



Prospective

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Whether Herbal Medicines Play an Important Role in the COVID-19 Therapeutics and Boosting Immune as One of the Preventive Solutions: A Science Opinion

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ABSTRACT

The coronavirus disease 2019 (COVID-19) epidemic affects people's health and health-related quality of life. Based on our knowledge on traditional medicine, we discussed the topic: whether herbal medicines play an important role in the COVID-19 therapeutics and immune enhancing as a preventive solution. The new studies on efficacy and practical application of herbs in the COVID-19 therapeutics and producing immediate herbal drugs are encouraged.

Keywords: COVID-19, Corona virus, Herbal medicine, Therapeutics.

INTRODUCTION

Coronaviruses are a large family of viruses that are known to cause illness ranging from the common cold to more severe diseases such as Middle East Respiratory Syndrome (MERS) and Severe Acute Respiratory Syndrome (SARS). A novel coronavirus (COVID-19) was identified in 2019 in Wanhua, China. This is a new coronavirus that has not been previously identified in humans. Up to now, none country has developed a specific vaccine to treat this virus disease. Whether herbal medicine may kill viruses is still a hotly debated topic. This work states that herbal medicine may play an important role in the COVID-19 therapeutics and immune enhancing by herb remedies as a preventive solution.

RECOMMENDS AND DISCUSSIONS

Recommended herb formulas and ingredients

We briefly commended on therapeutics of traditional medicine and modern medicine combination in the treatment of COVID-19, which is necessary in current situation. Using herbal medicine may shorten the treatment time, which is compared with therapeutics using only modern medicine. Although biologists agree that herbs cannot interfere with the human gene to kill the internal virus, they show efficacy in antiviral treatment through support. Traditional medicine knowledge displayed that herbal drugs may support to reduce the harm of flu. Currently, the COVID-19 still has much secret that can not be concluded. While there is no available specific drug to treat this viral disease, the current main measures are to improve physical health and enhance immune system. The most first symptoms of COVID-19 disease are fever, fatigue and dry cough, then continue to progress to pneumonia or worse. Based on that to propose herb remedies, a herb formulas is introduced in Table 1.

The formulas are prescribed for two days of treatment. Drugs are extracted by boiling water and divided into six utilizing times. In this remedy, three important herb medicines including *Agrimonia pilosa*, *Hypericum japonicum* Thunb and *Flos Ionicerae* are recommended to be may prevent attack of virus. *Agrimonia pilosa* may be used to inhibit proliferation rate of viruses. An extract of this herb was reported to be highly effective against three subtypes of human influenza viruses including H1N1 and H3N2 influenza A subtypes and influenza B virus. The EC₅₀ value against influenza A virus is 14-23 µg/mL. The extract also exhibited a strong inhibitory effect *in ovo* on the H9N2 avian influenza virus at a concentration of 280 ng/mL^[1]. *Hypericum japonicum* Thunb is very precious herb with outstanding bioactivities. The aqueous extract displayed inhibitory rates on HBeAg and HBsAg of 70% and 30%, respectively^[2]. Its extract exhibited strong activity against duck hepatitis B virus at dosage of 6.5, 13.0 and 26.0 mg/kg, once a day, for 28 days^[3]. In addition, the 75% ethanol extract showed anti-influenza virus H3N2 effect *in vivo* after 10 g/kg oral administration in mice infected with the H3N2 virus^[4]. The antiviral activity of *Lonicera japonica* has been

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reported and screened, such as anti-RSV, anti-HIV, anti-HSV, anti-PRV. This herb had been consumed for the treatment of some viral diseases in China. Its extract displayed antiviral capacity against syncytial virus with IC₅₀ at a concentration of 50 µg/mL^[5]. *Lonicera japonica* extract is suggested to have inhibition of influenza A virus^[6]. Its extracts and chlorogenic acid had the strong anti- cytomegalovirus activity^[7]; *in vitro* anti-HSV (Herpes simplex virus)-1F and anti-HSV-1HS-1 to acyclovir^[8]. *Flos Lonicerae* extract showed anti-virus (H9N2) and anti-AIV^[9,10]. Other research works also are evidences for antiviral activity of this herb^[11,12,13,14]. Other herbs in this remedy help reduce cough, treat pneumonia and protect the lung.

Table 1: Herb formula and ingredients suggested for the treatment of pneumonia infected covid-19

No.	Formula and Ingredients	
0	Science Name	Weight
1	<i>Hypericum japonicum</i> Thunb. ex Murray	15 gram
2	<i>Flos Lonicerae</i>	12 gram
3	<i>Agrimonia pilosa</i>	30 gram
4	<i>Radix platycodi grandiflori</i>	12 gram
5	<i>Semen ameniacaee amarum</i>	10 gram
6	<i>Rhizoma curcumae longae</i>	2 gram
7	<i>Folium clodendronis</i>	6 gram
8	<i>Cartex mori</i>	12 gram
9	<i>Folium perillae</i>	8 gram
10	<i>Radix glehniae</i>	12 gram
11	<i>Asparagus cochinchinensis</i>	12 gram
12	<i>Ophiopogon japonicus</i>	12 gram
13	<i>Radix et rhizoma glycyrrhizae</i>	4 gram

Enhancing immune system

An effective herbal remedy for the treatment of viral disease with many health benefits should be considered. Especially, it may help strengthen the immune system. The treatment with oriental medicine, the effect can be confirmed. Some herbs can enhance and regulate immune system, thereby it may support to inhibit the viral proliferation. Based on this opinion, herb formulas and ingredients to strong immune are suggested in Table 2. The formulas is also prescribed for two days of treatment. Drugs are extracted by boiling water and divided into six utilizing times.

Table 2: Medicine herbs help enhance immune system

No.	Formula and Ingredients	
0	Science Name	Weight
1	<i>Astragalus membranaceus</i>	15 gram
2	<i>Codonopsis pilosula</i> (Franch) Nannf	12 gram
3	<i>Poria cocos</i> Wolf	12 gram
4	<i>Atractylodes macrocephala</i>	12 gram
5	<i>Cordyceps sinensis</i>	10 gram

Former studies reported some immune stimulating effects of *Astragalus membranaceus*. In an *in vitro* study, proliferation of peripheral blood mononuclear cells and production of cytokines and IgM were stimulated

by an its extract^[15]. In *in vivo* studies in mice reveal that this herb may reverse the suppressed T-cell functions induced by the chemotherapy agents, cyclophosphamide^[16,17] or mitomycin C^[18]. *Cordyceps sinensis* is useful in preventing and treating many age related diseases. This precious herb contains immunosuppressive ingredients^[19]. Its methanol extract from the fruiting bodies contains immunomodulating agents^[20]. A pure compound (H1-A) isolated from *Cordyceps sinensis* exhibited immunomodulatory effect^[21,22]. Especially, alcoholic extract of this herb plays an significant protective role against virus induced murine myocarditis by inducing IFN-c and regulating T lymphocyte^[23,24].

CONCLUSION

Antiviral capacity should also be noted for the herb. It could be anticipated that the combination of oriental medicine and western medicine will be useful in COVID-19 therapeutics. Using herb remedies in the treatment of COVID-19 may be believed to be passive immunotherapy. However, there have no any research work on mechanism to expose this virus species antigens. Although the margin of safety of herb medicine is large, more studies need to be elucidated the clear value of using herbs to improve physical health and immune system.

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