

An Over View on Natural Agents for the Treatment of Covid19

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ABSTRACT

Since the outbreak and rapid spread of COVID-19 starting late December 2019, it has been apparent that disease prognosis has largely been influenced by multiorgan complications. Chronicity such as cardiovascular diseases have been the most common risk factors for severity and mortality. The direct effects of severe acute respiratory syndrome on body-wide organs through ACE2 has been associated with intricacy of the disease. Acute respiratory syndrome, heart failure, renal failure, liver damage, shock, and multiorgan failure have the reason due to death. Acknowledging the comorbidities and potential organ injuries throughout the study of COVID-19 is therefore essential in the clinical management of patients.

This paper aims to add onto the ever-emerging landscape of medical knowledge on COVID-19, encapsulating its multiorgan impact.

KEY WORDS: Covid-19, SARS-CoV2, Natural agents, Treatment.

INTRODUCTION

COVID-19 is a viral disease caused by a new severe acute respiratory syndrome. which has quickly resulted in a pandemic. As a great threat to global public health, the development of a treatment has become vital, and a rush to find a cure has mobilized researchers from all areas across the world. Synthetic drugs, such as hydroxychloroquine, have gained attention. However, the efficacy of repositioned drugs is still under evaluation, and besides, some severe side effects are a cause for concern. This emphasizes the urgency for treatment options, which can be both safe and effective. Natural products could be an important resource in the development of COVID-19 treatment, as they have already contributed in the past to treatments against other viruses, such as

HIV, MERS-CoV and influenza. Natural products are described long term as bioactive substances and some phytochemical classes such as flavonoids, alkaloids, and peptides are known antiviral bioproducts, and have been virtually tested with success against COVID-19. However, important issues still need to be addressed as to their bioavailability and true efficacy in vivo. This review intends to systematically evaluate the natural metabolites that could potentially be used against this new disease looking at their natural sources, mechanism of action and previous pharmacological usages. The aim is to provide a starting point for this research area in order to speed up the establishment of anti-SARS-CoV-2 bioproducts



Figure 1:- Corona Virus

Researchers have identified seven strains of the coronavirus that can infect humans. Four of them are very common and tend to cause mild symptoms, including a runny nose, sore throat, headache, cough and low grade fever. These four strains are so widespread that most people will have been infected by one of them at least once in their lifetime, though they likely won't know it since the symptoms are indistinguishable from symptoms of other viruses that cause the common

cold.

Genetical Features Of Corona Virus

- Corona viruses are a group of related RNA viruses that cause diseases in mammals and birds. corona virus constitute the sub family Orthocoronavirinae, in the family corona viridae, order Nidovirales, and Riboviria.
- They are enveloped viruses with a positive - sense single -stranded RNA genome and a nucleocapsid of helical symmetry. The genome size of corona virus ranges from approximately 26 to 33kilobases, one of the largest among RNA viruses.
- They have characteristics club -shaped spikes that project from their surface.

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DIAGNOSIS

To diagnosis an acute covid-19 infection

1. MOLECULAR TESTS
2. ANTIGEN TESTS
3. SEROLOGICAL BLOOD TEST
4. COVID-19:- RT-PCR TEST
5. FEVER TEST.^[1]

NATURAL AGENTS

1. ECHINACEA PURPUREA



Figure2:- Echinacea purpurea

Synonyms name :- Eastern purple coneflower, Purple coneflower, Hedgehog coneflower

Family:- Asteraceae

Biological Sources:- It consist of dried aerial part of the plant Echinacea purpurea linn.

ChemicalConstituents:-

Alkamides,Polysaccharides,lipoproteins,betaine,sesquiterpenes,polyacetylene,saponine,caffeicacid,and phenolic compound's

Pharmacology action

- Immunomodulatory effects
- Anti-inflammatory effects
- Psychoactive activity
- Cytotoxic activity
- Antioxidant activity
- Antiviral activity

Uses

- Coughs and colds
- Bronchitis
- Upper respiratory infections
- Gingivitis
- Influenza
- Canker sores
- Yeast infections
- Ear infections
- HIV & AIDS^[2]

2.CURCUMIN



Figure3:-curcumin

Synonyms:- Indian saffron, curcuma,haldi,Haridra,Turmeric fresh

Biological Sources:- Dried Rhizomes of curcuma longa Linn

Family:- Zingiberaceae

Chemical Constituents:- volatile oils, starch, resin, curcuminoids, curcumin acid, dimethoxy curcumin, monoterpenes, sesquiterpene, alphaphellandrens, camphour, camphene, zingiberene

Pharmacological Action

- Anti-inflammatory effects
- Anti-Cancer Effects
- Antioxidant activity
- Anti-microbial activity

Uses

- Anti-HIV, Anti-EBV, Antiadenoma – carcinogenic, Antiaflatoxin,
- Antiatherosclerosis, Antiaggregant,
- Antiangiogenic, Ant arachidonate, Antiviral, Antioxidant,
- Anticancer, Antigenemic, Anti-ischemic, Apoptotic, Antiinflammatory, Antileukemic,
- Antileukotriene,
- Angiolympathic, Antimelanomic, Antimetastatic,
- Antimutagenic, Antinitrososaminic, Antitumour agent
- Antiperoxidant, Antiprostaglandin, Antisarcomic,
- Metal chelator, Antithromboxane
- Antiinflammatory, Cytotoxic, Anticancer^[3]

3.CINCHONA SP



Figure4:-cinchona sp

Synonyms:- Jesuits bark, peruvian bark,
Biological Sources:- cinchona ledgerianamoens, cinchona officinalis linn, cinchona succirubra pav.
Family:- Rubiaceae
Chemical Constituents:- quinoline alkaloids, quinine, quinidine, cinchonine, cinchonidine, cinchonidine homo, hydro cinchonidine, cinchona succirubra, cinchona ledgeriana, cinchona calisaya, cinchona ledgeriana

Pharmacological Actions

- Antimalarial

- Parasitic Infection
- Antiplatelet properties

Uses

- Haemorrhoids.
- Varicose veins.
- Colds.
- Leg cramps.
- Influenza.
- Malaria.
- Fever.
- Cancer.
- Mouth and throat diseases.
- Enlarged spleen.^[4]

4.XANTHORRHIZOL



Figure5:-xanthorrhizol

Synonyms:- Curcuma xanthorrhiza, Javanese Tuemic, Temoe lawak

Biological sources:- Curcuma xanthorrhiza oil is extracted from Curcuma xanthorrhiza Roxb

Family:- Zingiberaceae and Curcuma genus

Chemical Constituents:- Curcumine, bisdemethoxycurcumin, Ar-curcumene, Ar-turmerone, zerumbone, geranyl acetate, zingiberene, camphor, betacurcumene

Pharmacological action

- Antimicrobial properties
- Anti-inflammatory properties
- Antioxidant properties
- Antihypertensive properties
- Antiplatelet properties

Uses

- Anti-inflammatory
- Treat Hepatitis
- Liver Disorders
- Stomach Disease
- Arthritis
- Hypotriglyceridaemia
- Hemorrhoids
- Anti Viral

- Skin inflammation
- Anti-platelet
- Antimicrobial
- Antihypertension
- Anti Oxidative^[5]

5.GINGER



Figure6:-Ginger

Synonyms:- Zingiber, zingiberis, Sunthi
 Biological Sources:- It consist of dried root and rhizomes og Zingiber Officinale
 Family:- Zingiberaceae
 Chemical Constituents:- Ginger consist of voatile, monoterpene, hydrocarbons, sesquiterpene, alpha-zingiberene, beta bisabolene, alpha farnesee,gingerol, gingeric acid

Pharmacological actions

- Antioxidant
- Anticancer
- Anti Inflammatory

Uses

- Allergic rhinitis (hay fever)
- Antiretroviral-induced nausea and vomiting
- Asthma
- Back pain
- Burns
- Cancer-related anorexia
- Chemotherapy-induced nausea and vomiting (CINV)
- Chronic obstructive pulmonary disease (COPD)
- Colic
- Constipation
- Diabetes
- Diarrhoea
- Dysmenorrhea
- Dyspepsia^[6]

6.PIPER LONGUM



Figure7:-Piper longum

Synonyms:- Long pepper, pipala-mool
 Biological Sources:- It consist of Dried fruits of piperlongum
 Family:- Piperaceae
 Chemical Constituents:- Piperine, chavine, piperttine, guineensine, pellitorine, sylvatine, pipericide

Pharmacological actions

- Insecticidal and acaricidal activity
- Antiulcer activity
- Anti-snake venom activity
- Antifungal activity
- Antiamoebic activity

Uses

- Headache.
- Tothache.
- Asthma.
- Bronchitis.
- Cholera.
- Coma.
- Cough.
- Diarrhoea.
- Epilepsy.
- Fever.^[7]

7.CLOVE



Figure8:-Clove

Synonyms:- Clove buds, clove flower, caryophyllum

Biological Sources:- It consists dried flower buds of *Eugenia caryophyllus*

Family:- Myrtaceae

Chemical Constituents:- volatile, tannin, resin, chromone, eugenin, eugenol, eugenol acetate.

Pharmacological actions

- Antimicrobial
- Anti-inflammatory
- Analgesic
- Antioxidant
- Anticancer

Uses

- Anal fissures.
- Dental plaque.
- Mosquito repellent.
- Pain.
- Toothache.
- Vomiting.
- Upset stomach.
- Nausea.
- Gas (flatulence).
- diarrhoea.
- Hernia.
- Pain and swelling (inflammation) of the mouth and throat.
- Cough.^[8]

8.GARLIC



Figure 9 :-Garlic

Synonyms: Allium; Lasan.

Biological Source: Garlic is the ripe bulb of *Allium sativum* Linn

Family: Liliaceae.

Chemical Constituents: Allicin, a yellow liquid responsible for the odour of garlic, is the active

principle of the drug. It is miscible with alcohol, ether, and benzene and decomposes on distilling. The other constituents reported in Garlic are alliin, volatile and fatty oils, mucilage and albumin. Alliin, another active principle, is odourless, crystallized from water acetone and practically insoluble in absolute alcohol, chloroform, acetone, ether, and benzene.

Pharmacological action

- Antioxidant
- Antidiabetic
- Blood pressure lowering agent
- Antihyperlipidemic
- Antibiotic activity and antifungal activity
- Anticancer agent

Uses

- Antibacterial.
- Antifungal.
- Antimycotic.
- Antiviral.
- Hypoglycaemic.
- Anticoagulant.
- Fibrinolytic activity.
- Lipid lowering.
- Antioxidant.
- Anticancer.
- Hypotensive.
- Hepatoprotective.
- Immunomodulatory.
- Aphrodisiac.
- Expectorant.
- Stimulant, Diuretic, carminative etc^[9]

9.HONEY



Figure10:-Honey

Synonym: Madhu.

Biological source: Honey is a sugary substance/secretion deposited in the honey comb by the hive bee *Apis mellifera*.

Family : Apidae.

Geographical source: Honey is produced in India and major produce comes from the state of Himachal Pradesh. Other chief countries are Australia, New Zealand, West Indies, USA.

Chemical Constituents: Honey is aqueous solution of glucose 35%, fructose 45%, and sucrose about 2%. The proportion of sugar may vary depending upon the source of nectar and enzymatic activity responsible for converting nectar into the honey.

Pharmacological Actions

- Antioxidant activity
- Antimicrobial activity
- Apoptotic activity
- Anti-inflammatory and immunomodulatory activities

Uses:

- Honey is used as a demulcent and sweetening agent.
- It is assimilated and hence is a good nutrient to infants and patients.
- It is antiseptic and applied to burns and wounds.
- It is a common ingredient of several cough mixtures, cough drops and vehicle for ayurvedic formulations.
- It is used in preparation of creams, lotions, soft drinks and candies.
- Honey is used for oxymel and squill oxymel.
- Antiviral agent
- Anti-cancer agents
- Anti-asthmatic agents^[10]

10.AMLA



Figure 11:-Amla

Synonyms: Emblica, Indian goose berry, amla.

Biological Source: This consists of dried, as well as fresh fruits of the plant *Emblica officinalis* Gaertn (*Phyllanthus emblica* Linn.), belonging to family Euphorbiaceae.

Geographical Source; It is a small- or medium-sized tree found in all deciduous forests of India. It is also found in Sri Lanka and Myanmar.

Chemical Constituents

The fruit also contains considerably higher concentration of most minerals and amino acids than apples. The pulpy portion of fruit, dried and freed from the nuts contains: gallic acid 1.32%, tannin, sugar 36.10%; gum 13.75%; albumin 13.08%; crude cellulose 17.08%; mineral matter 4.12%; and moisture 3.83%. Tannins are the mixture of gallic acid, ellagic acid, and phyllembin.

Pharmacological action

- Antifungal activity
- Antioxidant and free radical scavenging activity
- Insecticidal activity
- Anti-inflammatory activity
- Immunomodulatory activity

Uses

- Improves Immunity
- Hair Care
- Reduces Stress
- Eye Care
- Respiratory Health
- Treats Anemia
- Blood Purifier.
- Diuretic.
- Improve Digestion .
- Absorbs Calcium
- Anti-aging
- Improves Mental Functions
- Weight Management^[11]

11.NEEM



Figure 12:- Neem

Synonyms: Azadirachta Indica

Family: Meliaceae

Botanical name: Azadirachta Indica

It grows in tropical and semi-tropical regions and is widely found in Burma, India and Pakistan.

Chemical composition of neem:Neem tree has numerous medicinal properties by virtue of its chemical compounds. Seeds of the Neem tree contain the highest concentration of Azadirachtin. Apart from Azadirachtin , salannin, gedunin, azadirone, nimbin, nimbidine, nimbicidine, nimbinol, etc are other important liminoids of neem.

Pharmacological Action.

- Anti Infections Activity
- Anti-Cancer Activity
- Dental Health
- Anti-inflammatory and Analgesic Properties
- Anti-Diabetes Effects

Uses

- Anti-inflammatory.
- Antiarthritic.
- Antipyretic.
- Hypoglycaemic.
- Antifungal.
- Spermicidal.
- Antimalarial.
- Antibacterial
- Diuretic properties.
- Intestinal disorders
- Antibiotic.
- Blood purifying properties
- Astringent.
- Psoriasis it reduces itching.^[12]

12.LEMON



Figure13:- Lemon

Synonym: Fructus Limonis.

Biological Source: Lemon peel is obtained from the fresh ripe fruit of Citrus limon (L.) Burm. f. (C medico var. Belonging to family Rutaceae.

Geographical Source: It is cultivated in California, West Indies, Italy, Spain, Sicily, Portugal, Florida, California, Jamaica, and Australia; grown all over India, particularly in home gardens and small-sized orchards.

Chemical Constituents: Lemon peel contains

volatile oil (2.5%), vitamin C, hesperidin and other flavone glycosides, mucilage, pectin and calcium oxalate. The important constituents of the volatile oil are limonene (90%), citronellal, citric acid, geranyl acetate, α -pinene, camphene, linalool, terpineol, methyl heptenone, octyl and nonyl aldehydes, γ -terpinene, β -pinene, neral, and geranial.

Pharmacological action

- Lowering stroke risk
- Blood pressure
- Cancer prevention
- Maintaining a healthy complexion
- Preventing asthma
- Increasing iron absorption
- Boosting the immune system
- Vitamin C

Uses

- Flavouring agent.
- Perfumery.
- Stomachic.
- Carminative.
- Stimulant
- Meniere's disease
- Kidney stones.
- Treating scurvy.
- The common cold and flu.
- Decreasing swelling.
- Increasing urine.
- Other conditions.
- Anti-cancer
- Antiviral
- Antioxidative
- Antimicrobial.^[13]

13.NUTMEG



Figure 14:- Nutmeg

Synonyms: NuxMoschata, Myristicae Semina, Jaiphal.

Botanical source : Nutmegs consist of the dried kernels of the seeds of *Myristica fragrans* Van Houtten, an evergreen tree of the family Myristicaceae.

Chemical constituents : Nutmeg principally contains volatile oil. It also contains phytosterin, starch, amyloextrin, colouring matters and a saponin.

Pharmacological Action

- Antioxidant
- Antimicrobial Activity
- Antidiabetic Activity
- Anti-inflammatory Activity
- Hepatoprotective Activity
- Cardioprotective Activity

Uses

- Anticholinergic drugs
- Alzheimer's disease
- Relieve pain,
- Reduce insomnia.
- Increase immune system function.
- Prevent leukemia.
- Improve blood circulation.
- Strengthen cognitive function.
- Preventing diarrhea
- Vomiting
- Rheumatic
- Hallucinogenic effects
- Bactericidal activity.^[14]

14. OLIVE



Figure 15:-olive

Synonyms : *Olea europaea*.

Biological Source : Olive oil is fixed oil obtain by

the expressions of the ripe of the fruit of *Olea europaea* Linn.

Chemical Constituents : Olive oil contains mixed glycerides of oleic acid (56–85%), palmitic (7–20%), linoleic (3–20%), stearic (1–5%), arachidic (0.9%), palmitoleic (3%), linolenic, eicosenoic, gadoleic, and lignoceric acids. The minor constituents are squalene up to 0.7%, phytosterol and tocopherols about 0.2%. Italy-Spain type olive oil is higher in oleic acid and Greece-Tunisia type oil has higher levels of linoleic acid.

Pharmacological Actions

- Antioxidant Activities
- Antihypertensive and Cardioprotective Activities.
- Enzyme Inhibition Activities.
- Anti-Inflammatory and Antinociceptive Activities.
- Gastroprotective Activities.

Uses

- Constipation.
- High cholesterol.
- High blood pressure.
- Blood vessel problems associated with diabetes
- Ear infections.
- Arthritis.
- Gallbladder disease.
- Olive oil is also used to treat jaundice,
- intestinal gas
- meteorism.^[15]

15. OREGANO



Figure 16:-oregano

Synonyms name :Origanum vulgare Linn.

Biological source: The genus Origanum (Labiatae) is very small, perennial herbs or shrubs distributed in the Mediterranean region and extra tropical Asia. Only one species, Origanum vulgare, occurs in India.

Chemical source:Oregano leaves extract yielded two protocatechuic acid ester derivatives,origanol A and origanol B along with ursolic acid,oleanolic acid, Sitosterol and triacontanol.It has essential oil c. 2% (incl. phenolsup to 63% including carvacrol, thymol borneol monoterpenes which include (paracymene, terpinenes, cymene, caryophyllene, pinene linalyle geranyl acetate,cineol,bitters, tannins,coffeic. urslic, rosmarinic acids, resins, gum. Its effective qualities are pungent, bitter,warm, relaxing,stimulating dispersin.

Pharmacological Actions

- Antimicrobial Effect of Essential Oils of Oregano
- Antioxidants
- Anti-Inflammatory Activity
- Cardiovascular Diseases

Uses

- skins sores.
- aching muscles.
- asthma.
- cramping.
- diarrheic.
- indigestion.
- colds.
- to boost overall health.fight bacteria
- relieve inflammation
- regulate blood sugar and lipids
- fight cancer.^[16]

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