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## Alternative Medicine Suggestions for Treatment of Covid - 19 -A Review

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### ABSTRACT

The health crisis that presently threatens the whole world is COVID-19. The spread of the disease has increased with the number of individuals affected increasing day by day. Currently, many drugs are used all over the world to fight against the disease. Drugs like remdesivir, chloroquine and hydroxy-chloroquine are used all over the world. Scientists all over the world especially in India are trying to find alternative medicines with minimal side effects to treat this disease. The main aim of this study is to bring alternative medicines for the treatment of COVID - 19 as a consideration to the general public.



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### INTRODUCTION

One of the most sensible and serious topics that are going around the world is about COVID-19. COVID-19 is an infectious disease that primarily affects the lungs and the respiratory system. In Wuhan, there was widespread of pneumonia-like disease and it spread rapidly, Within months affecting parts of China. Soon this epidemic became pandemic and affected many people worldwide. By March 11, 2020, the COVID-19 was declared as the pandemic by the world health organization. Many countries are under complete lockdown to prevent the spread of the disease (Park, 2020; Srivastava, 2020). Many countries are trying to develop vaccines against

COVID-19. Development of vaccines against COVID-19 is a major challenge that prevails all over the world (Pratha and Geetha, 2017).

COVID-19 is an enveloped virus, pleomorphic or spherical particles of size 150 to 160 nm with positive single-stranded RNA. The important viral protein is nucleoplasmid (N). It is phylogenetically related to SARS-Cov and produces common cold-like symptoms. It is a spiracle structure with bulbous surface product projection. It resembles the radiating sun in morphology hence called Corona and produces common cold like symptoms. The organs which are at high risk of viral invasion are alveolar cells, esophagus, heart and urinary bladder. Patients with COVID -19 are at risk of kidney damage and bladder damage. The viral RNA was detected in urine samples of recovered patients (Girija, 2019; Girija et al., 2018; Girija and Priyadharsini, 2019). It is a spherical structure with bulbous surface projection. It resembles the radiating sun in morphology. Hence called corona (Livingston and Bucher, 2020; Mousavizadeh and Ghasemi, 2020). Personal hygiene and social distancing is important to prevent the entry of viruses. Herbal mouthwashes can be used to prevent oral entry of viruses (Selvakumar and Muralidharan, 2017; Shahana and Muralidharan, 2016; Siddique et al., 2019). Patients with hypertension, cardiovascular disease, diabetes and

immunocompromised patients are at higher risk of COVID-19 (Paramasivam *et al.*, 2020).

### Viral Mutation

The virus has the ability to adapt to new hosts and environments and this ability is highly dependent on their capacity to generate *de novo* diversity in a short period of time. Rates of spontaneous mutation differ among various viruses. RNA virus and single stranded viruses mutate faster than that of DNA virus and double stranded virus. The rate of viral mutation depends upon various factors such as polymerase activity, cellular micro environment, replication mechanism and many other factors. Additionally, many viral mutations are because of virus- encoded diversity generating elements and because of host encoded cytidine/adenosine deaminases (Sanjuán and Domingo-Calap, 2016).

### Chloroquine and Hydroxychloroquine

Chloroquine and hydroxychloroquine are effectively used in treatment of malaria and chronic inflammatory diseases like systemic lupus erythematosus and rheumatoid arthritis. Long term use of these drugs may lead to development of resistant strains of virus (Ashwin and Muralidharan, 2015). They prevent entry of the virus into the cell by inhibiting the glycosylation of the host receptor, proteolytic processing and endosomal acidification. They also have an immunomodulatory effect through attenuation of cytokine production. Chloroquine and hydroxychloroquine are relatively well tolerated as demonstrated by extensive experience in patients with systemic lupus erythematosus and malaria. However both the agents may cause rare and adverse side-effects like hypoglycemia, neuropsychiatric effects and retinopathy (Sanders and Monogue, 2020; Yam and Kwok, 2006; Kalil, 2020). The patients with COVID-19 should be protected from nosocomial infection in hospitals (Priyadharsini, 2018a,b; Marickar *et al.*, 2014; Girija *et al.*, 2018).

### ANTI RETROVIRAL DRUGS (LOPINAVIR / RITONAVIR)

It is an FDA approved oral combination agent for treating HIV. Studies prove that they have the ability to fight against novel coronavirus by inhibition of 3-chymotrypsin-like-protease. However no articles were published based on the *in vitro* data that exist for lopinavir or ritonavir against SARS-COV-2. They also have adverse effects like elevated transaminase and they also cause gastrointestinal adverse effects (Chu, 2004; Wilde and De, 2014). Patients with COVID-19 have increased cytokine level which may lead to liver damage. Anti inflammatory drugs

can be used to prevent multiple organ failure due to systemic inflammation (Aafreen *et al.*, 2019).

### Remdesivir

Remdesivir is a monophosphate prodrug which undergoes metabolism to an active c- adenosine nucleoside triphosphate analogue. Remdesivir is a promising potential therapy for COVID-19. Due to its broad spectrum, potent viral activity against several nCoVs including SARS-COV-2 (Grein, 2020; Wang, 2020). They are the drugs that are most commonly used world wide for the treatment of novel coronavirus. In India, it is recommended to use hydroxychloroquine for the treatment of the novel coronavirus. However the effectiveness of these drugs against the virus too is still under study. Since all these drugs are chemically derived they have diverse side effects in the human body. Starting from mild headache to neurological problems it has various side effects. And some individuals may be allergic to certain drugs. Since the complete pathogenesis of the virus is still under study it is wise to take treatment with minimal side effects without any systemic toxicity and to prevent the load in the liver.

India is a country with various natural medicinal systems. Many of them use natural plants and herbs for the treatment of the disease and many off treatments claim to have no side effects. Traditional treatments like Ayurveda, siddha and natural treatments like Homeopathy and treatments involving the nanoparticles can be considered to fight against the novel coronavirus (Zunyou and Mcgoogan, 2020). The latest literature, previous articles and the latest update from the WHO were studied. Articles based on COVID- 19, siddha, ayurveda, homeopathy were included in the study and articles based on other types of treatment for COVID-19 and other viral diseases were excluded from the study.

### ALTERNATIVE MEDICINE TREATMENT FOR COVID -19

#### Ayurveda

Ayurveda is a traditional medicinal practice in India that stands a very long run in history. It mainly uses plants and herbs that are available abundantly in India. Ayurveda treats illness through changes in lifestyle intervention. It is natural and traditional health care therapy for increasing the innate immunity. According to ayurveda the way to cure a disease is by improving the defensive strength of the body by natural means. It is an epigenetic mechanism that influences gene function regulation (Tillu *et al.*, 2020). The Ayurvedic remedy for the treat-

ment of coronavirus is kabasura kudineer. It is a herbal preparation that has more than 15 herbs. It is traditionally used to treat pneumonia like disease. They have the ability to prevent the respiratory illness caused by SARS CoV-2. It is misunderstood that it is used to increase immunity. It does boost immunity but prevents pneumonia like diseases.

Other herbs like *Andrographis paniculata* present in south Asia have the strong treating capacity of viral respiratory infection in ayurveda and other medicinal systems (Lin, 2016). Other plants like *Sambucus ebulus* have been known to inhibit the activity of enveloped viruses and can also be used to fight against novel coronavirus (Ganjhu et al., 2015). These Ayurvedic remedies Can be used to provide respiratory comfort to the patients suffering from (COVID-19) and to lyse the virus.

### Siddha

It is an ancient system of medicine prevalent in Tamilnadu. The word siddha means perfection. It emphasizes the treatment to provide balance between body, mind and spirit. Siddha medicine suggests the use of nilavembu kudineer for the treatment of novel coronavirus. Molecular docking of it provided results that the bioactive component in the nilavembu kudineer has the ability to inhibit the ACE 2 enzyme receptor and prevent the entry of the virus into the human body and thus prevent the pathogenesis of COVID-19. To prove the safety and efficacy of this traditional medicine reverse the pharmacology method is globally used. It confirmed the safety and efficacy of this traditional medicine which is already there in clinical practice (Raghuwanshi, 2012; Anbarasu et al., 2011).

### Homeopathy

It emphasizes that the body has the ability to cure itself. It uses natural substances like plant minerals to stimulate the healing process. It is used to cure long term illness, asthma, minor injuries, cut, scrape muscle strains or sprains and pneumonia. In Homeopathy *Arsenicum album* is recommended to use against CoVID-19 (Madsen, 2020). This is traditionally used against flu, influenza and pneumonia. It can be used as a prophylactic medicine for COVID-19. Many natural oils have antiviral and antibacterial activity that can be used for prophylaxis of COVID-19 (Vaishali and Geetha, 2018).

### Nano Medicine

Immunisation with spike protein provides positive results against severe acute respiratory distress syndrome in mice and produces neutralizing antibodies to prevent further infection. polyethylenimine 25 (IC) (PEI ) is an anti cationic polymer that delivers

plasmid DNA. It induced antigen specific humoral and cell mediated immune response in the individuals (Vellingiri, 2020). They can be considered for immunization against COVID- 19.

Dendritic cell targeted chitosan nanoparticles provide nasal DNA immunisation they act against nucleoplasmid (N) protein of severe respiratory syndrome Coronavirus (SAR- COV) Is a non invasive receptor mediated drug delivery system (Shim, 2010). Since these medicinal treatments are natural and they mostly have no side effects are mostly effective against the viral disease and are of low expenditure and it is easy for Consumption, they can be used for the treatment for COVID-19.

### Limitations and Challenges

Some people may be allergic to some herbs and may have nausea and vomiting. Pregnant women must consult siddha and ayurvedic physicians before consumption of the medicine. Some natural ingredients present in nilavembu kudineer slow down the blood clotting, so people with bleeding disorders are contraindicated to consume them. Long term study is required with larger sample size. More research should be done on healing, antibacterial, antiviral, antiinflammatory properties of these medicines. Further research is needed and effective study on other herbal plants is also needed. To find out the efficacy of the herbs clinical trials should be done in an increased number. Other physiological and biochemical effects of these herbs should be evaluated.

### CONCLUSIONS

Currently many drugs are suggested by different countries to control CoVID-19, As we are living in the country with rich heritage and valuable medicinal flora, ancient medicinal system, we should make use of them effectively to cure the disease without any chemicals. Since the exact medication for COVID -19 is not yet determined, it would be wise to consider natural and treatment involving minimal side effects. Many of the natural medications can be used as prophylactic medicines for COVID -19. All the drugs that are recommended for the treatment of COVID-19 have some toxic effect on patients. Alternative medicines such as siddha, ayurveda and homeopathy were not found to have toxic effects and can be used instead of allopathic medicine to prevent load in the liver.

### Conflict of Interest

The authors declare that they have no conflict of interest for this study.

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