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# EFFECTS, WORKING AND REMEDY FOR CORONA VIRUS: A REVIEW

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## ABSTRACT

Corona viruses are a group of non-segmented, single-stranded enveloped virus positive-sense RNA genomes. A number of corona variant are infecting a variety animals and human beings. This attack of virus is causing economic as well as life damage to the families.Corona viruses' causes infection human host cell of lungs and cause a condition of lack of oxygen leading to respiratory diseases. Among them the most dangerous is the, severe acute respiratory syndrome coronavirus (SARS-CoV) and Middle East respiratory syndrome corona virus (MERS-CoV), which are highly pathogenic and has caused a pandemic situation. Corona viruses have a distinct spike like structure, which helps RNA of the virus to move inside the host cell of lungs and infect them . Human corona virus (HCoV) infection causes respiratory diseases with mild to severe outcomes. The study reveals that infected patients exhibit distinct fever, dry cough, fatigue, dyspnea, etc. In this review paper an effort is done to explain how corona works and its effect in human life and in socio-economic condition. Results in India for the infection of corona virus is determined by three ways, RT- PCR test, CT scan of lungs and X-rays.dependig on the basis of symptoms many personalcare methods have been suggested by medical officials. Role of allopathic, Ayurvedic, Homeopathic and Naturopathy is also suggested.

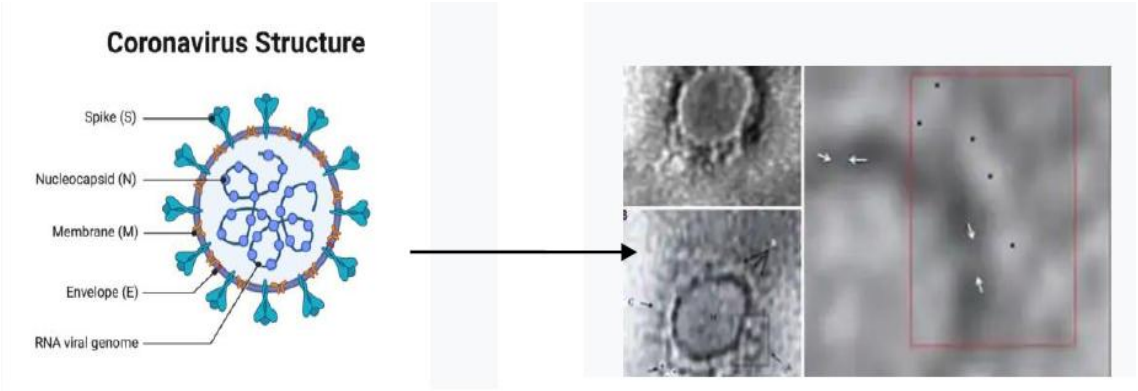
**KEYWORDS:** Corona, viruses, SARS-CoV lungs infection, host cells, RNA, Naturopathy.

## INTRODUCTION

Corona viruses comes from the family Coronaviridae, order Nidovirales, and realm Riboviria subfamily Orthocoronavirinae.[1][2] They are viruses with a positive-sense single- stranded RNA genome completely enveloped and with a nucleocapsid of helical symmetry.[3] according to world health organisation (WHO Corona viruses can infect animals and birds along with human .corona contains the largest genome of RNA that ranges from 26 to 32 kilobases.[4] They have special club-shaped spikes that project from their surface.[5] These viruses have credits for causing severe acute respiratory syndrome (SARS) pandemic of 2002- 2003 and the Middle East respiratory syndrome (MERS) in South Korea in 2015. Most recently, a novel corona virus (SARS-CoV-2, also known as COVID-19 is functional in the world with new and numbers of variant. This is a sparking issue in international context. This virus are showing multiple variant which needs t be checked so that the treatment methods can be identified.

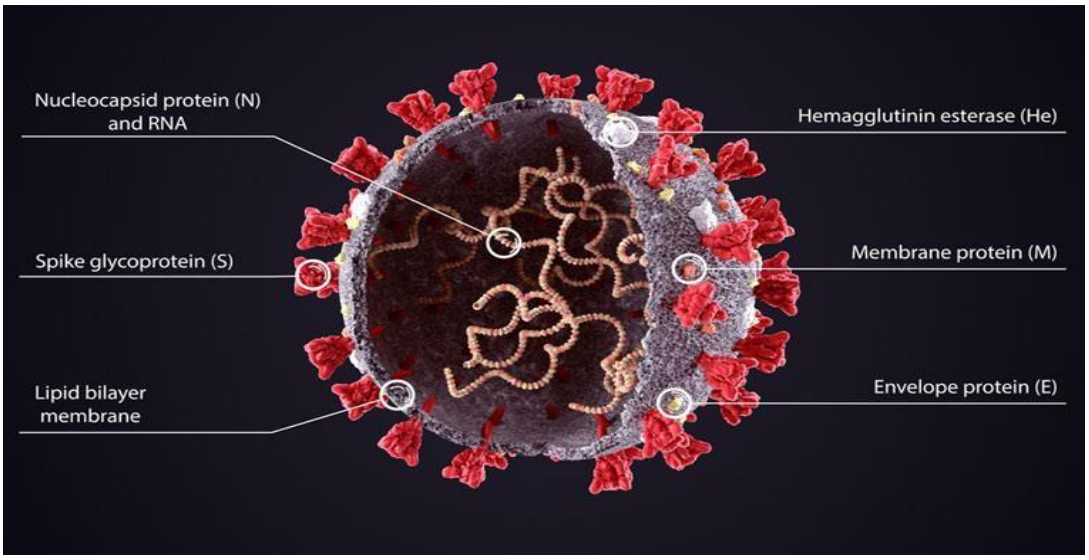
Though many researches have been put forward in field of corona but the recent outbreak is pandemic. We know the results of it but lockdown and personal guidelines have created a chaotic condition all over the world. People are forced to stay at home. Working culture has completely turned to online mode. Education sector is facing more problems. Students are studying in online more for last 1.5 years.

**STRUCTURE**




**Structure of a coronavirus**

Corona viruses are roughly spherical, large, particles with unique surface projections.[6] Their size vary from 80 to 120 nm in average diameters. The total molecular mass is on average 40,000 kDa. They are enclosed in an envelope attached with a number of protein molecules.[7] The membrane proteins, nucleocapsid and lipid bilayer envelope givesprotection to the virus when it is outside the host cell.[8]




The viral envelope is made up of a lipid bilayer which consists of the membrane (M), envelope (E) and spike (S) structural proteins are anchored.[9] The E:S:M in the lipid bilayer is approximately of 1:20:300 in terms of molar ratio.[10] The shape of viral envelope contains E and M protein as the structural proteins that combine with the lipid bilayer maintain itssize. [11] S proteins are utilised for interaction with the host cells. In human corona virus of theNL63 M protein is the binding site for the host cell.[12] The envelope of the virus can be identified by electron micrographs as they appear like a pair of electron-dense shells. [13][11]

**Table: Showing The Proteins Of Corona Bilayer.**

| Protein | Amino acidresidues | Thickness | Domains |
|---|---|---|---|
| M protein | 218 to 263 | 7.8 nm(.[46] ) | 1. short N-terminal Ectodomain,<br>2. triple-spanning trans membrane domain<br>3. C-terminal endodomain (matrix). |
| E proteins.[45] | 76 to 109 aminoacids | 8.4 to 12 kDa | 1. transmembrane domain<br>2. extramembrane C-terminal domain They help in virion assembly, intracellular trafficking and morphogenesis (budding).[46] |
| S protein | | | 1. N-terminal domain (S1-NTD)<br>2. C-terminal domain (S1-CTD),<br>They serve as the receptor-binding domains |

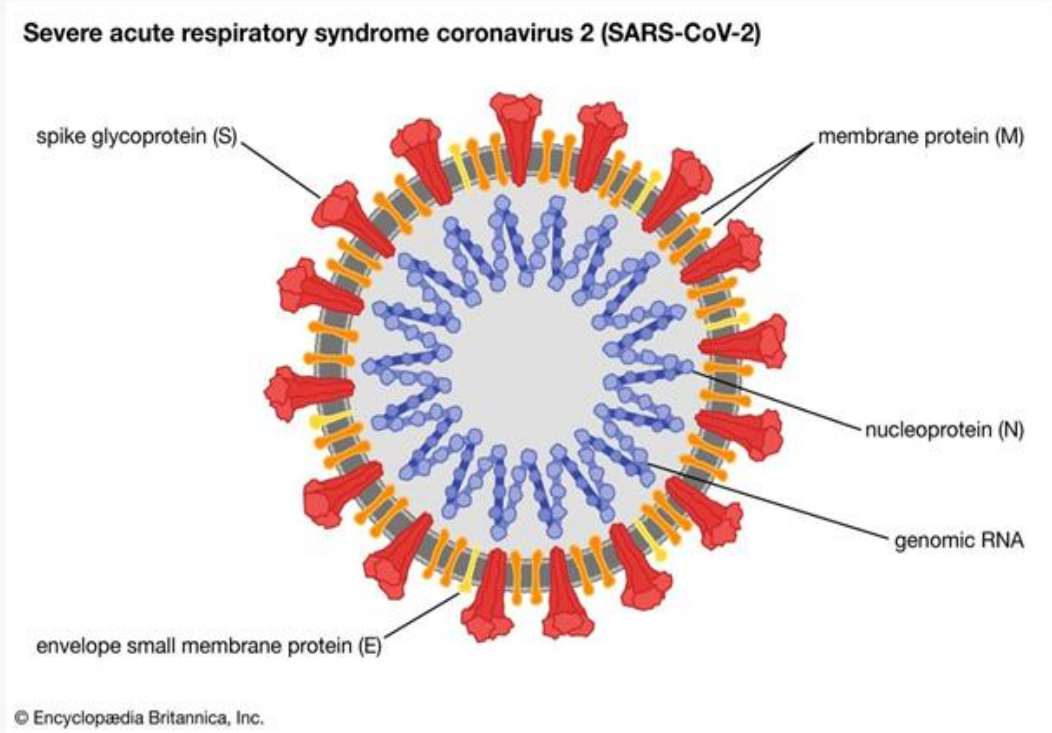



**Diagram of the genome and functional domains of the S protein**

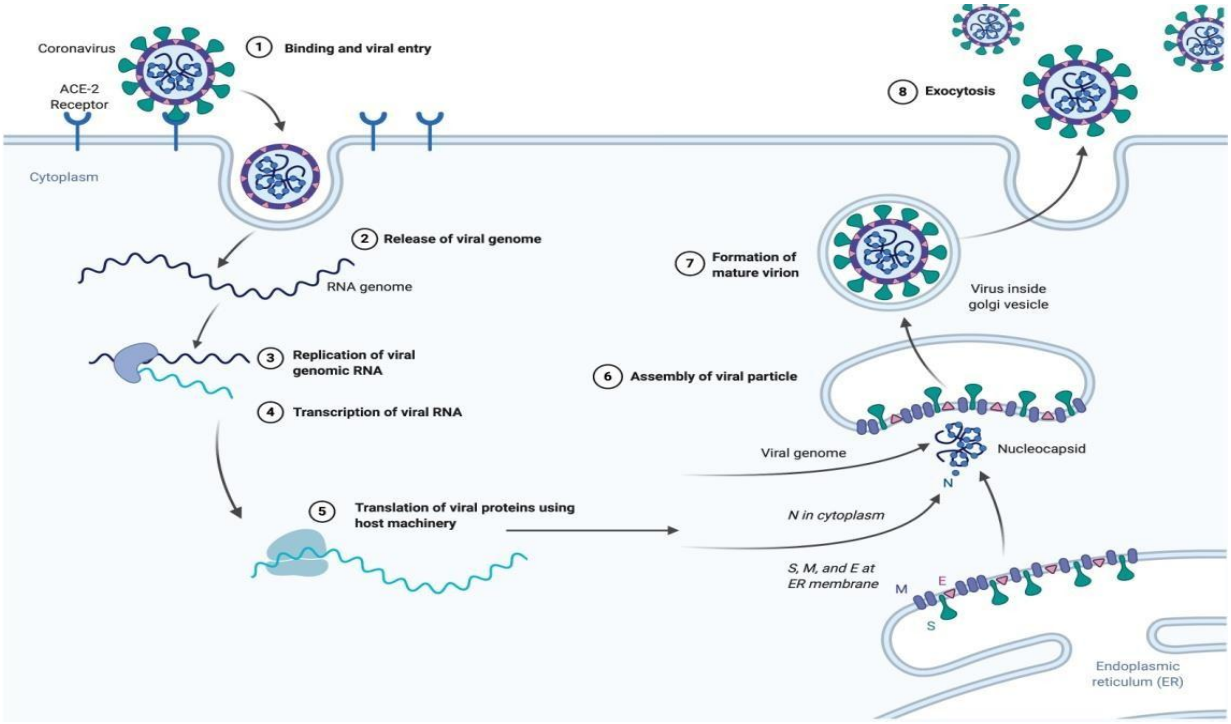
The spikes are the most identifying feature of corona viruses and give a halo like structure to corona. Corona virus particle has 74 surface spikes.[14] Each spike has the length of 20 nm and is made up of a trimer of the S protein. The S protein in turn contains 2 subunit of an S1 and S2. The S protein is a protein which mediates the receptor binding and membrane fusion between the virus and host cell. The S1 subunit of S protein forms the head of the spike and has the receptor-binding domain (RBD). The S2 subunit forms the stem which anchors the spike in the viral envelope and on protease activation enables fusion. The two subunits not linked as they are exposed on the viral surface until they attach to the host cell membrane.[7] In a functionally active state, three S1 are attached to two S2 subunits. The subunit complex is split into individual subunits when the virus binds and fuses with the host cell under the action of proteases.S1 proteins are the most critical components in terms of infection as they are responsible for host cell specificity. They are also the most variable components. They possess two major domains named and both of which. The NTDs recognize and bind sugars on the surface of the host cell.

**Classification of corona virus**

Coronaviruses form the subfamily Orthocoronavirinae.[15][2][1] Which is one of two sub-families in the family Coronaviridae, order Nidovirales, and realm Riboviria.[16][17] They are divided into the four genera: Alphacoronavirus, Betacoronavirus, Gammacoronavirus and Deltacoronavirus. Alphacoronaviruses and betacoronaviruses infect mammals, while gamma corona viruses and deltacoronaviruses primarily infect birds.[18][19]

**Transmission of covid-19 virus**

There are many types of corona viruses. Some causes common cold, throat infection and other types of symptoms. The new corona virus behind the 2019-2021 pandemic causes an illness called COVID-19. A virus infects our body by entering into the healthy cells. There, the invader makes copies of itself and multiplies throughout in the body.




The new corona virus attacks the receptors of healthy cells by latching its spiky surface proteins on them, specifically of lungs, the viral proteins bust into cells through ACE2 receptors. As the corona virus hijacks healthy cells it takes the command and starts killing some of the healthy cells and initiates the infection. In COVID-19, the virus causes illness, which starts with droplets from an infected person's cough, sneeze, or breath. They could be in the air or on a surface that you touch before touching your eyes, nose, or mouth. That gives thevirus a passage to the mucous membranes in your throat.

The virus moves down towards respiratory tract. This airway includes mouth, nose, throat, and lungs. Lower airways have more ACE2 receptors than the rest of respiratory tract. So COVID-19is more likely to go deeper than viruses like the common cold. Lungs might become inflamed, making it tough to breathe. This can lead to pneumonia, an infection of the tiny air sacs (called alveoli) inside lungs where blood exchanges oxygen and carbon dioxide. On performing the CTscan of chest, lungs shows shadows or patchy areas which are the network of corona virus with the alveoli of lungs called "ground-glass opacity."For most people, the symptoms end with a cough and a fever. More than 8 in 10 cases are mild. But for some, the infection gets more severe. About 5 to 8 days after symptoms begin; they have shortness of breath (known as dyspnea). Acute respiratory distress syndrome (ARDS) begins a few days later.

**Effects/Symptoms** - Although many details of the emergence of this virus, such as its origin and its ability to spread among humans remain unknown, an increasing number of cases appear to have resulted from human-to-human transmission. The study reveals that infected patients exhibit distinct fever, dry cough, fatigue, dyspnea, etc. All viruses – including SARS- CoV-2, COVID-19 evolve over time. When a virus replicates or makes new copies of it. there it makes little bit changes a, which is normal for a virus. These changes are called "mutations". A virus with one or more new mutations is referred to as a "variant" of the original virus. The effects of this variant is shown by wave. The infection of corona prevailing is termed in the form ofwaves.

**Wave 1 rolled from January 2020 to January 2021**- Within 2 to 14 days, of the infection bodys immune system may respond with symptoms including.

- Fever
- Cough
- Shortness of breath or trouble breathing
- Fatigue
- Chills, sometimes with shaking
- Body aches
- Headache
- A sore throat
- Congestion or a runny nose
- Loss of taste
- Loss of smell
- Nausea or vomiting
- Diarrhea

The patients showing positive reports in wave 1 is shown in fig.

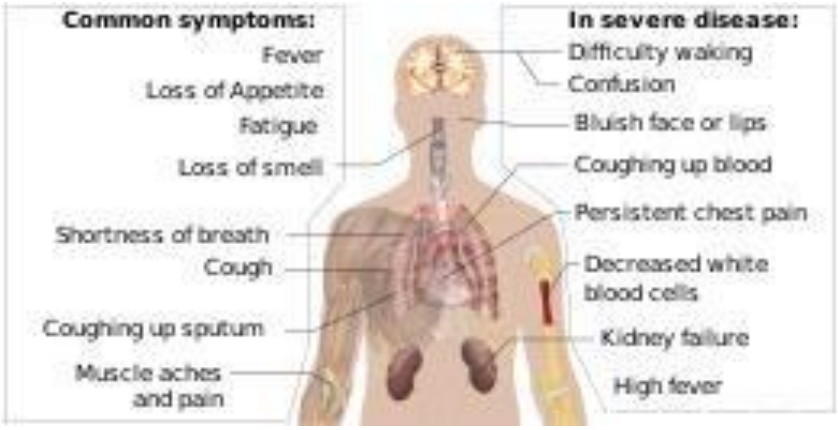
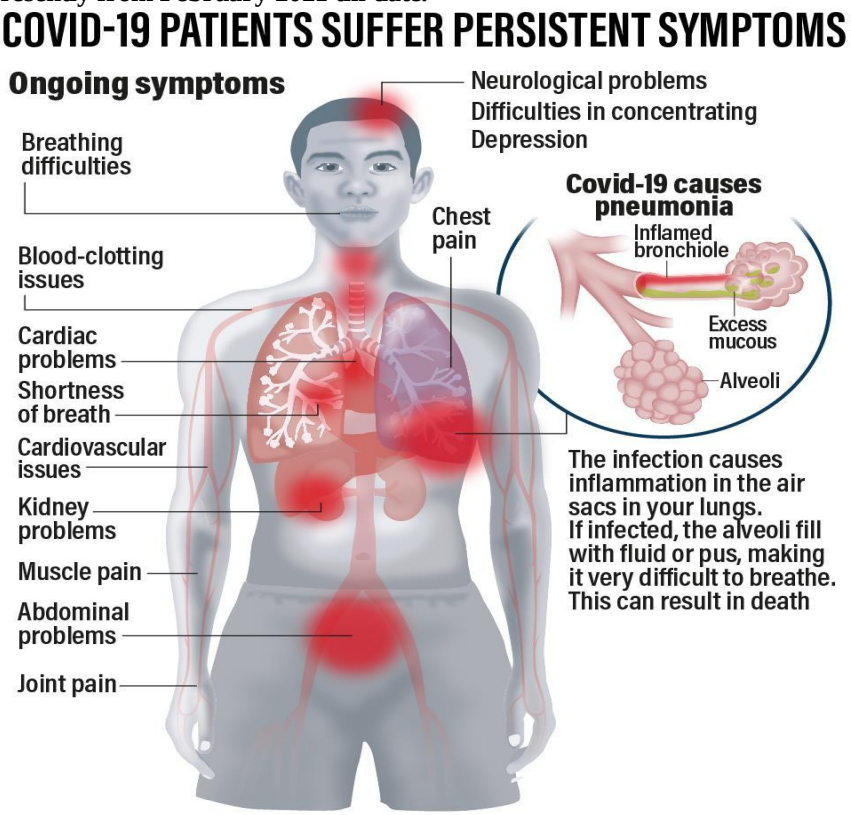



**Fig. showing the symptoms of wave 1 SARsCoV-2**

**Wave 2-is rolling presently from February 2021 till date.**




**The patients showing positive reports in wave 2 is shown in fig.**

**Diagnosis;** Result of corona virus is lethal in many cases but due to care and precaution the effect of this virus can be controlled. Results for the infection is determined by three ways.

**1) RT-PCR test** -The nucleotide sequence of the viral RNA molecules is not found in human DNA or RNA sequences. The test for the presence of the virus, thus, tests for the presence of the viral RNA sequences in tissue samples. The current assay technology is called "RT-PCR." RT stands for Reverse Transcriptase, an enzyme which copies RNA sequences into DNA sequences. PCR stands for Polymerase Chain Reaction, which reproduces and amplifies the DNA sequences for subsequent breakdown for determining the order of the individual nucleotides strung together in the original RNA polymer. The kits also require short DNA sequences called primers, which are synthesized in the laboratory.

**2)** CT scan of lungs

**3)** X-rays[20]

## DISCUSSION

**Present Situation**- Till now a large number of efforts have been done to cure and control the ill effects of this virus**.** Current measures to reduce transmission – including frequent hand washing, wearing a mask, physical distancing, and good ventilation and avoiding crowded places or closed settings – continue to work against new variants by reducing the amount of viral transmission and therefore also reducing opportunities

for the virus to mutate.

1) Governments as well as personal control methods have helped in spreading of this virus. Patients with acute symptoms are hospitalized and with mild effects are suggested to stay at home and are termed as home quarantine.
2) Medication includes medicines like antibiotic, Antiparasitic durg, multivitamin tablets, vitamin C, Antiallergic and Paracetamol tablet for oral consumption and gargling liquid followed by cough syrup.
3) Medicine like Remdesivir, and AstraZeneca were earlier used for the treatment of COVID-19, but presently they are not in use.

**PRECAUTIONS**

**Prevention-** A number of guidelines, in the form of instructions are floating in the public so that people get aware of this virus, along with do and don'ts.

Possible Solution to COVID-19 virus is People can take several steps, including since the virus is causing breathing problem it is suggested to keep the lungs clean and warm. In this context steaming and nebulising is very effective.

1. Resting and avoiding overexertion
2. Drinking plenty of luke warm water.
3. Avoiding smoking and smoky areas
4. Taking acetaminophen, ibuprofen, or naproxen for pain and fever
5. Using a clean humidifier or cool mist vaporizer
6. A doctor can diagnose the virus responsible by taking a sample of respiratory fluids,such as mucus from the nose, or blood.
7. Standard recommendations to prevent infection spread.
8. Avoid the cold environment like AC and Room coolers.

There are many ways of to get rid of this virus. But the major one is vaccination. A number of vaccines using different methods have been developed against human corona virus SARS- CoV-2.[21][22] Antiviral targets against human corona viruses have also been identified such as viral proteases, polymerases, and entry proteins. Drugs are in development which targets these proteins and the different steps of viral replication.[23][22]

Vaccines reduce risks of getting a disease by working with your body's natural defences to build protection. Body develops antigen to fight against the virus. When you get a vaccine, your immune system responds.

- Recognizes the invading germ, such as the virus or bacteria.
- Produces antibodies. Antibodies are proteins produced naturally by the immune system to fight disease.
- Remembers the disease and how to fight it. If you are then exposed to the germ in the future, your immune system can quickly destroy it before you become unwell.

The vaccine is therefore a safe and clever way to produce an immune response in the body, without causing illness. Our immune systems are designed to remember. Once exposed to one or more doses of a vaccine, we typically remain protected against a disease for years, decades or even a lifetime. This is what makes vaccines so effective. Rather than treating a disease after it occurs, vaccines prevent us in the first instance from getting sick. Two typesof vaccines have been developed in India for the prevention of COVID-19.Covacine and covisheild -after the application of this medicine certain precaution is to be taken. Firstly take heavy diet before going for vaccination.

**Effect of vaccination** - Stopping the spread at the source will remain the prime key for prevention. Vaccines are a critical tool in the battle against COVID-19, and there is clear public health and lifesaving benefits of using these weapons to fight against virus. The COVID-19 vaccines are currently in developmental stage or have been approved on the basis of pilot study. These vaccines are expected to provide at least some protection against new virus variants because these vaccines enhance the immune response involving the growth and development of antibodies and cells. If any of these vaccines prove to be less effective against one or more variants, it will be possible to change the composition of the vaccines to protect against these variants. Data continues to be collected and analysed on new variants of the COVID-19 virus. In order to understand the effectiveness of vaccines on variants and the virus's behaviour, WHO is working with researchers, health officials and scientists. Vaccination is important even if there are new variants of the virus and we must proceed with vaccination even if the vaccines may be somewhat less effective against some of the COVID-19 virus variants.

**Role of naturopathy-** Naturopathy plays an important role in cure and remediation of corona virus. It is that medical science which utilizes natural and plant extract for its treatment method sign. Corona virus can be controlled by proper utilisation of the herbs present in the kitchen. Covid-19 can be controlled by making a mixture of powder of black pepper, ginger powder and cinnamon in the ratio 2:2:1 and mixing it with a little honey. On consumption of this powder throat infection, fever, lungs infection can be controlled. Taking onion with black salt also helps in control of the corona virus. Walking in Early morning Sun for about 15-20 minutes is worthwhile. Morning walk, yoga and meditation are also helpful in controlling corona virus. Use steam for curing throat infection and nasal conjunction.

**CONCLUSION**

In the last few years the emergence of the different types of viruses corona virus has caused a good sort of human and veterinary diseases in a sever rate[24]. It's

likely that these viruses will still emerge and to evolve to create a pandemic situation for mankind. Corona virus seems to be an Artificial intelligent learnt virus, as it enters into our body it starts scanning our body tissues and attack the damaged or destroyed part. It attacks our body physically as well a psychologically. This virus has the capacity to replicate itself into new mutant as it enters into the body. Future more new researches on corona viruses will help in the investigation of many aspects of viral replication and its mutants. It opens a space for the further investigation for the types of infection and the host bodies which may get infected. More studies are needed to understand the overall functioning of the virus and learn more about the mechanism of the virus. Basically the COVID-19 attack is declared as pandemic because we do not have proper knowledge as well as medicines for the treatment. The present situation has become panic as it is affecting the lungs. In the lungs the virus forms the layer of itself which make the lungs movement difficult, as shown in the diagram.

In order to control the panic situation of lack of oxygen, it is important to remove the layer of virus from the lungs. More work has to be done in removing this layer. Oxygen is provided to the infected patients which is sometimes fatal as the lung is covered by thevirus layer. As soon as the virus layer is removed the patient will free to breath. More over once we identify the antigen in the body which fight against the corona virus, these antigens can be developed and given to the patient as medicine.

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