in December 2019(ref. 1) and almost 213 countries have reported around 5,350,000 COVID-19 cases all over the world, with the mortality rate up to 3.4% as of May 23,2020. On March 11, 2020, the WHO (World Health Organization) declared COVID-19 as a global pandemic. Moving towards from epidemic to global pandemic situation just in two months, COVID-19 has caused tremendous adverse effects on people's well being and the economy all over the world. Scientists and researchers around the globe have a vested interest in researching and mitigating to handle the dire situation. This paper covers the COVID-19's origin, characteristics of the virus and reasons behind the outbreak, and precautionary measures that have to be followed to handle the critical situation. Several therapeutic solutions in the Indian healing tradition have been discussed to improve the immune system in order to equip ourselves to deal with the outbreak of COVID-19.

Keywords: COVID-19, Coronavirus, Global pandemic, Indian therapeutic solutions, SARS-CoV

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Coronavirus belongs to a family of severe respiratory viruses, which was first discovered around the 1960s. Corona is a large group of viruses with genetic material surrounded by protein spikes, which will look similar to a crown, hence named as corona after the Latin word “Crown”. The novel coronavirus cases were first detected in Wuhan City, Hubei Province, China, in December 2020. It was initially identified as Pneumonia cases and later named as COVID-19 (**Co**rona **Vi**rus Disease-20**19**) on February 11, 2020, by the World Health Organization (WHO). Rapid transmission and high mortality rates have elevated COVID-19 to the world stage. The International Health Regulations Emergency Committee of the World Health Organization substantiated this attention on January 30th, 2020, deeming the virus a “public health emergency of international concern”.

Structure of coronavirus

Corona belongs to the family Coronaviridae and subfamily Coronavirinae. The subfamily is divided further into four classifications, namely alpha, beta, gamma, and delta coronaviruses and it is depicted in Figure 1(ref. 2).

HCoVs fall into the category of alpha (HCoV-229E and HCoV-NL63) and beta coronaviruses (HCoV-HKU1, HCoV-OC43, Middle East Respiratory Syndrome Corona Virus [MERS-CoV] and the Severe Acute Respiratory Syndrome CoronaVirus [SARS-CoV])[3]. The name is derived from the distinctive crown-like structure, which encompasses the medium-sized enveloped positive-stranded RNA viruses[4]. It is found to have the major known viral RNA genomes with a length of 27 to 32 kb. The main structure of the coronavirus is shown in Figure 2(ref. 5).

Protein and its functions

The genome codes for the four protein functions have been described as given below[3]. The Membrane

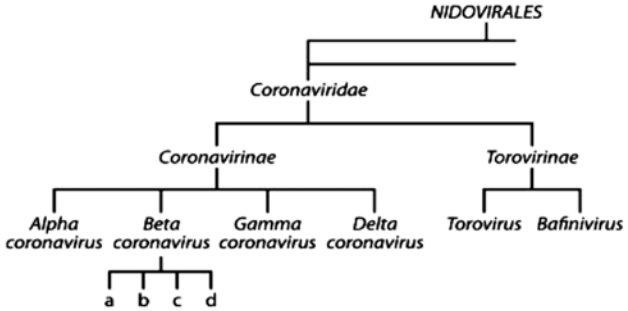

Fig. 1 — Family of coronavirus

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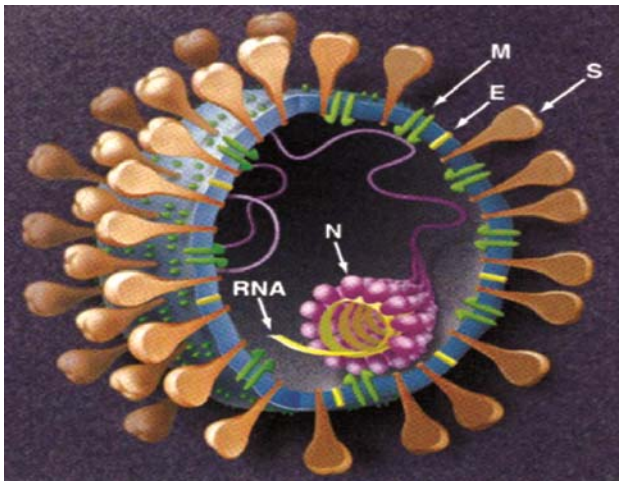

Fig. 2 — Structure of corona[5]

Protein (M) is treated as the central component of CoV assembly[4] and its categories the shape. The Nucleocapsid Protein (N) is destined to RNA genome so that the nucleocapsid could be created. Controlling the viral RNA synthesis and interaction with the M protein happens during the budding process of the virus[5,6]. The part of the N protein is determined by the Cytotoxic T lymphocytes[7]. The Spike Protein (S) is required crucially in such a way that the host cell gets entered into the host cell receptors. Most of the antigens which are responsible for stimulating to neutralize the antibody and also the significant objectives of cytotoxic lymphocytes are located in this protein. The Envelope Protein (E) communicate with M so that the viral envelope could be developed.

Origin of Coronaviruses

If we try to trace the origin of COVID -19, it will lead to the Wuhan wet food market, where 27 out of 41 patients who had initial infection are connected to this wet market. Surprisingly, the outbreak of SARS around 2002 was originated in a very similar wet market in China, eventually reached 29 countries and killed nearly 800 people. About 18 years later, in 2020, COVID-19 has originated in the same wet market environment of China and has killed around 10000 people all around the world as of March 19, 2020. So, it is essential to analyze what do these markets in China have to do with the corona virus outbreak.

Most of the viruses that cause pandemics originate in animals, some of the viruses that caused flu originated from birds and pigs, Ebola originated from bats, some evidence shows that COVID-19 emerged from bat to a pangolin then infected human. Usually, the mild type of virus can do these kinds of transmissions easily, but very rarely, deadly viruses will reach humans through animal-animal-human transmissions. This transmission is possible when all these hosts encountered each other at some point during the transmission period, which is a scarce scenario. The wet markets are the focal point of close contact between humans and food animals, resulting in the transmission of microbes from animals to humans[7,8], which provides the platform for the animal-human transmission of these deadly viruses. Wuhan wet market is known for the wide variety of wild animals, where the live animals are slaughtered and sold. Each animal has the potential to carry its own virus and the environment of the wet market provides the facility for the virus transmission from one animal to another animal. When those animals come in to contact with human or consumed by a human, then the virus could easily infect that human. Then human to human transmission happens easily, which results in an outbreak all over the world.

During 1978, there was a food scarcity in china, and china's government let the farmers raise the wild animals on the farm, which was consumed as food as a way to sustain themselves. This eventually got into their food habit of eating wild animals like snake, bat, pangolin, etc. Many viruses were reported, namely H5, H7 influenza virus identified in duck meat[9,10], hepatitis E virus genotype is found in Bactrian camels, swine, rabbits, yak, and sikadeer[11-13], avianleukosis virus, and H1N5 bird flu from meat-type chickens[13-16], herpesvirus 1 from pigeons[17], Severe acute respiratory [SAR] syndrome coronavirus[18] from a different variety of bats and raccoon dogs. As the infections are spreading from creature tissue, at most consideration should be taken in the legitimate butchering of creatures, keeping up cleanliness and sanitation, understanding the diet, and its importance is needed. The usage of raw meat and fish has been increased tremendously, and ill processed preparation of the dish is always prone to acquire the virus, hepatitis A and *Staphylococcus aureus* and bacteria like *Anisakiasis, Vibrio, Listeriosis, Salmonella*, and *Bacillus cereus*. Hence, the usage of raw meat or fish needs to be avoided.

After the COVID-19 outbreak[19], the Chinese government shut down thousands of wet markets and temporarily banned wildlife trade. Health organizations and people around the world have been urging China to make the ban permanent, else these

kinds of outbreaks are bound to happen again. In the future, to avoid the recurring spread of these kinds of viruses, the farm animals should be treated with some pandemic vaccine in the wet markets, hygiene and sanitation of thewetmarkets need to be monitored, customers and stall owners need to be educated about the precautionary measure in wet market environment, Governments have to take steps to centralize the slaughter rather than having many wet markets.

COVID-19 impact on health

According to WHO, the common COVID-19 symptoms arefever, cough, loss of smell ortaste, Diarrhea and shortness of breath. In the worst-case scenario, kidney failure, and deathindicates the severity of the infection[20]. A person infected can be known with a test called PCR (Polymerase Chain Reaction)[21,22]. The incubation period of coronavirus is generally 14 days; in some outlier cases, it gets extended up to 27 days. Wu *et al.*[23], studied multiple patients infected with COVID-19 and divided the symptoms into "More Common" and "Less Common." The more common condition includes, fever, cough, muscle pain and fatigue and the less common one include headache and diarrhea. The University of Oxford, Toronto, and London school of medicine modeled the spread of the virus by taking 2019 airline passengers traveled in various cities across the world. They used IDVI (Infections Disease Vulnerability Index), which is a parameter for the preparedness[13]. The city of Manila is least prepared, and Sydney is taking high precautionary measures (highest IDVI).

Currently, no vaccine/scientific treatment is available. Current understanding is mostly based on information about similar coronaviruses like Severe Acute Respiratory Syndrome (SARS) and Middle East Respiratory Syndrome (MERS) and Research on Treatment and vaccines of COVID-19 is conducted on the base knowledge of these two outbreaks.

MERS-Cov is initially spread from camels and SARS-Cov is infected from cats. But the animal reservoir of COVID-19 is not known yet. In Australia, the researchers developed a lab-grown virus, and they are now experimenting on it to create a vaccine. Also, the drugs of HIV, Influenza are tested, and still, there were no significant breakthroughs.

Coronavirus is a family of HCoV and all the other members of the family are compared in Table 1[(ref 24-28).]

The non-technical flow of self-check for different coronavirus diseases with various symptoms is given in Figure 3.

Due to an exponential increase in COVID-19 cases and it's cold-like symptoms, it is essential to understand the similarity and key difference between COVID-19 and common flu[29]. There is a similarity in a few symptoms and spread of the virus as both viruses are spread by respiratory droplets, airborne, and contaminated surfaces. There are noticeable differences in certain things like recovery time, incubation period, and intensity of the symptoms—the difference between common seasonal flu and COVID-19 in Table 2.

COVID-19 outbreak death rate and statistics

The significant spread of the COVID-19 occurred because of the travel during China's Lunar New Year

Table 1 — Comparison of the family of HCov

Virus	Place/time	Fatality Rate	Originated from.	Symptoms	Incubation Period	Age
OC43 (beta coronavirus)	1967	1.3%	Animals	Cold, Cough, upper respiratory tract infections	4-14 Days	All ages
HKUI (beta coronavirus)	Hongkong, 2005	1.1%	Animals	Upper and Lower Respiratory tract	4-14 days	More on children
NL63 (alpha coronavirus)	Netherlands, 2004	-	Animals	Croup, Bronchiolitis, Lower respiratory tract infection,	4-14 days	More on <3
229E (alpha coronavirus)	1960	-	Animals	Common cold, Pneumonia, can infect neural cells	2 days to 7 days	All ages
MERS-CoV	Saudi Arabia, June 2012	36%	Camel milk, inadequately cooked meat	Fever, cough, sore throat, dyspnea, Pneumonia	7 to 11 days	14–94
SARScov	China, 2002	10%	Bats(cats-intermediate host)	Fever, shortness of breath	6 to 14 days	1–91
COVID-19	December 2019	3.4%	Not known	-Pneumonia fever, cough, and shortness of breath	2-24 days	All ages

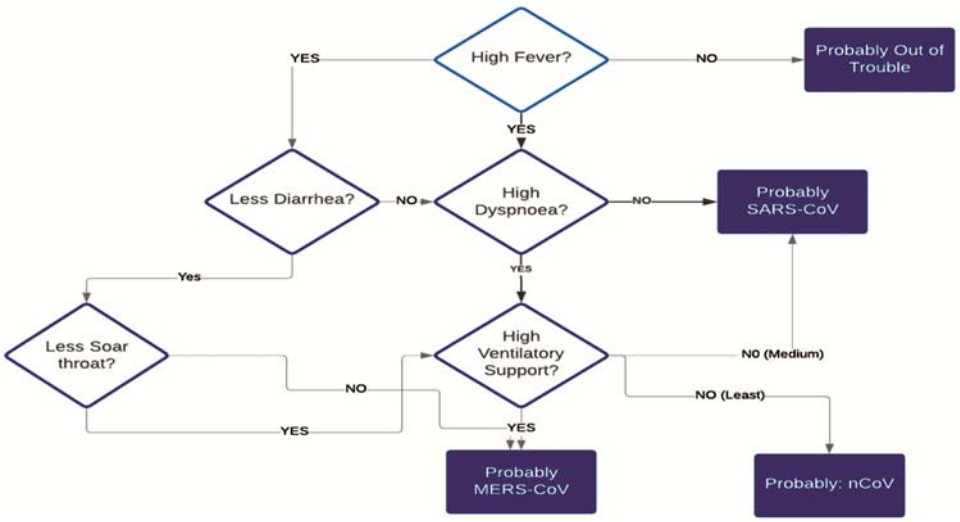

Fig. 3 — Disease identification flowchart

Table 2 — Comparison of COVID-19 and common flu

Category	COVID-19	Seasonal flu
Symptoms	Fever, cough, chills, sore throat, loss of taste or smell, Shortness in Breathing, muscle ache, Fatigue, persistent pain or pressure in the chest	Fever, runny/stuffy nose, Dry cough, Sore throat, Headache, Shortness in Breathing, muscle ache, Fatigue
Rare symptoms	Headache, hemoptysis, Diarrhoea	Vomiting, Diarrhoea
Incubation period	1 to 14 days, in outlier, cases up to 27 days	1 to 4 days
Complications	5%	1%
Death rate	3.4%	0.1%
Recovery period	2 to 6 weeks	1 week
Treatment	No vaccines or Treatment as of March 2020	An annual seasonal vaccine is available

holiday. The major spread occurred in Wuhan, which is known as central China's hub of industry and commerce. Chinese officials have locked down Hubei province with 11 million residents to contain the spread on January 23, 2020. The travel ban was expanded to 16 neighborhood cities, which has a population of around 50 million people, including the Huan gang. But unfortunately, by that time before the travel restrictions were imposed, about five million people already left the city, which was believed to be the primaryreason for the outbreak.

As of May 23, 2020, the total number of confirmed COVID-19 cases all over the world is 5,328,662, and the total number of deaths is around 340,429. As of May 23, 2020, the total number of diagnosed cases and number of deaths in China and other major countries are shown in Table 3[ref. 30].

The mortality rate represents the probability of death if infected by the virus. According to WHO, as of March 3, the mortality rate of COVID-19 all over the world is 3.4%. The death rate is based on the age

Table 3 — No.of cases diagnosed and death

Country	Number of cases	Number of deaths
USA	1,645,646	97,663
Russia	335,882	3,388
Brazil	332,382	21,116
Spain	281,904	28,628
UK	254,195	36,393
Italy	228,658	32,616
France	182,219	28,289
Germany	179,713	8,352
Turkey	154,500	4,276
Iran	133,521	7,359
India	126,308	3,754

group in Table 4[ref. 31], which represents the risk of dying if a person is infected with COVID-19 given in the particular age group. It seems like older adults are more prone to die if infected with COVID-19 comparing to young people.

The mortality rate is the probability of dying of a person with a pre-existing condition if infected by COVID-19. It seems like the people with some pre-

existing health condition has a higher chance of death if infected with COVID-19. Data on death rate based on comorbidity is shown in Table 5[ref. 30].

COVID-19 impact on the economy

As per the Organisation for Economic Co-operation and Development (OECD) report[32], Health pandemics often decrease consumer demand and can negatively impact local, national and international economies. It has a direct influence on tourism and hospitality, medical and transportation. The economic effect of COVID-19 is not certain yet, but it has been projected that global trade and GDP would decline sharply in 2020.

The rate of un employment is rising globally in both developing and developed countries. Indeveloped economies, it is projected that un employment and health insurance would bring threatening effects and in the economy of developing countries, there would be growing demand for basic necessities, which results in rising poverty lines. It is expected that the pandemic crises could bring anegative impact on developing countries' economies comparatively due to limitations in financial resources. The pandemic would have a significant impact on the populated countries where the health systems could quickly become overloaded due to massive population density.

Table 4 — The death rate based on age group

AGE	DEATH RATE
0-9 years	No fatalities
10-19 years	0.2%
20-29 years	0.2%
30-39 years	0.2%
40-49 years	0.4%
50-59 years	1.3%
60-69 years	3.6%
70-79 years	8.0%
80+ years old	14.8%

Table 5 — The death rate based on the pre-existing health condition

PRE-EXISTING CONDITION	DEATH RATE all cases	DEATH RATE confirmed cases
Cardiovascular disease	10.5%	13.2%
Diabetes	7.3%	9.2%
Chronic respiratory disease	6.3%	8.0%
Hypertension	6.0%	8.4%
Cancer	5.6%	7.6%
no pre-existing conditions	0.9%	

The global impact of COVID-19 on the economy depends on the factor of how quickly the virus is contained. But according to OECD, the containment restrictions would bring a huge impact on the retail and whole sale market,which could reduce the economy by 15% in developed countries and 25% in developing countries[33]. Countries that depend on tourism could have a more pessimistic economic impact, while countries with large agricultural sectors could have fewer impacts comparatively.

According to the World Trade Organization (WTO), global trade and economic growth is for ecasted to decline between 13% and 32% due to COVID-19[34]. However, the above-mentioned predictions assume that the pandemic eventually fades in the second half of 2020; if not, containment measures can be spiked exponentially.

Practices and Precautionary Measure against COVID-19

The COVID-19 virus has its impact on the people having less immunity system. Hence, increasing immunity could be the best solution to fight against viruses. From the studies, it has been proved that the herbal solution made of Flos Chrysanthemi, Folium Mori, Semen Armeniacae Amarum, Herba Menthae, Fructus Forsythiae, Radix Astragali, Radix Saposhnikoviae, Radix Platycodonis, Radix Glycyrrhizae, Radix Scutellariae, Rhizoma Phragmitis and Folium Isatidis were effective for SAR virus prevention[35,36].

Natural remedies through healthy practices in Indian culture

In India, the spreading of COVID-19 is comparatively less though it has a high population density and also it is near to mainland china. The weather could be the one reason as the number of cases in tropical countries seems comparatively lower. It is evident that the flu and cold viruses tend to peak in winter then die down in warmer weather. However,there is no enough proofto say that the spread of the COVID-19 virus depends on favoring temperature. According to a recent analysis on COVID-19 by Harvard medical school researchers[37], high temperature and humidity would never suppress the spread; hence the implementation of extensive public health interventions is necessary. This leads to discussions on lifestyle and food culture to fight this dangerous virus. India's food tradition is known for the inclusiveness of immunity-boosting spices in food like Turmeric, as afoetida (Hing), coriander leaves, curry leaves, fenugreek (Methi), cloves, pepper,

cinnamon, garlic, ginger and mustard. These herbs are known to improve digestion, which leads to flushing out the germs from the body.

The daily routines of Indian culture contain numerous best practices and usage of natural products that make them self-defensive against infections. A few of them are listed below:

- Drinking water in copper vessels helps in killing harmful bacteria, helps the digestive system perform better and protects from infection.
- Practicing Yoga in the morning sunlight.
- Taking Lemon and honey water in the morning acts as an immunity booster.
- Drinking Turmericmilk which acts as anti-inflammatory, antiseptic and antiviral.
- Taking Turmeric vaporization to cure cough and cold
- Using Turmeric for wounds, antiseptic and anti-fungal.
- Using a lot of Garlic in cooking, which deals with heart problems.
- Having a Tulasi plant at the entrance of the house to freshen the air by killing airborne bacteria and viruses spread in the house.
- Having Neem plants in the house, which has an antibacterial property.
- Taking Pan leaves after a meal helps indigestions.
- Using carvacrol (Ajwain), coriander, jeera seeds in regular cooking, which helps with digestion.
- Using Methiin food which deals with gastric problems and cold.
- Using Neemsticks and salt to clean teeth.

Indian herbs as immune boosters and antiviral medicines

In India, many plant-based products (Table 6) have been traditionally used for treating influenza infection. Few known natural compounds such as Allicin (Ginger), Ajoene (Garlic), Andrographolide (Kalmeg), Baicalin (*Scutellaria galericulata*), Carvacrol (Ajwain), Coumarin (Lico Rice), Curcumin (Turmeric), Menthol (Metha), Eugenol (Tulasi), Theaflavin (Green Tea), UrsolicAcid (Tulasi) and Tinosporon (Giloy) have been reported to fight against influenza more efficiently[38].

Including antiviral food items in the diet will be helpful to increase the immunity against this harmful virus. Since ancient times in Asian countries, especially in India, the following herbs have been used to various illnesses, including viral infections. Special compound concentrations in the following herbs are known to fight against viruses and are used as effective home remedies by the practitioners of natural medicine.

***Allium sativum* (Garlic)** - Garlic has excellent antiviral, antibacterial and anti-fungal property and it is especially effective against viruses if chewed raw. The compounds of Allicin and Alliion present in Garlic make it an excellent medicine to fight against viral diseases. The antiviral property of Garlic helps to fight against influenza A and B, HIV, HSV-1, viral Pneumonia, and rhinovirus[39].

***Zingiber officinale* (Ginger)** - Ginger is known for its unique antiviral property, which is mainly because of the compounds like gingerols and zingerone, whichimpede viral replication to prevent viruses entry of the virus into the human body[38,40].

***Curcuma longa* (Turmeric)** - For thousands of years, it has been a tradition in Ayurvedic medicine to useashighantiparasitic, antiviral and antibacterial food. It is also a member of the ginger familyand has long been used to treat viral infections, osteoarthritis, rheumatism[41].

***Citrus limon* (Lemon)** – Lemon is known for its richness in vitamin C. Vitamin C is effective on viral infections, which causes cold and sore throat. Lemon skin is exceptionally concentrated with vitamin C, which helps to fight against viral infection[42].

***Piper nigrum* (Black pepper**) – Black pepperis also known for its richness invitamin C. Besides, this spice has an excellent source of antioxidants, anti-inflammatory, and antimicrobial properties, which help to fight viral infection and also helps to increase immunity[43].

***Phyllanthus emblica* (Amla)** – Amla is also known as Indian gooseberry, which is again exceptionally rich in vitamin C, which in turn helps to fight against viral infections, especially for upper respiratory tract infections[44].

Honey – Honey is a natural antibacterial, antimicrobial, anti-inflammatory, and antioxidant agent. It is known to reduce congestion and coughing[45].

***Andrographis paniculata*-:** Also known as Kalmegh, is known for increasing the immune system and promoting a healthy respiratory tract, sinuses, throat. It boosts lung and liver functionality and also bolsters overall health[46].

Other common kitchen herbs, such as Basil, Sage and Oregano and Astragalus are also known to have antiviral properties that help to fight against several viruses that cause infections in humans. However, the benefits of the above herbs are only braced by limited research.

Table 6 — Characterization table for Indian herbs

S.No	Botanical Name	Common Name	Image
1	*Folium mori*	*Morus leaf, Mulberry leaf*	 Ref: http://www.epharmacognosy.com/2012/06/mulberry-leaf-sangye-morus-alba-folium.html
2	*Flos chrysanthemi*	*Chrysanthemum*	 Ref:http://www.epharmacognosy.com/2012/07/wild-chrysanthemum-flower-yejuhua-flos.html
3	Semen armeniacae amarum	*Bitter Apricot Seed*	 Ref:https://www.euyansang.com/en_US/bitter-apricot-seed/herb-BitterApricotSeed.html
4	*Forsythia suspensa*	*Weeping forsythiaor golden-bell*	 Ref:https://en.wikipedia.org/wiki/Forsythia_suspensa

(*contd.*)

Table 6 — Characterization table for Indian herbs (*contd.*)

S.No	Botanical Name	Common Name	Image
6	*Radix platycodonis*	*Platycodon Root*	 Ref:https://www.euyansang.com/en_US/platycodon-root/herb-PlatycodonRoot.html
7	*Glycyrrhiza uralensis* Fisch	*Glycyrrhiza uralensis Fisch*	 Ref:https://en.wikipedia.org/wiki/Glycyrrhiza_uralensis
8	*Phragmites australis*	*Phragmites australis*	 Ref:https://en.wikipedia.org/wiki/Phragmites
9	*Astragalus propinquus*	*Mongolian milkvetch*	 Ref:https://en.wikipedia.org/wiki/Astragalus_propinquus

(*contd.*)

Table 6 — Characterization table for Indian herbs (*contd.*)

S.No	Botanical Name	Common Name	Image
11	*Isatis indigotica* Fort	*Folium isatidis*	 Ref; https://www.tradeindia.com/fp1106568/Folium-Isatidis-P-E-.html
12	*Radix scutellariae*	*Skullcaps*	 Ref:https://en.wikipedia.org/wiki/Scutellaria
13	*Curcuma longa*	*Turmeric*	 Ref:https://www.everydayhealth.com/diet-nutrition/diet/scientific-health-benefits-turmeric-curcumin/
14	*Brassica nigra*	*Black mustard*	 Ref:https://en.wikipedia.org/wiki/Brassica_nigra
15	*Ferula asafoetida*	*Asafetida*	 Ref:https://en.wikipedia.org/wiki/Asafoetida

(*contd.*)

Table 6 — Characterization table for Indian herbs (*contd.*)

S.No	Botanical Name	Common Name	Image
17	*Trigonella foenum*	*Fenugreek*	 Ref:https://www.kissclipart.com/fenugreek-seeds-and-leaves-clipart-fenugreek-india-kkrrmj/
18	*Syzygium aromaticum*	*Cloves*	 Ref:https://www.britannica.com/plant/clove
19	*Piper nigrum*	*Black pepper*	 Ref: https://en.wikipedia.org/wiki/Black_pepper
20	*Cinnamomum verum*	*Cinnamon*	 Ref:https://en.wikipedia.org/wiki/Cinnamon

(*contd.*)

Table 6 — Characterization table for Indian herbs (*contd*.)

S.No	Botanical Name	Common Name	Image
22	*Zingiber officinale*	*Ginger*	 Ref:https://www.cabi.org/isc/datasheet/57537
23	*Murraya koenigii*	*Curry leaves*	 Ref:https://en.wikipedia.org/wiki/Curry_tree
24	*Citrus limon*	*Lemon*	 https://en.wikipedia.org/wiki/Lemon
25	*Ocimum tenuiflorum*	*Holy Basil*	 https://en.wikipedia.org/wiki/Ocimum_tenuiflorum
26	*Azadirachta indica*	*Neem*	 Ref:https://en.wikipedia.org/wiki/Azadirachta_indica

(*contd.*)

Table 6 — Characterization table for Indian herbs (*contd.*)

S.No	Botanical Name	Common Name	Image
28	*Trachyspermum ammi*	*Ajwain*	 Ref:https://en.wikipedia.org/wiki/Ajwain
29	*Cuminum cyminum*	*Cumin*	 Ref:https://en.wikipedia.org/wiki/Cumin
30	*Andrographis paniculata*	*Kalmegh*	 Ref:https://en.wikipedia.org/wiki/Andrographis_paniculata
31	*Camellia sinensis*	*Green Tea*	 https://www.quora.com/What-is-the-scientific-name-for-green-tea
32	*Tinospora cordifolia*	*Giloy*	 Ref:https://en.wikipedia.org/wiki/Tinospora_cordifolia

(*contd.*)

Table 6 — Characterization table for Indian herbs (*contd.*)

S.No	Botanical Name	Common Name	Image
33	*Salvia officinalis*	*Sage*	 Ref:https://en.wikipedia.org/wiki/Salvia_officinalis
34	*Origanum vulgare*	*Oregano*	 Ref:https://www.britannica.com/plant/oregano

Medical treatment of coronavirus

As there is no proved treatment for the COVID-19, the current treatment followed is listed below:

- **Isolation** – individuals who are sufficiently sick to require clinic care are put in contamination control wards to decrease the danger of transmission to other people.
- **Antibiotics** are given on the off chance that the infective specialist is bacterial
- **Antiviral drugs** are given on the off chance that the infective specialist is viral
- **Steroid drugs** are given in some cases to suppress the symptoms
- **Supportive consideration** – for example, mechanical ventilation is provided to assist the individual with breathing.

Home remedies in Indian culture to deal with COVID-19 symptoms[47]

Many natural home remedies are there in Indian cooking practice to treat the COVID-19 symptoms like sore throat, cough, shortness of breath, chest pain and fever.

- Peppermint, eucalyptus, and fenugreek tea gives a soothing effect on the throat of the patient who has upper respiratory tract infections.
- Gargling with warm salt water clears the germs in the throat and relieves the throat.
- Toasting the Turmeric in fire and breathing the smoke toopen up the airways in the lungs.
- Ginger or turmeric tea for getting relief from chest pain.
- Fenugreek tea for made up its seeds produces sweat on the patient and reduces the fever.
- Garlic usage opens up the heart walls and gradually reduce heart problems.
- Ram Tulasi and Krishna Tulasi would be more usefulto suppress the symptoms associated with coronaviruses[39,40,48].

Precautionary Measures for containment of COVID-19(ref. 49)

Precautionary measures to stop further spread of coronavirus:

- Avoiding contact with sick people
- Usage of masks
- Avoiding touching nose, eyes and mouth with unwashed hands
- Washing hands often with 70% alcohol-based handwash as alcohol is effective in killing virus

- Drinking sufficient water, warm water is preferable as the virus cannot withstand high temperature
- Staying away from crowded areas

Precautionary measures to handle infected patients

- Isolating and detaching the patients and the things used by the patient inorder to constrain the spread of the infection
- Medical clinic staff and guests should wear gloves, outfits, eye security, head covers, channel covers, and different types of defensive apparel
- Abstain from sharing a restroom or room
- Attempt to remain one meter or more from others to lessen the spread of ailment
- Washing hands now and then for 20 seconds with alcohol-based handwash, and guarantee that other family individuals do so too
- Adhere to these guidelines for 2 to 6 weeksor until fever and respiratory manifestations have left completely

Conclusion

From the conventional to the modernized technological world, the viruses which evolve are a significant threat to the human world. History shows that the viruses are popping up and showing their impact on humans in each century, it causes a significant impact as a pandemic in human mortality and the global economy. Even though with the technological revolution of the 21st century, it is still hard to find the appropriate medical solutions to handle the dire situation during the global pandemic. Additional serious concerns and precautionary measures about public health must be still more focused worldwide to avoid or reduce these kinds of pandemics. This article has thrown some light into the analysis of the COVID-19 it's the origin, outbreak reasons, precautionary measures and traditional Indian Treatment to deal with COVID-19 and its symptoms.

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Conflict of Interest

"Authors declare they have no conflict of interest".

Author Contribution Statement

MV Cruz: Contributed the analysis part of this paper; ANamburu: Contributed towards the medical treatment stated in this paper; DS: Contributed towards analyzing the origin of the corona virus; BKSPKRA: Contributed towards health impact; SCS: Conributed towards the corona outbreak data; and SSC: Conributed towards COVID-19 impact on the economy

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