



# Medicinal Plants and Herbal Concoction on the Rise Post Covid – 19 Pandemic Threat – An Exploratory Study

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## Abstract

Traditional medicine has been shown to be useful in the avoidance and management of illness, and this review aims to summarise and assess the data that supports its use in treating patients with COVID-19. Using the materials published in the various scientific databases, a comprehensive search for medicinal plants to treat COVID-19 was conducted. Clinical applications of traditional Indian & Chinese medicine for the management of COVID-19 are also located, as are the traditional medications against COVID-19 that are now undergoing clinical studies. This overview focuses on the role herbal treatments play in treating antiviral disorders like COVID-19, which is their primary purpose. To address the present situation, it is recommended that research into both potential polyherbal compositions and traditional botanicals be prioritised.

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## Introduction:

On March 12, 2020, the World Health Organisation declared a global pandemic due to the emergence of coronavirus illness (COVID-19). SARS-CoV-2 is a novel coronavirus that causes an illness that has never before shown in humans. As of September 2021, the global caseload of COVID-19 was over 230,953,959, with an estimated 4,734,427 fatalities; in Ethiopia,

the numbers were 336,762 and 5,254, respectively.

The immune system reacts with inflammation in reaction to COVID-19. Infection with COVID-19 causes the release of inflammatory cytokines, which in turn causes a cytokine storm and immune dysregulation, acute respiratory distress syndrome, and multiorgan failure. Vaccines against the COVID-19 pandemic



are already in development, but getting them to poorer regions of the world remains difficult. Remdesivir is an antiviral medication with restricted availability due to its recent approval.

Several studies have shown that herbal therapy has the potential to mitigate COVID-19's effects and even halt its spread. Herbal medicine and conventional treatment are used in tandem in China and India to boost patients' resistance. Positive effects on clinical symptoms, mortality, and viral recurrence were seen with the use of traditional Chinese medicine. Supplementation with Echinacea has been linked to decreases in pro-inflammatory cytokines such as tumour necrosis factor (TNF), interleukin (IL)-6, and interleukin (IL)-8, and increases in anti-inflammatory IL-10. Curcumin, according to in-silico research, blocks the entrance of SARS-CoV-2 into cells and halts viral replication; meanwhile, bromelain, according to a recent experimental result, may likewise block viral entry into cells. Nucleoside analogues like molnupiravir, compounds blocking replication transcription protein complexes like plitidepsin and zotatifin, and protease inhibitors like CTC-445.2d are all being studied as potential specific antiviral agents.

The symptoms of viral disorders like SARS-CoV-2 have also been lessened by herbal treatments. There is some evidence to suggest that herbal therapy may help reduce and manage COVID-19 risk. Several suggestions on herbal therapy have been issued, suggesting that herbal medicine be

used as an adjunct to conventional medication in the treatment of COVID-19.

**Impact on Children :** Common symptoms in children and adults include the same rhinorrhea, stomach discomfort, and diarrhoea. Viral infections tend to be more severe in those who are older or who have preexisting conditions including immunodeficiency, digestive, and endocrine illness, cardiovascular, high blood pressure, HIV, cerebrovascular, etc. The number of people infected with COVID-19 in Ethiopia is rising quickly. The infrastructure of healthcare institutions is weaker and more vulnerable. In addition to the therapeutic support, they also employ plant material to address these co-occurring disorders.

The government of Ethiopia has also exploited immunity-inducing medicinal herbs. However, there is a misconception about the kind of medicinal herbs that are used to treat the illness. Its use at large scale to fight COVID-19 has the potential to cause unwanted side effects. Therefore, the purpose of this article is to introduce the most important herbal items, their origins, properties, and possible antiviral activities.

**Application of Traditional Medicine to Prevent and Treat Covid-19:** The healing powers of traditional medicine are real. In China and India, a decoction based on the principle of clinical trial is used by medical personnel to prevent iatrogenic infection. There have been less than ten newly reported cases of COVID-19 in China since March of 2020. With over 90% of the population using Traditional Chinese Medicines (TCM), the therapeutic results



were excellent. By preventing the illness from progressing to a more serious stage in the first place, conventional treatments may reduce symptoms like fever, cough, and loss of breath and increase the likelihood of a successful cure. Traditional medicine, when used in conjunction with modern medicine and oxygen treatment, may improve ventilation function and an overactive immune response in extreme and urgent instances. Taking compound decoctions from traditional medicine may alleviate lung inflammation and fibrosis and help you feel like yourself again.

Many researchers looked through herbal remedies to find active chemicals that affected viruses or host targets. As of right now, a number of natural compounds have been identified as having the potential to exhibit anti-SARS-CoV-2 action. Some chemicals have been shown to be effective against coronaviruses. Evidence from clinical studies suggests that integrated medicine may help lower the death rate of SARS patients and alleviate the symptoms of those with COVID-19. Traditional medicine has been found to have a particular edge in infectious disorders, as shown by the successful experience of combating COVID-19.

There seems to be promising outcomes from the use of traditional Chinese medicine in lowering the incidence of mild, severe, and overall mortality and shortening the duration of sickness. Herbal remedies have the potential to alleviate the symptoms of COPD and hypoxemia, as well as to have immunoregulatory and anti-inflammatory

effects when used in conjunction with conventional biomedicine. Traditional Indian medicine is comparable to Western medicine and vaccines in India.

Lung function, according to TCM, is the first organ to be compromised. A "wet" factor is one that sticks to surfaces and has a lot of turbidity, both of which may worsen a sickness and make it last longer. The "hot" element that may cause the virus is one that is hot, dry, and increasing in turbidity. Because it hinders blood flow, "congestion" may bring on unpleasant feelings like discomfort. China's efforts to safeguard lung health. Because of the nature of the viral illness, the usage of Yupingfeng San is opted for as a kind of preventative value. Astragalus can (to promote lung function), Fangfeng (to alleviate the pathogen), and Atractylodes (to boost the spleen function & digestion and absorption in our body) are the three plants that make up this traditional Chinese herbal medication. Research indicates that Yupingfeng San may help keep the immune system in check.

In this light, COVID-19 in Ethiopia may be fought in several ways, including via the use of home remedies like the use of medicinal herbs, which are backed by the appropriate institutions. For virus control, you might use things like garlic, ginger, turmeric, chilli, lemon, and hot water with salt.

**Treatment, Cure and Prophylaxis:** The lungs were treated using a combination of two different prescriptions based on the "clearing lung heat and dampness" theory of Traditional Chinese Medicine. Commonly utilised in therapeutic settings



in China, they are separated into the Sangju yin and Yinqiao san categories. The overarching goal is to reduce lung temperature, facilitate cough suppression, normalise lung function, and return the patient to normal breathing. In China, Yinqiao san was traditionally prescribed to patients with high fever, whereas Sangjuyin was prescribed to those with a severe cough. Ginger, lime/orange, vitamin C-rich honey, black seed, and costus were shown to have the most effect in a trial of herbal supplements.

Serious infection should be regarded in the early stage if the infection cannot be effectively treated, worsening breathing problems, multiple organ dysfunction, and death. High fever, dry cough, trouble breathing, sweating, chest tightness, exhaustion, nausea, gas, red or dark red tongue, yellow covering, and greasy are the most prominent symptoms of infection in these people. *G. glabra*, *The thymus vulgaris*, *The sativum Balsam officinalis*, and ginger may be useful in the prevention and treatment of COVID-19 by modulating the immune system. Herbal treatments are often recommended for viral or respiratory infections. In the past 20 years, several reports of plants that may treat various illnesses have emerged.

**Withaniasomnifera (Ashwagandha):**

*Withania somnifera*, a member of the Solanaceae family also known as "Ashwagandha" in Indian folklore, has been researched as an antioxidant and shown to have immune-enhancing properties. *Withaniasomnifera* has therapeutic promise for a wide range of immunological disorders thanks to the

*discovery of novel physiologically active chemicals. The root of this plant is used in Ayurvedic medicine for a variety of purposes, including as an adaptogenic tonic, a nootropic, an immunomodulatory, etc. With such widespread use, it's only prudent to systematically assess and record this plant's effectiveness and safety in people. Arthritis, TB, and cancer are just some of the diseases that it is used to treat. A new research emphasises the importance of phytochemicals from natural origin in regulating COVID-19 entrance into host cells, presenting an attractive and novel approach to treating COVID-19 infection. Withania somnifera contains an active component called withering A, which has been shown to have a variety of therapeutic effects, including anti-viral action. This research shows some promise for Withering A's inhibitory abilities. It was shown that Withering A had a high affinity for binding to neuraminidase, a critical enzyme in the influenza virus's replication process. The major protease of SARS-CoV-2 interacts with methadone, another active constituent of Withaniasomnifera, and inhibits its action. To limit the spread of COVID-19, W. somnifera may out to be the most effective medicinal plant used in this context.*

**Asparagus racemosus (Shatavari) :**

*Asparagus racemosus* is widely cultivated in India's subtropical and tropical climate zones for its therapeutic properties. Its medicinal value has been long recognised, earning it a place in the Indian and British Pharmacopoeias as well as other traditional medical systems including



*Ayurveda, Siddha, and Unani. Ayurveda recognises this plant as having the potential to be a Ramayana because of its anti-aging, immune-boosting, life-extending properties.*

**Ocimum Sanctum (Holy Basil, Tulsi):**

Several health advantages have been linked to the use of holy basil, a member of the Lamiaceae family of herbs. [20]. Basil essential oils have been shown to suppress the growth of a broad variety of harmful bacteria. Therefore, basil extracts provide a promising therapy alternative for many developing pathogens in need of effective therapies. Basil extracts and isolated compounds have reportedly shown promise as potential antiviral medicines. Both the two types of viruses are vulnerable to the extracts and the pure chemicals. The penetration of the Zika virus has been shown to be impeded by extract from basil leaves, which was utilised directly on the virus. The immunomodulatory effects of basil seed oil were studied and shown to affect both humoral and cell-based immune response. Ocimum sanctum extract, which has been shown to inhibit COVID-19 replication in a molecular modelling study, may be used as a prophylactic approach against the virus. The effectiveness of Ocimum sanctum and other Ocimum species in combating SARS-CoV-2 may be investigated, since they have been proven to inhibit the reverse transcription activity of HIV.

There are 11 different species of the herbaceous & flowering plant genus Echinacea, which is part of the Asteraceae family. Products containing echinacea are

often used for the treatment and prevention of bacterial or viral illnesses. The antioxidant, anti-inflammatory, and perhaps immunomodulatory effects of Echinacea formulations are well documented. The North American herb echinacea is commonly used for the treatment and prevention of the common cold. Numerous clinical research have demonstrated the positive benefits of Echinacea preparations, lending credence to the hypothesis that herbs might enhance the immune system. By boosting immunoglobulin synthesis, Kumar et al. shown that Echinacea improves immunological function. This herb may also control antibody formation by stimulating the production of both Th1 as well as Th cytokines. One pharmacodynamics investigation shown that Echinacea complex had considerable bronchodilatory and anti-inflammatory effects, similar to those of traditional synthetic medicines. As a result, this herb is often used in conventional medicine to treat bronchopulmonary illnesses including asthma and other airway allergic problems.

**Foeniculum vulgare (Fennel) :** *Fennel, or Foeniculum vulgare, is a member of the family Apiaceae (Umbelliferae) that has been used for its therapeutic properties for millennia. Its cultivation spread to almost every nation. Multiple investigations have shown that F. vulgare successfully suppresses a wide variety of infections caused by bacteria, fungi, viruses, mycobacteria, and protozoa. It may fight cancer, prevent chemotherapy, shield cells from damage, protect the liver, lower*



blood sugar, and even stimulate ovulation. A study conducted in 2014 demonstrated the stress-relieving and memory-improving effects of. Chronic usage of *F. vulgare* has been shown to be safe in both human clinical trials and in-vivo research. The bronchodilatory activity of *F. vulgare*'s ethanol extract or essential oil contributed to its relaxing impact on the guinea pig's tracheal chains, which were constricted.

(Garlic) *Allium sativum*: Garlic, or *Allium sativum*, has long been valued for its culinary and therapeutic potential. Some studies have shown that garlic may inhibit the growth of bacteria, fungi, viruses, and even diabetes. It may decrease blood pressure and cholesterol levels, halt the progression of atherosclerosis, and prevent blood clots from forming. Both drug-sensitive and drug-resistant TB have a good chance of being treated by garlic extract alone or in combination with conventional medications. Anti-carcinogenic & immunomodulatory effects were shown in a research by Qin et al. There is probably regional variation in how garlic is used to treat the common cold. The proportion of Australians who used garlic in 2007 was 10.7 percent; 29.8 percent used it to treat a cold, flu, or fever. In 2004, 3.76 percent of the American population took garlic supplements, according to a study by Chikhale et al. Given that several garlic supplement producers claim that their wares strengthen the body's immune system and aid in the treatment and avoidance of the common cold. There seems to be some consistency in the prevalence of herbal medicine usage between Western nations.

**Tinosporacordifolia (Giloy)** : The huge deciduous shrub *Tinosporacordifolia* (Giloy), which belongs to the Menispermaceae family and may be found all across India, especially in the tropical portions at an elevation of 300 metres, and in certain specific regions of China. In recent years, there has been a surge in interest in researching the therapeutic potential of natural immunomodulators for a wide range of immune-related illnesses. Among the many plants studied for their potential to improve immunological health, *Tinospora* species have received a lot of attention. However, their potential for application in ethnopharmacology is quite restricted. Alkaloids, steroids, diterpenoid, lactones, and glycosides are only some of the many active ingredients identified from the plant's root, stem, leaves, and overall composition. Because of their medicinal properties, such as those that are "anti-diabetic, anti-periodic, anti-spasmodic, anti-inflammatory, antiarthritic, antioxidant, antiallergic, anti-stress, anti-leprotic, anti-malarial, hepato-protective, immune-modulatory, and anti-neoplastic," these plants are now receiving increased attention for research and preparation of multiple dosage forms. *T. cordifolia* has a wide range of chemicals, some of which may have physiological effects. Some of these components may help strengthen the immune system, while others have antioxidant properties. It assists in detoxifying the body, cleansing the blood, warding off infections, and reducing fevers. As an anti-pyretic, it lowers fever





and relieves other symptoms of potentially fatal diseases including Dengue, Swine Flu, and Malaria. It's good for boosting platelets when a person has a fever. It has been proven to reduce HIV's recurrent resistance, enhancing treatment outcomes, and so indicating a possible role for its use in disease management.

**Panax ginseng (Ginseng)** : Protopanaxatriol, a ginsenoside metabolite found in ginseng, was shown to have a considerable inhibitory impact on IP-10 synthesis in the face of H9N2/G1 infection and to protect vascular cells from apoptosis and DNA damage brought on by the virus. Intestinal microorganisms convert indigestible ginseng ginsenoside chemicals into pharmaceutically active components. There was antibacterial action in ginseng fermented products [23]. Clinical research have shown that taking ginseng as a preventative measure will alleviate cold and flu symptoms, shorten their length, and lessen their likelihood. These results indicate that ginseng may be useful in treating respiratory infections. However, the question of whether fermented ginseng preparations have antiviral activity and give in vivo protection against influenza virus has been well investigated and confirmed.

**Houttuynia cordata:** *Houttuynia cordata*, a member of the *Saururaceae* family, has been used as a conventional Chinese medicine for hundreds of years to treat pneumonia, infectious illnesses, refractory hemoptysis, and malignant pleural effusion, among other lung-related symptoms. Its anti-inflammatory in nature anti-allergic, virucidal, anti-oxidative, and

*anti-cancer properties have been the subject of several recent scientific investigations. The viral replication process may be slowed down by H cordata extract, which inhibits virally important enzymes and stimulates the immune system's negative feedback regulation. A 2018 research found that H. cordata reduced the damage caused by the influenza virus to the lungs and intestines. Inhibition of inflammation, preservation of the intestinal barrier, and modulation of mucosal immunity are all linked to the site of action of H. cordata. H. cordata shows promise as a viable alternative therapy for the treatment of viral infections in humans..*

**Organum vulgare (Oregano, Ajwain)** : Oregano, or *Organum vulgare*, is a flowering plant of the *Lamiaceae* family. It is also known as wild marjoram or sweet marjoram. Its original range includes the Mediterranean area, as well as western and southwestern Eurasia. Antioxidant, antiplatelet, antifungal, antimicrobial, antiprotozoal, antiinflammatory, antiatherosclerosis, anticancer, and antiulcer effects are only some of the many pharmacological benefits attributed to this plant. Antimicrobial activity of oregano oil & its active components, such as carvacrol, was shown against a wide range of pathogenic bacterial species. Since they have been shown to be effective against MNV, an embedding virus, it follows that they have broad-spectrum antimicrobial activity. These derivatives seem to produce real virus inactivation by attaching to the viral capsid or blocking the virus's ability to



adsorb to host cells. Because of the intricate nature of bacterial cell wall parts and structures, carvacrol's antibacterial action is somewhat different. Nonetheless, there is some evidence that it works directly onto bacterial mucosal tissue/cell wall components as well.

**Rosmarinus officinalis (Rosemary) : Salvia (Sage) :** About 900 species make up the genus *Salvia* (Sage), which is part of the family Lamiaceae. *Salvia officinalis* is only one of several *Salvia* species that have a history of usage as medical herbs across the globe. Sage has been used to treat a variety of ailments, including sore throat and mouth irritation, for centuries. The antibacterial, antioxidant, anti-inflammatory, antimutagenic, antiviral, spasmolytic, cancer-preventative, and cholinergic binding capabilities of *salvia* extracts from various species have all been evaluated. Some scientific research provide a partial description of these processes. Fourteen different *salvia* species have their extracts tested for their antiviral effects against common human infections. Extract of *S.coccinia* has been found to have anti-HSV-1 action, and it has been stated that it is effective against viral diseases like HSV-1. The pharmacological activity of *Salvia* species are focused on treating illnesses of the cardiovascular, renal, hepatic, and immunological systems.

**Zinger officinale (Ginger) :** The plant family Zingiberales, of which *Zingiber officinale* (Ginger) is a member, has its origins in the islands of Southeast Asia. Its bioactive compounds are utilised as an immune booster and may limit the spread

of tumours of the stomach, colon, liver, ovaries, and skin, making it a prototypical example with distinct therapeutic importance. Direct suppression of sensitised T and B cells cloaks humoral and cellular immune responses. When injected intraperitoneally, ginger extract reduces ectoxin, interleukin (IL)-4 and IL-5 levels, and the migration of eosinophils to the lungs. Through enzyme regulation, ginger and its bioactive compounds protect the liver against the toxicity caused by ethanol, bromobenzene, and acetaminophen. In treating conditions like respiratory infections, ginger's anti-inflammatory properties will be useful. Several studies have shown that it may also shield us from the potentially harmful effects of substances.

**Torreya nucifera (Torreya nucifera) :** Taxaceae is the family to which the *Japenesetorreya* (*Torreya nucifera*) belongs. Southern Japan and the island of Jeju off the coast of South Korea are home to this coniferous evergreen tree. Some research has been done on the medical benefits of *Torreya nucifera*, while others have looked at the lipid metabolism of the vital oils of coniferous trees. Traditional medical practitioners in Asia have long relied on it to treat a wide range of illnesses. By suppressing 3CLpro activity, ethanol extracts of *Torreya nucifera* leaves demonstrated anti SARS-CoV action, indicating that they contain more than ten phytochemicals. Controlling the COVID-19 infection may depend on the selection of therapeutic plants in these areas.

*Isatisindigotica*: *Isatisindigotica*, a member of the Cruciferae family, is the source of





Ban-Lan-Gen, an ancient Chinese medicine used to treat the flu, epidemic hepatitis, or inflammatory diseases characterised by fever, rash, and other symptoms of inflammation. Since 1985, the root of *I. indigotica* has been listed in the Chinese pharmacies (English Version), Part I, Physical Industry Press, Beijing, 2000) as one of the most popular herbal medicines, and its purified extracts are being formulated for clinical use. Roots of *I. indigotica* and other phenol Chinese herbs were widely utilised in China, Hong Kong, & Taiwan to ward against SARS. Since *I. indigotica* has been shown in certain trials to have antiviral properties, it may be useful as a therapy for COVID-19.

**Cannabis:** Cannabinoid (CBD) has shown promise as a therapy for those with severe cases of COVID-19. Cannabinoids were also employed to treat the inflammatory response caused by the COVID-19 virus, according to research published in 2020. The medicine, named "Acute Respiratory Distress Syndrome (ARDS)", is injectable and intended to treat a severe illness brought on by the coronavirus. A harmful over-elevation of cytokines, which stimulate the body to generate more inflammation, may lead to this illness. It will improve the drug's ability to swiftly reduce cytokine release and avoid acute consequences like ARDS by influencing many pro-inflammatory signalling pathways. Which is associated with drowning because the lungs get filled with water? Now that the FDA has given its OK to Tetra Biopharma's phase I clinical trial of ARDS-003, a cannabinoid developed as a synthetic injectable

medicine, the company may go forward with the study. At first, FDA said the preclinical data was sufficient to begin the trial in COVID-19 carriers.

A literature search was conducted to identify potential COVID-19-treating medicinal herbs. There is a wealth of research on these medicinal herbs with antiviral and other key qualities in the published literature, but there have been relatively few Randomised Clinical Trials (RCTs). However, it is clear from a chemical and pharmacological analysis of a wide variety of bioactive constituents that they possess anti-viral, anti-inflammatory, immune-boosting, and other distinctive therapeutic significant actions. Their pharmaceutical uses need confirmation via cohort studies and randomised controlled trials.

### Conclusion

Herbal medicine offers a promising framework for addressing several aspects of COVID-19 control. The World Health Organisation (WHO) first authorised the antiviral medication remdesivir for use in emergency situations. Bioactive components found in herbs may have therapeutic effects. Several effective herbal medicines have been shown to impede COVID-19 development by blocking SARS-CoV-2 replication and host cell penetration. The most powerful adjuvant components to lower fever and cough are the various biochemical components of plants, making herbal drinks and fruits a top choice. *Gymnanthemum*, *amygdalinum*, *Azadirachta indica*, *Nigella sativa*, and *Eurycoma longifolia* are just a few of the



herbs that may be employed. On the other hand, several herbal medications that work by bolstering the immune system, such as "G. glabra, Thymus vulgaris, Allium sativum, Althea officinalis, and ginseng," may be useful in the prevention and supportive care of COVID-19.

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