

Traditional herbal medicine in the treatment of patients infected with new Coronavirus

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ABSTRACT

The purposes of this review was in the direction of epidemiology, causative agents, symptoms, vaccine research probabilities and COVID-19 infection novel Corona viruses that was investigated in China. The COVID-19 has surrounded viruses along with a practical sensation one stranded RNA genome and a nucleocapsid of helical uniformity. The COVID-19 is an enormous family of viruses that are prevalent in a public and large number of species of animals including hens, camels, bats, cat, and cattle. Human corona viruses can cause gentle disorder identical to a common cough, cold, while others reason more acute disease MERS (Middle East Respiratory Syndrome) and SARS (Severe Acute Respiratory Syndrome). Thus spreading the COVID-19 should be closely investigated to recognize the growth of particularly virulent strains in society at an early stage and to simplify the evolution of enough preventive and therapeutic measurements.

Keywords: COVID-19, SARS, MERS, RNA genome

INTRODUCTION

COVID-19 is a new strain that was discovered in the year 2019 and has not been previously identified in humans. During the end of the year 2019 and starting of the year 2020, various patient cases of COVID-19

infection were reported about the human seafood like shrimp, salmon and tuna fish wholesales market in Wuhan, china in January 2020, the virus was again identified as a novel corona virus and officially named by the WHO as 2019-nCoV, the new corona virus in 2019 [1,2,12].

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COVID-19 are an enormous family of disease that starting point disorder differs from the usual cough and cold infection to additional acute disease such as Middle East Respiratory Syndrome (MERS-CoV) and Several Acute Respiratory Syndrome (SARS-CoV) [11]. They are transmitted between animals and people. Exhaustively, investigation starting that SARS-CoV was dispensed from civet cats to human and MERS-CoV from dromedary camels to humans. Different common COVID-19 is circulating in animals that have not yet infected humans (Figure 1) [17].

Ordinary signs and symptoms of infection insert pulmonary symptoms, increase body temperature and cough, orthopnea and inhale and exhale problems [9,10]. In addition to some causes, an infection can cause pneumocytosis, renal failure or kidney disorder, respiratory illness and death [1,19]. The global tread of confirmed COVID-19 cases and associated deaths in March 2020.

Herbal medicinal plants are the prosperous bioresource of drugs of traditional systems of drugs, modern medicine, nutraceutical, food supplements, folk medicines, pharmaceutical intermediates and chemical entities for synthetic drugs [4]. All over the world, herbal medicines are considered to be one of the most important areas of interest in the traditional medicine system. In brief, we

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recapitulated that the antiviral activity from several herbal medicines and natural product against some notable viral pathogens include corona virus (CoV), hepatitis B virus (HBV), enterovirus-71 (EV71), dengue virus (DENV), hepatitis C virus (HCV), herpes simplex virus, coxsackievirus (CV), human immunodeficiency virus (HIV), influenza virus, measles virus (MV), and respiratory syncytial virus (RSV) [3,19].

Roles of humoral and cellular immune responses

At present, there is no data on the specific role of either humoral or cellular immunity or innate immunity in patients recovering from COVID-19 [8]. Only highly specialized laboratories can conduct experiments to investigate immune responses against HLA class-I and class-II restricted viral epitopes mediated by CD8+ and CD4+ T lymphocytes, respectively, to confirm the conjecture of a cellular (rather than humoral) immunity against SARS-CoV2. Also, the T lymphocytes that are responsible for clinically related antiviral immune responses may have high chances to be locally present in or near to respiratory epithelia but have comparatively low chances to be detectable in peripheral blood the exclusive detection of humoral immunity (antibodies against SARS-CoV-2) may lead to an underestimation of the anti-SARS-CoV-2

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immune responses [5]. Thus, the actual incidence of infections with SARS-CoV-2 may be much higher than the observed number of clinically and serologically evident cases of COVID-19. A larger epidemic might be smoldering. This epidemic which is made of mild and paucisymptomatic (usually flu-like) infections, could parallel the evident COVID-19 outbreaks that are detected when patients develop radiological or functional signs of pneumonitis and they are tested for SARS-CoV-2. This scenario may have two consequences. Firstly over the coming months, the symptomatic cases could arbitrarily occur either as sporadic cases or as epidemic clusters among frail subjects (e.g. as nosocomial outbreaks) which are driven by unrecognized occasional spreaders. Secondly, these occasional spreaders might increase the induction of immunity at the population level [6,7,8].

Roles of herbal drugs Ashwagandha

Ashwagandha is a plant (Figure 2) which the root and berry are used to make medicine and it carries yellow flowers and red fruit. However, its fruit is berry-like in size and shape. Ashwagandha also is known as *Withania* root, winter cherry, and it consists of dried roots and stem bases of *Withania*

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somnifera. It belongs to the Solanaceae family. The main ingredients of *Withania* are alkaloids and steroidal lactones. Between the different alkaloids, *Withania* is an important chemical ingredient. Somniferine, somnine, somniferinine, withananine, pseudo-withanine, tropine, pseudotropine, cuscohydrine, cuscohydrine, anferine and anahydrine are some of the other alkaloids. It grows as a stout shrub that reaches a height of 170 cm and also grows widely in all dry parts and subtropical India. Ashwagandha grows absolutely in India, Nepal, Pakistan, Sri Lanka and Bangladesh. It is commercially cultivated in Madhya Pradesh. Mechanism of action of Ashwagandha is reported to have an anti-carcinogenic effect in animal and cell cultures by diminishing the manifestation of nuclear factor-kappaB, suppressing intercellular tumor necrosis factor, and potentiating apoptotic signaling in cancerous cell lines [13-17].

Cinnamon

Cinnamon is a plant (Figure 3) which the berry, bark and leaves used to make herbal medicine and it carries dark purple color fruit. The size and shape of this fruit are berry-like. Cinnamon also is known as *Cinnamomum Laurus*. It is a light brown color and has a delicately fragrant aroma and warm, sweet flavor. It is lighter in color and milder in

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flavor than the other related species. It belongs to the *Lauraceae* family. The main chemical constituents of cinnamon contain volatile oil, calcium oxalate, tannin, cinnamic aldehyde, terpenes aldehydes, ketone and alcohol. Mechanism of action of cinnamon is reported as the antibacterial activity of cinnamon is due to bioactive phytochemicals such as cinnamaldehyde and eugenol. Also, cinnamon can be suggested as an alternative to synthetic antibiotics, especially for the treatment of antibiotic-resistant bacterial infections. Its use for cinnamon contains large amounts of highly potent polyphenol antioxidants. Cinnamaldehyde possesses antifungal and antibacterial properties which help to reduce infections and also helps fight tooth decay and bad breath. Cinnamon may help fight HIV and other viruses [20].

Clove

Clove is a plant which the flower buds and leave used to make herbal medicine and carry green to the bright red color flower bud. The buds of clove are like small, round-headed nails which are about 10–17.5 mm long and blackish-brown in color. Mechanism of action of clove oil is used for antiseptic in oral infection and they inhibit the growth of molds, yeast, bacteria and virus. The high level of eugenol content in clove essential oil is responsible for its strong biological and

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antimicrobial activates. Cloves are responsible for boosting the immunity and will help you get rid of phlegm if you happen to catch a cold. To enjoy a congestion-free day, you just have to add few cloves in your morning cup of tea. Cough syrup with added clove if taken before going to bed can help alleviate spasmodic coughs in case of bronchitis and bacterial infection [21].

Ginger

Ginger is root (Figure 4) which the root and stem used to make herbal medicine and it carries brown and pale yellow color root. It is also known as Zingiber. Ginger, the rhizome of *Zingiber officinale*, is one of the most extensively used species of the ginger family (*Zingiberaceae*) and is a common spice for various foods and beverages. It is said to be connatural of South East Asia but is cultivated in the Caribbean islands, Africa, Australia, Jamaica, Taiwan and India. Active Constituents of ginger rhizome is a yellow pungent oily liquid and yields gingerone a ketone and aliphatic aldehyde. Shagaol is made by the loss of water from gingerol. Shagol and gingerone are less pungent. The pungency of gingerol and gingeris destroyed, when boiled with 5 % potassium hydroxide or other alkalies. The mechanism behind the ginger's anti-emetic activity is not clearly understood, but the aromatic, spasmolytic,

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carminative, and absorbent properties of ginger suggest that it has direct effects on the gastrointestinal tract. The compounds 6-gingerol and 6-shogaol have been shown to have several pharmacological activities, including antipyretic, analgesic, antitussive and hypotensive effects [22].

Pudina

Pudina has a very strong odor and is cool. (Figure 5) It helps in the expulsion of phlegm and acts as an expectorant, thus helping one recover faster. To get rid of cough, add 1/2 teaspoon of fresh/dried mint leaves to a cup of boiling water. The mixture should be steeped, strained and drunk when mildly

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warm. Honey possessing antimicrobial and antibacterial properties that are not only blissful for your taste buds but also help ease sore throat pain. It is also an effective cough suppressant. A teaspoonful of honey before going to bed at night will help to reduce the severity of cough symptoms [23].

Fennel seeds

This is one of nature’s finest expectorants (Figure 6). Cough syrup with saunf will help dissolve phlegm (mucus) and soothe your throat. It is also good for dry cough thus reduce hoarseness in the voice [24].

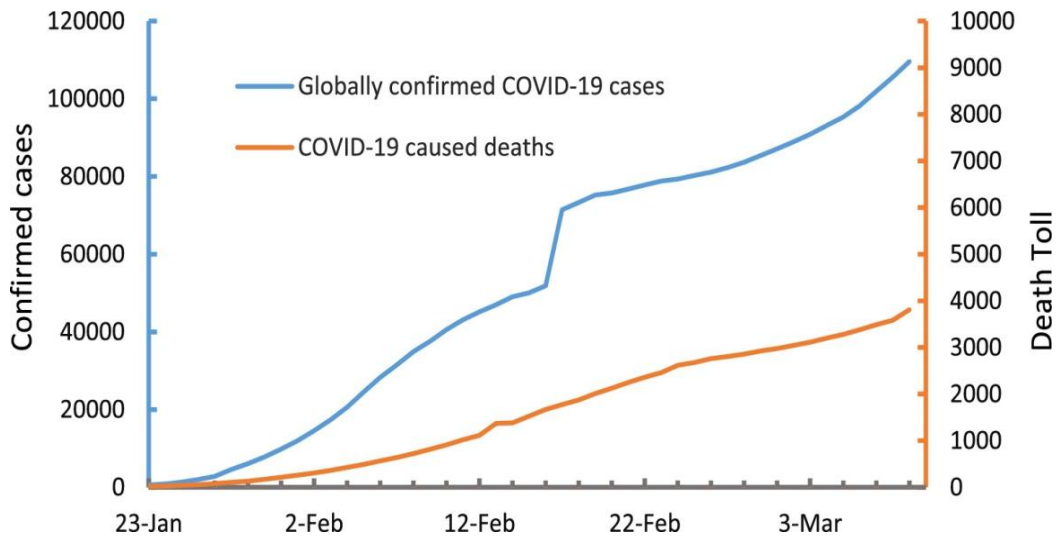


Figure 1. Global trend of confirmed COVID-19 cases.



Figure 2. Ashwagandha (*Withania somnifera*).



Figure 3. Cinnamon (*Cinnamomum cassia*).



Figure 4. Ginger (*Zingiber officinale*).

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Tulsi

Tulsi is also useful in viral infection. Tulsi leaves on the affected area helps prevent infection and also relieves bacterial infection as well as cold. The leave and stem and seed are used to make medicine and it carries purple creamish color flower and reddish and green color leaves (Figure 7). The green and red tulsi called Krishna and Shri tulsi. It is also known as *Ocimum sanctum* and holy basil. It is used for common cold symptoms and immunomodulatory herb that might improve the individual ability to fight against the common cold. It also prevents the regular reappearance of the common cold. Another

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study states that Tulsi helps gives relief from cough, cold and helps boost immunity. Its immunomodulating and antibacterial and antimicrobial effect, Tulsi increase the resistant order of the body. Tulsi possesses antipyretic and diaphoretic activity which helps to induce sweating and normalizes the elevated body temperature during fever. The leaves of Tulsi can be used to reduce a fever because it helps to improve immunity and fight against infection. Tulsi acts as both a hepatoprotective agent and helps restore the liver functions [25].



Figure 5. Pudina (*Mentha piperata*).



Figure 6. Fennel (*Foeniculum vulgare*).



Figure 7. Tulsi (*Ocimum tenuiflorum*).

CONCLUSION

There is no one individual antiviral treatment suggested for COVID-19 disease. Thus WHO has released public health advice for prevention and cure for corona virus to stop spreading in one person to another stay healthy and protect yourself from infection disease. The herbal

remedies not only part with that different but also scores over the reaction and evaluation factor of allopathic medicine immunomodulators are becoming more popular. From the work cited in the work it can be concluded that herbals/botanicals have Functionality in the treatment of disease for example immunomodulator or which may develop to other immune disorders. Ayurvedic drugs have a

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promising profile as far as drug development from a natural source is concerned. One can expect herbal to acts as a lead compound for the development of economical, effective and nontoxic immunomodulatory agents.

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