

Herbal plant used against Covid and its properties

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Abstract

Herbal medicine may be defined as the art or practice of using herbs and gerbil preparation to maintain health and to prevent, alleviate or cure disease. It is one of the traditional medicine to cure disease. More number of chemical compound are sythesised by plant to act against the insects, fungi, diseases, and herbivorous mammals. At the end of 2019, in china researchers found the evidence of coronaviruses in human. Coronaviruses are positive sense single stand RNA viruses and affect multiplesystem. It's made up of tow group of protein. The structural protein of coronaviruses such as spike(s), Nucleocapsid (N), matrix (M), Envelope (E), non- structural proteins such as nsp12-RNA-dependent RNA POLYMERASE (RdRp), NSP3- papain-like Proteinases, Nsp5-3c like main proteaseand nsP13 SARS-CoV HELCASE(4). Coronaviruses is otherwise called as covid - 19. Co stands for coronaviruses, vi stand for viruse and D Stand for disease. Coronaviruses (CoV) belong to the large family of viruses and causes respiratory illness. It causes illness ranging from the common cold to more several disease. This review highlight the list of herbal plant used against covid and their properties.

Keywords: Covid-19, herbal plants, properties, uses

Introduction

Virus

A virus may be defined as microscopic organisms which cause infection against plant, animals, to bacteria and archaea [2]. This infectious agent can reproduce only inside a host cell. The study of virus is called as virology [2]. The drug which is used to treat against virus called as antiviruses.



Fig 1

Coronavirus

In 1937, the researchers first found the Coronaviruses. It causes the type of bronchitis in bird and had the potential to devastate poultry stocks [1]. In 1960, human coronavirus found in the noses of the people with the common cold [1]. At the end of 2019, in china researchers found the evidence of coronaviruses in human.

Coronaviruses are positive sense single stand RNA viruses and affect multiplesystem [3]. Its made up of tow group of protein [4]. The structural protein of coronaviruses such as spike (s), Nucleocapsid (N), matrix (M), Envelope (E), non-structural proteins such as nsp12-RNA-dependent RNA

POLYMERASE (RdRp), NSP3- papain-like Proteinases, Nsp5-3c like main proteaseand nsP13 SARS-CoV HELCASE [4]. Coronaviruses is otherwise called as covid - 19. Co stands for coronaviruses, vi stand for viruse and D Stand for disease [1]. Coronaviruses (CoV) belong to the large family of viruses and causes respiratory illness. It causes illness ranging from the common cold to more several disease [1]. There are many types of coronavirus which causes mild illnesses like common cold [1]. The life threatening disease caused by severe acute respiratory syndrome (SARS) or middleeast respiratory syndrome (MERS). Due to this covid-19 the mortality rate is increased more than 2 million [1].

Symptoms

- Fever
- A cough
- A sore throat
- A head ache
- Muscular pain
- A new loss of taste or smell
- Nausea, vomiting
- Diarrhea
- Running nose
- Shortness of breath

Herbal medicine

Herbal medicine may be defined as the art or practice of using herbs and gerbil preparation to maintain health and to prevent, alleviate or cure disease [5]. It is one of the traditional medicine to cure disease. More number of chemical compound are sythesised by plant to act against the insects, fungi, diseases, and herbivorous mammals [5]. The active ingredient parts of plant or plant materials or combinations are present in herbal product for the prevention and treatment of the diseases [6].

Herbal medicines for Covid-19

In covid treatment the herbal medicine are used to treat against virus and improve the immune system of the persons. Species list given by the WHO and EMA are the primarily used for the selection of plant [7]. There are 39 herbal medicines were identified which are used to against the covid-19 [7].

List of medicines used against Covid-19 [7]

- Althaea officinalis
- Commiphora molmol
- Glycyrrhiza glabra
- Hedera helix
- Sambucus nigra
- Allium sativum
- Andrographis paniculata
- Echinacea angustifolia
- Echinacea purpurea
- Eucalyptus globulus essential oil
- Justicia pectoralis
- Magnolia officinalis

Althaea Officinalis

Synonym: malva officinalis

Common names: English name: Althaea, marshmallow, a

Arabic name: Khatma, khatmi

Diagram:



Fig 2

Distribution: Asia, Europe and United states

Traditional use: They are widely used to treat the oral irritation, pharyngeal mucosa, dry cough, mild gastritis, skin burns, insect bites as well as for inflammation, ulcer, burns, constipation and diarrhea [8].

Part used: Leaf, root, flowers

Chemical constituents: The compound extracted from different parts of the plant, it contains pectins 11%, starch 25-35%, mono-di-saccharide saccharose 10%, mucilage 5%, flavonoids, hypoletin-8-glycoside, isoquercitrin, caffeic, p-coumaric acid, ferulic acid, p-hydroxybenzoic acid, salicylic acid, vanillic acid, coumarins, scopoletin, phytosterols, tannins, asparagine and amino acid [8].

Uses: Antimicrobial activity, anti-inflammatory, immunomodulatory effect, demulcent and soothing, antitussive effect [8].

Commiphora Molmol

Synonym: African myrrh, gum myrrh, herabol myrrh

Common names: Gum of the myrrh tree

Family: Burseraceae



Fig 3

Distribution: Native to Arabian peninsula, Africa

Traditional use: It consist of wide range of bioactive substance which help to prevent and treatment of many diseases. Some of the bioactive substance like sterols, flavonoids, sesquiterpenes, diterpenes, terpenes, polyphenolic compounds [9].

Chemical constituents: Curzerene (40.1%), furanoeudesma-1, 3-diene (15%), 2-O-acetyl-8-12-epoxygermacra-1 (10), 4, 7, 11-tetraene, isomer 1 [10].

Uses: Analgesic activity, induction of obesity and hyperlipidemia, bodyweight and blood lipids, blood sampling, statistical analysis, used to treat common cold and asthma, lung congestion [9].

Glycyrrhiza Glabra

Common names: licorice, sweet wood, mulaithi

Distribution: Asia, Northern Africa, Eurasai

Family: Fabaceae

Parts used: rhizomes and root



Fig 4

Traditional use: Rhizomes and root of the plant were widely used to treat many digestive problem like ulcer, hyperdipsia, flatulence, colic. It also used to treat respiratory tract disorder (eg; asthma, tonsillitis, sore throat, coughs. It can treat the fever, epilepsy, sexual debility, paralysis, rheumatism, jaundice ^[11]. It was traditionally used as an insecticide, laxative, antibiotic, anti-inflammatory, anti-ulcer, anti-arthritis, antiviral, inhibitor for MOA (Monoamine oxidase), anti-cholinergic, anticancer, anti-diuretic agent ^[11].

Chemical constituents: The active compound present in the *Glycyrrhiza glabra* L. are flavonoids, saponins, phenolic compound like licoriphenone, several volatile components like hexanol, geraniol, propionic acid, 1-methyl-2-formylpyrrole, 2, 3-butanediol, benzoic acid, ethyl linoleate, trimethylpyrazie, methyl ethyl ketone and maltol ^[11].

Uses: They are widely used as an insecticide, laxative, antibiotic, anti-inflammatory, anti-ulcer, anti-arthritis, antiviral, in hibitor for MOA (Monoamine oxidase), anti-cholinergic, anticancer, anti-diuretic agent ^[11]. It also used as flavoring agent in food and beverage industry and it act as a flavor in tobacco products ^[11].

Hedera Helix

Common names: HENE, ivy

Distribution: Asia, Northern Africa, Eurasai

Family: Araliaceae

Parts used: Leaves



Fig 5

Traditional use: The leaves of the hedera helix were used for the treatment of catarrhs of the respiratory tract and chronic inflammatory bronchial condition. In the topical application, it is most effective in the treatment of liposclerosis. It also having the supporting weight loss properties. It act as emollient, itch-relieving properties. It also used in the treatment of rheumatic disorder and respiratory tract inflammation ^[12].

Chemical constituents: The biological active compounds are saponins (2.5-6%), bidesmosidic glycosides, hederacoside C (1.7-4.8%), hederacoside D (0.4-0.8%), hederacoside B (0.1-0.2%), and some other flavonides, steroids, vitamin, volatile and fixed oil, amino acids ^[12].

Uses: Spasmolytic/antispasmodic activity, anti-inflammatory activity, antimicrobial activity, anthelmintic activity, antileishmanial activity, antioxidative and hepatoprotective activity, antitumor activity, antimutagenic activity ^[12].

Sambucus Nigra

Synonym: African myrrh, gum myrrh, herabol myrrh

Common names: elder, elder berry, black berry, European berry, European black berry

Family: Adoxaceae

Distribution: Europe, North America, New Zealand, North Africa, E. Asia.



Fig 6

Traditional uses: It is used as the traditional remedy for treatment for cold, feverish condition, coughing, nasal congestion, mucous discharge, influenza. It is mainly help to improve the strength of the immune system ^[13].

Chemical constituents: Bioactive compound present in elderberry are polyphenols and anthocynins. Some of the polyphenols found in black berry are chlorogenic acid, neochlorogenic acid, quercetin, quercetin-3-rutinoside, quercetin-3-glucoside. Others such as flavonols, small amount of tannins, phenolic compounds, anthocyanins ^[14].

Uses: Antioxidant, antibacterial activity, antiviral activity, help to treat diabetes, obesity and metabolic dysfunction, antidepressant activity, impact in urinary parameter ^[13].

Allium Sativum

Synonym: Allium, garlic

Common names: Garlic

Distribution: Asia, Northeastern Iran

Family: Amaryllidaceae



Fig 7

Traditional use:

They are widely used to treat the Cardio vascular disease, cancer, liver problems ^[15]. It widely helps to improve the immune system ^[15]. It protect against the attack of stomach

acid. It treat the hypertension, rheumatoid arthritis, cold, tumors, diabetes. It also act as bactericidal, virucidal, bactericidal, fungicidal, analgesic, sedative, local anaesthetic [16].

Part used: Bulb, stem, leaves

Chemical constitution: The phytochemical compound including sulfur-containing such as ajoenes, thiosulfates, sulfides, thiosulfates, vinylthiols [16]. Other phytoconstituent such as glycoside, tannins, saponins, steroids, flavonoids, tannins, terpenoids, monoterpenes, diterpenes [16].

Uses: Antibacterial, antihypertension, anti-thrombotic [16]. Anticarcinogenic, antioxidant, antidiabetic, anti-atherosclerotic, antifungal, antiviral, antiprotozoal, anticancer [16].

Andrographis Paniculata

Synonym: Green chiretta

Common names: Creat or green chiretta

Distribution: Native India, Sri Lanka

Family: Acanthaceae



Fig 8

Traditional uses: Andrographis paniculata was traditionally used to treat cold, diarrhea, fever, jaundies. It act as the tonic for the liver and cardiovascular and antioxidant [17].

Part used: Bulb, stem, leaves, Whole plant

Chemical constitution: The bioactive compound are extracted from Andrographis paniculata are diterpenoids, twelve flavonoids, two quinic acid [17].

Uses: Effect on common cold, anti-inflammatory effect, antihyperglycemic activity, hepatoprotective effect, antimicrobial, antiparasitic effect, anticancer, immunomodulatory effect, cardiovascular effect, sexual function and contraceptive effect, toxicity effect [17].

Echinacea Angustifolia

Synonym: Cone flower

Common names: Cone flower, blacksamson echinacea

Distribution: Native India, Sri Lanka

Family: Asteraceae

Part used: Root, Aerial parts



Fig 9

Traditional uses: Traditionally Echinacea angustifolia are used to treat cold, flu.

Chemical constitution: It mainly consist of caffeic acid derivatives like caftaric acid, chlorogenic acid, echinacoside [24].

Uses: It help to improve the immunostimulatory and anti-inflammatory [18]. It act as antianxiety, antidepression, cytotoxicity, antimutagenicity [18]. It used to treat the upper respiratory tract.

Echinacea Purpurea

Synonym: Cone flower

Common names: Cone flower, blacksamson echinacea

Distribution: Native India, Sri Lanka

Family: Asteraceae



Fig 10

Traditional uses: Echinacea purpurea are traditionally employed to treat toothache, bowel pain, snake bites, skin disorders, seizure, chronic arthritis and cancer [15].

Part used: Root, Aerial parts

Uses: It help to improve the immunostimulatory and anti-inflammatory [18]. It act as antianxiety, antidepression, cytotoxicity, antimutagenicity [18].

Eucalyptus Globulus Essencial Oil**Synonym:** Tasmanian blue gum**Common names:** Tasmanian blue gum**Distribution:** Australia**Family:** Myrtaceae**Part used:** leaves**Fig 11**

Traditional uses: They are widely used to treat nasal congestion, asthma, skin problems, skin cancer, diabetes. It also used to treat cold, flu, fever and bronchitis [21].

Chemical constitution: The Chemical constitution of the Eucalyptus globulus essential oil are cineole, cryptone (0.00-17.80%), spathulenol (0.12-17.00%), p-cymene (27.22%), 1, 8-cineole (15.31%, 36.95% and 56.96%) (19). Major constituent found in Eucalyptus globulus are 1, 8-cineole, α -pinene, (+)-limonene, globulol [21]

Uses: Antimicrobial, antioxidant, antibacterial, antiviral, anti-quorum sensing [20].

Justicia Pectoralis**Synonym:** Tasmanian blue gum**Common names:** Tasmanian blue gum**Distribution:** America, Cuba**Family:** Acanthaceae**Part used:** Leaves**Fig 12**

Traditional uses: They are traditionally used in the treatment of cough, bronchitis and asthma. It used to treat stomach upset, leg pain [23]. It act as expectorant.

Uses: Anti-inflammatory, anti-nociceptive, anti-spasmodic, smooth muscles relaxant and anxiolytic [23]. It helpful in the treatment of allergic skin rashes. It help to relief the menstrual pain [23].

Magnolia Officinalis**Synonym:** Magnolia bark**Common names:** Magnolia bark, Houpo magnolia**Distribution:** Native to china**Family:** Magnoliaceae**Part used:** Bark**Fig 13**

Traditional uses: Magnolia bark are traditionally used to treat asthma, anxiety, depression, stomach disorder, and inflammation.

Chemical constitution: The Chemical constitution are found in the magnolia bark are magnoliane, erythro-honokitriol, threo-honokitriol, magnaldehyde, magnatriol, randaiol, obovatol, magnolignan B, Magnolol, honokiol, coniferaldehyde [24].

Uses: It used to treat constipation, inflammation. It act as anti-inflammatory, anti anxiety. It is used for weight loss. It help to prevent digestion problem [24].

Concluding Remarks

For the treatment of covid-19, there are large number of drug candidates have been tested in the clinical trails. For the alternative solution, natural compounds are need to used for controlling infectious diseases. The phytoconstituents of many herbal drug could be developed as a potent drug. In India flora and biodiversity they are many plant species are diagnose as edible plant and have a potent to act as antiviral activity and also have a anti-coronaviral activity. To overcome this pandemic, phytoconstituent of the herbal plant could be developed as a potent drug.

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