

Review On Herbal Remedies For Covid-19 (Corona Virus)

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Date of Submission: 01-10-2021

Date of Acceptance: 15-10-2021

ABSTRACT

The unknown coronavirus has been unfold all over within the world. The primary case was declared in Dec 2019, and this coronavirus malady has become a virulent disease. Infection of this virus is directly attacked on the system of the flesh or animals. Nowadays there's a deficiency of correct management or vaccinum out there to stop this malady that principally attacks the system of body. Hindrance is healthier than cure. This term is extremely renowned to any or all people. Thus currently this time has come back to used for our savings of lives. Ayurveda is the ancient system of drugs which is originated in India. During this covid -19 amount boosting of our system is that the excellent thanks to fight against this corona virus. Many seasoning plants unit accessible in our shut that unit used for immunity boosting throughout covid 19. Some seasoning plants like *Tinospora cordifolia*, *Withania somnifera*, *Nyctanthes arbortristis* that unit commonly used for immunity boosting. This herb contains compounds like glycosides, steroids, diterpenoid lactones, alkaloids, steroidal lactone, etc. vary of research unit accessible on *Tinospora cordifolia*, *Ashwagandha*, and *Nyctanthes arbortristis* to prove its immunomodulatory activity, anti-oxidant activity, anti-inflammatory activity, anti-pyretic activity. Throughout this general review we've a bent to targated on the role, drugs activities of *Tinospora cordifolia*, *ashwagandha*, *Nyctanthes arbortristis* to prevention and treatment of COVID 19 or CORANA VIRUS infection.

Keywords- Herbal medicine, Covid 19, Immunity booster, Corona virus, *Tinospora Cordifolia*, *Withania Somnifera*, *Nyctanthes arbortristis*.

I. INTRODUCTION

Corona virus or covid 19 is the fairly infectious ailment because of currently originated coronavirus SARS-COV-2 which could develop among people and animals. The explosion of the coronavirus as begun in China ,(Wuhan city), in December 2019. Then it's distended all over the world and its coronavirus was appointed as a worldwide Pandemic by World Health Organization in 2020(1). Infection of this virus primarily affected on the immune system of human body or animals. Serious illness, respiratory distress may develop in old age persons and those persons which are already suffering from medical problems like hypertension, heart disease or diabetes. The common symptoms of this coronavirus infection are fever, tiredness, dry cough, diarrhea, aching throat, aches, pain, and nasal congestion (2). At least 177 countries are affected through this pandemic, with approximately 154,000 fatalities (3). Currently there is no any therapeutic agents available for the treatment of covid -19 due to its broad clinical spectrum. Hence, it is very necessary to look over it through alternative science.

Ayurveda is the historical gadget of medicine, it may control any disorder with none facet effects. There are few herbal and herbomineral formulations are defineded withinside the oldest Ayurveda machine of medicine(4). Number of herbs and medicines have come out as a doubtless treatment for covid-19 virus and which includes some of herbal plants like *tinospora cordifolia* , *withania somnifera*, turmeric, cinnamon bark garlic, tulsi. In the current review , focused on the efforts has been made to illustrate the role of herbal plants or remedies for prevention and treatment of covid -19.

1) **Tinospora Cordifolia** –Fig.1: plant of Tinospora cordifolia fi



Fig 1: Tinospora cordifolia

Tinospora cordifolia is a herbaceous plant of the family, Menispermaceae. Indigenous to tropical region of the Indian subcontinent. This plant is usually recognized as Guduchi, Amruta, or Heart-leaved moonseed. This plant shows several properties like anti-allergic, anti-hyperglycemic,

immunomodulatory, anti-oxidant, anti-inflammatory. And this plant highly contains glycosides, steroids, alkaloids, aliphatic compounds, diterpenoid lactones, sesquiterpenoids (5).

Table 1 : Taxonomical classification of withania somnifera-

Botanical name	Kingdom	Order	Family	Genus	Species
Tinospora cordifolia	Plantae	Ranunculales	Menispermaceae	Tinospora	T.cordifolia

Pharmacological activity of tinospora cordifolia

Immunomodulator activity of Tinospora Cordifolia-

From a few years tinospora cordifolia is analysed within the read of its immunomodulatory properties. It has great immunomodulatory properties. Aqueous extract from the stem of Tinospora Cordifolia has shown to produce immunological activity (6). Extract of Tinospora Cordifolia has also shows as immunomodulatory effect in HIV patients. Hepatoprotective and immunomodulatory activity of Tinospora Cordifolia in ccl4 evoked rats (7).

Anti- Inflammatory Activiy of Tinospora Cordifolia-Alcoholic extract of Tinospora Cordifolia has been shown anti-inflammatory activity in the acute and sub-acute inflammation (8). The T.cordifolia plant which grow on Azadirachta indica plant for the study conducted on water extract prepared from stem of T.cordifolia. The study of this extract significantly shows inhibition of acute inflammatory response induced by carrageenan which is given intra-peritoneally and orally (9).



Fig. 2: stem of Tinospora cordifolia

It also shows the **Anti-pyretic activity**. In albino rats formulation of T. cordifolia ‘ Guduchi ghrita’ shows significant activity (10).

Tinospora Cordifolia have enough therapeutic allocate such as

immunomodulator, antioxidant, antipyretic, antiviral, anti-inflammatory which are to be employed for the treatment and prevention of Covid-19.

2) **Withania Somnifera (Ashwagandha)-**



Fig.3: Picture of Ashwagandha plant

Botanical description-Withania somnifera is commonly called as Ashwagandha, Indian ginseng, winter cherry or poison gooseberry. Ashwagandha is a small shrub belongs to the family Solanaceae. The height of this plant grows up to two feet in drier parts of India. Mainly roots of Ashwagandha are

used as therapeutically. The color of ashwagandha fruit is bright red. Dried seeds are used for cultivating as a medicinal plant. All parts of plants like roots, leaves, stem, green berries, fruits, seeds, bark, fig.1: Picture of Ashwagandha plant used in medicine and all parts shows different activity (11).

Table 2 : Taxonomical classification of withania somnifera-

Botanical name	Kingdom	Order	Family	Genus	Species
Withania somnifera	Plantae	Solanales	Solanaceae	Withania	w. somnifera

Immunomodulator activity of Ashwagandha-

Withania somnifera is a very attractive medicinal plant with many relieve properties. In other words ashwagandha is a god grace plant for human life. *Withania somnifera* is awfully helpful on the bone marrow physiological condition and a-esterase positive cell, on current supermolecule titer, on supermolecule producing cells, on somatic cell action of mambranemacrophages. The extraction of *withania somnifera* is discover that it grow the circulation of supermolecule titer cells that kind antibodies. It is also demonstrate that by treating animals with *withania*, there is an excellent growth of bone-marrow cells (12). *Withania* includes many pursuit like anti- inflammatory and analgesic because of cyclooxygenase 2 unassertiveness behavior. The ue of this plant also increases the nitric oxide synthetase activity of the

macrophages. That increases the cell mediated immune response owing to enhancement of the microbial demolishing ability of the immune cells. *W. somnifera* is a glycol protein called as Glycowithanolides is also liable for anti-microbial activities (13).

According to Charak-Sahmita *withania somnifera* has immunomodulatory, anti-inflammatory, antistress, anti- rheumatic properties (14). Recently the reseachers attacked the leading SARS-COV-2 enzymes for breaking up proteins, identified as the main protease (Mpro). Mpro plays as important role in moderating viral replication. *Withania* is achieved from *withania somnifera* and caffeic acid phenethyl ester, an active constituent of new Zealand propolis, has the probable to interconnectt with and block the activity Mpro.



Fig.2:Picture of parts of Ashwagandha plant

Anti-viral effect of Ashwagandha-

They assess in their study by forward a procedure approach ,a natural chemical constituent of Ashwagandha to look at a potential matter against the main enzyme of SARS-COV-2 (15).

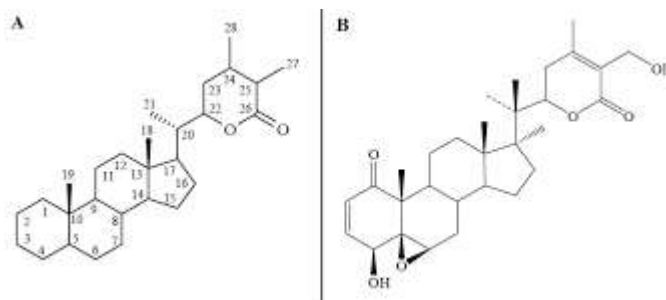
Pharmacological Activity of Ashwagandha-

Centennial of ayurvedic clinical experience the use of *withania somnifera* have reveal it to have pharmacological cost as as adaptogenic, antibiotic, aboritifacient, aphrosidiac, diuretic, narcotic, sedative and tonic. Ashwagandha has been observed to offer mighty antioxidant protection (16,17).

Pharmacological action of withanolides-

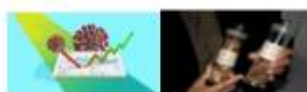
The roots of *withania somnifera* consist typically of compounds named as withanolides














,which unit of measuring believed to account for its fantastic healthful properties. Withanolides are steroidal and endure a resemblance, each of their movement and appearance, to the energetic elements of Asian ginseng called ginsenosides. Ashwagandha's withanolides had been analysed terribly} very type of animal analysis examining their impact on severa conditions, inclifing immune choices or even cancer (18). The withanolides have C28 steroidal nucleus with C9 facet chain, with a six membered lactone ring. Twelve alkaloids,35 withanolides, and diverse sitoindosides unit of measurement remoted and studied. A sitoindosides may well be a withanolide containing a aldose molecule at carbon twenty seven, a lotof ashwagandha,s medication interest has been attributed to a try of necessary withanolides, withaferin A,D and withanolide G.



Structure of withanolides A and B

The withanolides function necessary endocrine precursors that may convert into human physiological hormones as required. It can also regulate important physiologic process (19).



Indian medicinal plant	Trade name	Effective against	Images
<i>Tinospora cordifolia</i>	Samshamani Vati	Chronic fever	
<i>Andrographis paniculata</i>	Nilavembu kudineer	Fever and cold	
<i>Cydonia oblonga</i>	Unnab sapistan	antioxidant, immunomodulatory, anti-allergic	
<i>Arsenicum album</i>	<i>Arsenicum album</i> 30	SARS-CoV-2, acts as an immune modulator	
<i>Agastya haritaki</i>	Agasthya rasayanam	Upper respiratory infection	
<i>Anuthaila</i>	Sesame oil	Respiratory infection	
<i>Adathodal manapagu</i>	<i>Adathodal manapagu</i>	Fever	
<i>Bryonia alba</i>	Bryonia	Lung infection	
<i>Atropa belladonna</i>	Belladonna	Asthma and chronic lung disease	
<i>Bignonia sempervirens</i>	Gelsemium	Asthma	
<i>Rhus toxicodendron</i>	Rhustox	Viral infection	
<i>Eupatorium perfoliatum</i>	<i>Eupatorium perfoliatum</i>	Respiratory Symptoms	
<i>Visa sura kudineer</i>	Polyherbal formulation	Fever	
<i>Kaba sura kudineer</i>	<i>Polyherbal formulation</i>	Fever, cough, sore throat, shortness of breath.	

AYUSH recommended medicinal plant extracts for treating COVID-19 (Ref: AYUSH Ministry of Health Corona Advisory-D.O. No. 8. 16030/18/2019 – NAM; dated: 06th March 2020)

Table 3: some medicinal plant for treating covid -19

3) **Nyctanthes arbor-tristis L. (Parijatak)-**
 In many regions of India, mankind are the usage of Nyctanthes arboristis L. leaf to heal huge quantity of ailments like diabetes, flu, even for malaria fever, cancer and HIV.

Many researchers were done to grasp the welfare and boost of immunity power by intense leaf of Nyctanthes arbortristis L (20).



fig.5: plant of Nyctanthes arbortristis L.

Table 3 : Taxonomical classification-

Botanical name	kingdom	Eudicots division	family	genus	species
Nyctanthes arbortristis L.	Plantae	Angiosperm	Oleaceae	Nyctanthes	N.arbortristis

Immunomodulator activities of Nyctanthes arbortristis L.-

Nyctanthes arbor-tristis L. is a medicinal plant that has anticancer (21), immunostimulant (22), hepatoprotective (23), antiviral (23), antimicrobial, and antifungal (24), anti allergy (25), anti diabetic (26), anticholinesterase (27) residence in opposition to numerous disease. Nyctanthes arbor-tristis L. has the potential to stimulate the immune system, pretends each humoral and cell-mediated immunities as had been analysed its impact withinside the oblique hemagglutination test and serum immunoglobulin(28). The leaf juice of this plant is used to heal many diseases like to kill roundworms and threadworms, to treat loss of appetite and nausea, liver and bile duct related diseases, piles chronic disorders and fever like malarial, obstinate the irritation of the sciatic nerve, rheumatoid arthritis disease. Garden fresh leaf-juice, honey and normal salt mixed doses have been recommended to be secure laxative for infants. Two –ounce infusion doses are favourable in fever and rheumatic diseases as a diuretic and medicinal drug. For snakebite and bronchitis treatment the bark of Nyctanthes arbortristis is very useful. The Asian nation social group human utilize

many components of Nyctanthes arbortristis to induce a cure from cough, hiccup, dysentery, snakebite, and sores. To damage parasitic worms, this plant is used generally in Nepal. Along with the above activities, Nyctanthes arbortristis is additionally used as immunotoxic, antiallergic antihistaminic, purgative, antibacterial, and ulcerogenic activities (29).

Pharmacological activities – It shows following activities

- Hepatoprotective activity and antihistamic activity
- Anti-tryptagenic and anti-bacterial, antiviral activity,
- Anti –cholinesterase and anti- inflammatory activity,
- Anti-filarial and anti-oxidant activity.

II. CONCLUSION-

Ayurvedic herbal products is may be helpful to pick out as associate risk and lined approach to decrease the morbidity and mortality associated with novel coronavirus infection and enhance host immunity within the direction of infectious agents.so that herbal formulations are great way to improve immunity power. These

herbal drugs are very high therapeutic capabilities with high efficacy, low toxicity and cost effectiveness. Ashwagandha, *Tinospora cordifolia* and *Nyctanthes arbor-tristis* have the greatest immunomodulatory, antioxidant, anti-cancer, adaptogenic, anti-inflammatory activities have been reported. The immunomodulator drugs in Ayurveda have enough attributes which are to be utilized both for prevention and treatment of COVID-19.

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