

# Herbal Prescription for COVID-19

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## ABSTRACT

The clinical studies from China have proved that the use of herbal medicine has played a significant role in the prevention and treatment of COVID-19. This article aims to introduce the six most effective herbal prescriptions in Traditional Chinese Medicine (TCM) for treating the coronavirus (COVID-19). Each formula has been described in detail including the name, source, indication, ingredients (Chinese Pinyin, English and Latin names), usage and discussion, etc. The first chief formula introduced in this article is the most popular prescription published by The National Health Commission of People's Republic of China on 3/3 2020 for the treatment and prevention of coronavirus infection and pneumonia; and subsequent formulas are the modified classical herbal prescriptions and my experienced herbal formula I often use in the UK.

**Keywords:** COVID-19; Herbal formulas; Ingredients, Indications; Usage; Discussion

## INTRODUCTION

The coronavirus (COVID-19) is highly contagious with a characteristic tendency to severely affect the respiratory tract and the lung in certain individuals. TCM classifies COVID-19 as an epidemic disease termed 'Wen Yi' and considers both external and internal factors contributing to pathogenesis and development of the disease. The external factor is that the pathogen (COVID-19) invasion of the body while the internal factor is that in same case the immunity system is too weak to fight the coronavirus infection hence the higher fatality rates amongst the medically vulnerable and elderly. The clinical studies in China have showed that some herbal medicines have a direct antiviral effect, while some herbs can improve the body's immune function. The clinical reports from Chinese hospitals have proved that traditional Chinese medicine has played a significant role in the prevention and treatment of coronavirus infection. The data released by the State Council Joint Prevention and Control Mechanism Press Conference held on February 17, 2020 showed that there were 60,107 confirmed cases of coronavirus pneumonia treated by Chinese herbal medicine in the country including mild, moderate, severe, critical conditions. The most of the patients had good results. This article may provide a new idea to the British medical and pharmaceutical communities to understand the method of herbal formulas, and then they could carry on further laboratory research through modern pharmacological experimental studies to reveal the effective ingredient and mechanism of action, so that in the future herbal medicine will become a complementary therapy for the patients

infected by COVID -19 in the UK. This is why I choose to write this article.

## METHODS

Here is detailed information on the anti-coronavirus herbal formulas. The first chief formula introduced below is the most popular prescription published by The National Health Commission of People's Republic of China on 3/3 2020 for the treatment and prevention of coronavirus infection and pneumonia; and other formulas are the modified classical herbal prescriptions and experienced formula I use in the UK. Now I will introduce the name, source, indication, ingredients (including Chinese Pinyin, English and Latin names), usage and discussion of each herbal formula as following:

### The chief herbal prescription from China

"Qing Fei Pai Du Tang" (the Lung-clearing & Detox Decoction )

Indications: Applicable to patients with mild, moderate and severe coronavirus infection symptoms and pneumonia.

Source: [Diagnosis and Treatment Protocol for COVID](Trial Version 7),The National Health Commission of People Republic of China [1].

The ingredients: 9 grams of Mahuang (Ephedra/ Herba Ephedra), 6 grams of Zhi Gancao ( Prepared Licorice Root/Radix Glycyrrhizae Praeparata) 9 grams of Xingren (Better Apricot Kernel /Semen Armeniacae Amarum), 15-30 grams of Sheng Shigao (Raw Gypsum/

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**Received:** March 01, 2021, **Accepted:** March 15, 2021, **Published:** March 22, 2021

**Citation:** Zhang E (2021) Herbal Prescription for COVID-19. Bio Med. 13:432.

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Gypsum Fibrosum), to be boiled earlier than other herbs, 9 grams of Guizhi (Cinnamon Twigs/Ramulus Cinnamomi), 9 grams of Zexie (Oriental Water Plantain Rhizome/Rhizoma Alismatis), 9 grams of Zhuling (Umbrellate Pore-fungus/ Polyporus), 9 grams of Baizhu (White Atractylodes Rhizome/Rhizoma Atractylodis Macrocephalae), 15 grams of Fuling (Poria/Poria), 16 grams of Chaihu (Bupleurum Root/Radix Bupleuri), 6 grams of Huangqin (Scutellaria Root/Radix Scutellariae), 9 grams of Jiang Banxia (Pinellia Tube prepared with ginger/Rhizoma Pinelliae), 9 grams of Shengjiang (Fresh Ginger/ Rhizoma Zingiberis Recens), 9 grams of Zhiwan (Aster Root/ Radix Asteris), 9 grams of Kuandonghua (Coltsfoot Flower/ Flos Farfarae), 9 grams of Shegan (Belamcanda Rhizome/ Rhizoma Belamcandae), 6 grams of Xixin (Asarum Herb/ Herba Asari), 12 grams of Shanyao (Chinese Yam/ Rhizoma Dioscoreae), 6 grams of Zhishi (Immature Bitter Orange/ Fructus Aurantii Immaturus), 6 grams of Chenpi (Tangerine Peel/ Pericarpium Citri Reticulatae), 9 grams of Huoxiang (Agastache/ Herba Agastachis).

Usage: In China, the decoction (herbal tea) is mostly acceptable: all the above herbs are to be boiled in water in a casserole about 20-30 minutes for oral use. In the UK, we mainly use concentrated granules. Each herb is 1 gram per day. Mix and dissolve all ingredients in the formula in a glass of boiling water. Take half a dose in the morning and half a dose in the evening.

For children aged 6 to 12 years old, use half of the above adult dosage; Children under 6 years, not recommended.

Usually, the symptoms are obviously relieved after taking the above formula for 3-5 days, and the symptoms disappear after two weeks. In some serious cases, it takes about 3 to 4 weeks of continuous herbal treatment to fully recover, but the formula will need to be modified according to the patient's condition at the time.

448 online questionnaires were sent to the doctors from different positions including consultants, senior registrars, registrars, specialists, and house officers, as well as nurses from different departments in KAUH through their official emails. The ethical clearance was obtained from the hospital's ethical review committee to access the official emails of the staff, the questionnaire was preceded by a detailed explanation of the purpose of the study. Moreover, the respondents were asked to provide us with their contact information to allow us to contact them if needed.

The questionnaire had ten online pages and was divided into four main sections reflecting the various lab sections: routine chemistry, hormones, special chemistry, and Therapeutic Drug Monitoring (TDM). Each section consisted of five questions: Order Frequency (OF), Easy to Order (EO), has a clear abbreviation, how much are the results agreeable with their expectations regarding the patient condition, and how are they satisfied with Turnaround Time (TAT) for results. Other general questions were also provided: using services of other biochemistry labs in other hospitals, the name (s) of the lab (s)/ hospital (s) if applicable, whether they find a difference between the biochemistry lab in KAUH and others, number of calls/number of orders, reasons for calling, lab staff response, and statements of improvement suggestions.

Discussion: This formula is actually a combination of four herbal formulas including "Ma Xing Shi Gan Tang" (Decoction of Ephedra, Apricot Kernel, Gypsum and Liquorice) [2], "Shegan Ma Huang Tang" (Belamcanda and Ephedra Decoction) [3], "Xiao Chai Hu Tang" (Minor Decoction of Bupleurum) [4] and "Wuling San" (Powder of Five Ingredients including Poria) [5] from a

famous Dr Zhang Zhongjing's book [On Febrile and Miscellaneous Diseases] in the Eastern Han dynasty. Clinical observations in 10 provinces of China confirm that the formula has demonstrated effective clinical result. However, the amount of Mahuang (Ephedra / Herba Ephedra) in this prescription is 9 grams, which exceeds the British Herbal Administration's regulations that the amount of Mahuang (Ephedra / Herba Ephedra) should not exceed 600 mg each time. According to my research, the Ephedrine contained in Mahuang (Ephedra / Herba Ephedra) stimulates the sympathetic nerves and cerebral cortex, which can cause faster heart rate, high blood pressure, irritability, and even insomnia. The amount should be controlled in 3-6 grams for raw herb or 0.3-0.5 grams in concentrated herbal granules; or replaced with other herbs, such as Suye (Perilla Leaf/ Folium Perillae), Jingjie (Schizonepeta/Herba Schizonepetae), Qianghuo (Notopterygium/ Rhizoma seu Radix Notopterygii), and so on.

My second concern is: the formula contains the ingredients of 'Wuling San' including 9 grams of Guizhi (Cinnamon Twigs/Ramulus Cinnamomi), 9 grams of Zexie (Oriental Water Plantain Rhizome/ Rhizoma Alismatis), 9 grams of Zhuling (Umbrellate Pore-fungus/Polyporus), 9 grams of Baizhu (White Atractylodes Rhizome/ Rhizoma Atractylodis Macrocephalae) and 15 grams of Fuling (Poria/Poria) which are diuretic. If the patient has high fever and dehydration, these herbs are not suitable for use, we may consider using the yin-increasing herbal decoction (Rehydration herbal formula) instead of the ingredients of 'Wuling San'. In short, I believe that sticking to the above formula and using it without professional advice does not meet the therapeutic principles of traditional Chinese medicine.

#### **The modified classical prescriptions and my experienced formula I use in the United Kingdom:**

The bacteria in animal intestines are really vital for several reasons of health but Antibiotics are used in animal production for three major reasons: Used as therapeutics to deal with established infections, used as prophylactics to control the spread of pathogenic diseases in clinically healthy animals, and used as growth promoters to enhance feed conversion and body-weight gain. Antibiotic use and dietary aspects can modify the composition of gut microbes and securely reduce bacterial multiplicity, posing a severe threat to animal health by rising host susceptibility to dangerous pathogens for example Salmonella or can lead to diabetes, obesity, gastrointestinal cancer and chronic inflammatory bowel diseases [6]. Even though the current rigorous methods have highly developed swine production proficiency, they additionally generate appropriate circumstances for spread and conduction of dangerous pathogens, which lead to pathogenic tension to the pig. Many options are being studied to develop the resistance of pigs against gut pathogens. Besides, the early weaning starts of age at 14 to 21 days extensively assumed in the industry decreases the possibility of piglets to be infected by the pathogens from lactating sows. However, this way as well removes piglets of additional chances to obtain a defensive gut microbiota from the sow, and become unprotected against the immigration by pathogenic microorganisms. Even if it is likely that 3 weeks are long enough for microbes to be recognized in the gut, up to date manipulation awareness is to improved results to accomplish a proportion gut microbiota that is a healthy gut micro-ecosystem mostly approved for animals to grow by digesting feed and absorb nutrients. It is acknowledged that the gut microbiota can be managed with nutritional approaches by means of feed additives for instance enzymes, antibiotics, inorganic and

organic acids, probiotics, mold inhibitors, botanical products, and prebiotics. The use of antibiotics has been an increasingly essential measurement of current swine process worldwide. The use of antibiotics in pig production is not just for the prophylactic and therapeutic uses, as well for the management at sub-therapeutic stages to become stable increase pig growth performance. In truth, the apply of antibiotics in swine production is the mainly studied of all livestock species for the reason that the sub-therapeutic use of antibiotics can significantly develop pig growth rate, decrease mortality and morbidity, and enhance reproduction performance and meat production. For the reason that the sub-therapeutic use of antibiotics can increase livestock growth performance and, as a result, several antibiotics that are used in this view are named as Antibiotic Growth Promoters (AGP). Many researches show that AGP forms of action may possibly have an effect not only on the potentially dangerous but as well on the benign gut microorganisms. The use of AGP was implicated as causative to transmission routes and resistance reservoirs in agreement with Van Boeckel with his colleagues in 2010 where they calculated 42 countries report of global antimicrobial use in livestock, and only 20 countries of global use. There was a ban on AGP use in the European Union in 1997 and in 1999, in Denmark in 1995 and 1998, in Sweden in 1986, because of the "Precautionary Principle". On January 1, 2006 the EU total ban about the use of AGP in animal feed came into effect. As of livestock industries, North America, after the measures of the EU, has also started limiting the use of AGP for that reason of the broad public worry and possible global trade obstacles to the meat products. In the United States, suggestions to get rid of the use of AGP were prepared as documented in 1980 and 1989 [7]. The World Health Organization (WHO) calls for restriction on the medical impact of the use of antimicrobials in food animals, proposing a connection connecting the 2 on an environmental foundation. In 2017 it suggested the use of AGP used in human medicine be quickly phased away, via legislation if needed, until and unless when risk evaluations are approved. The US Food and Drug Administration provided regulations in 2003, suggesting on how to make novel animal drugs with view to the prospective on human health impacts. On December 11, 2013 the Tanzania Food and Drugs Authority (FDA) provided Guidance 213, which began a 3-year evolution development to whole its food-animal antibiotic approach. Digestive disorders are normal problems sometimes of nervous tension for example at weaning, and the main cause of death of pigs is from diarrhoea caused by Enterotoxigenic *Escherichia coli* (ETEC). Other zoonotic pathogens can also cause the death for example swine herd health problems, salmonella. As of these familiar pathogenic bacteria, the prohibition on AGP usage can generally reduce pig health condition, growth performance and feed effectiveness, particularly for the duration of the post-weaning phase and this ban simultaneously provided increase to broad benefits in feed additives and other substitutes to antibiotics such as probiotics [8].

## BENEFITS OF PROBIOTICS AND HOW THEY WORK

### A brief meaning of probiotics

Probiotics are beneficial strains which include a bunch of different strains, from bacteria to yeast which when administered in an appropriate amount create a level of homeostasis in the body, particularly in the gut. Hypothetically, the term probiotic is simply a generic word, and the marketable goods might include yeast cells,

bacterial cultures, or together that motivate the microorganisms competent of adapting the GIT situation to advance the health condition and feed effectiveness of the host. A lot of probiotic products further contain crude extracts, live microorganisms and enzymes [9]. These microorganisms are those that are occurring naturally. In this review, current lactic acid bacteria products discussed in details are that which can be used for live stocks, particularly for pigs. In the past, humans began to consume live microorganisms through food possibly through fermented milk as the first food having live bacteria, as early as civilisation started. The advantageous results of drinking fermented milk on health were methodically acknowledged by the beginning of the 20th century. Different studies since 1908 to date acknowledged that the intestinal microbiota had various physiological purposes as well as protective functions, metabolic, and trophic. LAB are additionally recognised as safe (GRAS) because of their contribution to the healthy and their existing appearance in food of human mucosal surfaces. In 1960's the term LAB was defined as feed additives, constructively with an effect on the intestinal microbial equilibrium of animals and humans as the most important metabolic final product of carbohydrate fermentation. In 1970s, LAB began to be included in animal feed for health status, fighting with diseases and to boost growth performance in animals [10]. In 1980's, the idea of LAB turned out to be a confirmed answer to develop animal gut health and production performance. Actually, swine producers want a feed additive to have consistent and reliable results; also probiotics are no exception. Taking into consideration the main customers requirement for secure pork, the requirement of substitute feed additives instead of antibiotics in swine diets is totally needed to maintain sustainable and commercial swine production and the legislations that ban the application of antibiotics as AGP. Not the same from antibiotics which kills the dangerous bacteria in addition to some advantageous species, LAB as probiotics are intended to support positive species of bacteria in the gut at the cost of fewer advantageous ones. In this consideration, the use of LAB as dietary adaptifiers is further desirable. But, additional described explore for producing improved probiotic goods as replacement of AGP for the worldwide commercial swine and a wide broad instruction on the use of these goods are required [11].

### Lactic acid bacteria and product characteristics

#### 1.SangJu Yin (Decoction of Mulberry Leaf and Chrysanthemum):

Indication: For the prevention and treatment of early symptoms in mild cases of coronavirus infection.

Source: See my book [Prescription of Traditional Chinese Medicine] [6]; this formula was originally from the book [Wenbing Tiaobian /Treatise on Differentiation & Treatments of Epidemic Diseases] Volume 1, by Dr Wu Tang who lived in 1758-1836 AC in the Qing dynasty.

Ingredients : 10 grams of Sangye ( Mulberry Leaves/Folium Mori ) , 10 grams of Juhua ( Chrysanthemums / Flos Chrysanthemi ) , 10 grams of Xingren ( Almonds / Semen Armeniacae Amarum ) , 10 grams of Lianqiao ( Forsythia /Fructus Forsythiae ) , 10 grams of Bohe ( Peppermint/Herba Menthae ) , 10 grams of Jiegeng (Lisianthus/Radix Platycodi ) , 10 grams of Gancao (Licorice Root /Radix Glycyrrhizae ) , 10 grams of Weigen ( Reed Root/Rhizoma Phragmitis ) .

Usage: In China, the people are used to boiling herbs for oral use, namely producing a decoction (herbal tea); However, In the United Kingdom, we mainly use concentrated granules. Each herb is 1



gram per day. Mix and dissolve all ingredients in the formula in a glass of boiling water. Taking half a dose in the morning and half a dose in the evening, continue for 2 weeks.

For children aged 6 to 12 years old, use half of the above adult dosage; Children under 6 years, not recommended.

Additionally, some anti-virus herbs such as Chenpi (Tangerine Peel/ Pericarpium Citri Reticulatae), Mahuang ( Ephedra/ Herba Ephedra), Daqingye (Isatis Leaf/ Folium Isatidis) and Longdancao (Gentian Root/ Radix Gentianae ) may be added.

Generally speaking, the symptoms are obviously relieved after taking the above formula for 3-5 days, and the symptoms disappear after two weeks.

Discussion: Previously the above formula has been prescribed for treatment of the early stage of common cold, influenza, and febrile disease with symptoms such as chills, slight fever, cough, and sore throat, thirst, etc; today we are applying for prevention and treatment of mild cases with coronavirus infection.

## 2. Baidu San ( Detoxing Powder)

Indication: For prevention and treatment of moderate case of coronavirus infection marked by frail condition and weaker immune symptoms such as fatigue, shortness of breath, etc.

Source: See my book [Prescriptions of Traditional Chinese Medicine]; originally the formula was recorded in the book [Key to Therapeutics of Children's Diseases] by Dr Qian Yi in the Song Dynasty, he lived around in 1032~1113 AC.

Ingredients : 10 grams of Chaihu (Bupleurum Root / Radix Bupleuri ) , 10 grams of Qianhu ( Hogfennel Root/ Radix Peucedani ) , 10 grams of Chuanxiong (Chuanxiong Rhizome/ Rhizoma Ligustici Chuanxiong ) , 10 grams of Zhiqiao (Fruit of Citron/ Fructus Aurantii ) , 10 grams of Qianghuo (Notopterygium Root/ Rhizoma seu Radix Notopterygii ) , 10 grams of Duhuo ( Pubescent Angelica Root/ Radix Angelicae Pubscentis ) , 6 grams of Fuling ( Poria/ Poria ) , 10 grams of Jiegeng ( Platycodon Root/ Radix Platycodi ) , 10 grams of Renshen (Ginseng/ Radix Ginseng). 10 grams of Gancao (Licorice Root/ Radix Glycyrrhizae ).

Usage: Traditionally, all the above herbs along with Shengjiang (Fresh Ginger) and Bohe (Peppermint ) to be boiled for oral use .However, In the United Kingdom, we are mostly using concentrated granules, 1 gram per herb for daily use, mix all the ingredients in the formula and to be dissolved in boiling water in a cup, take half of it in the morning and another half in evening , continue for 2 weeks.

For children aged 6 to 12 years old, use half of the above adult dosage; Children under 6 years, not recommended.

Generally, the symptoms are obviously relieved after taking the above formula for 3-5 days, and the symptoms disappear after two weeks. In some serious cases, it takes about 3 to 6 weeks of continuous herbal treatment to fully recover, but the formula will need to be modified according to the patient's condition at the time.

Discussion: This formula is usually used to treat the common cold, influenza and febrile disease with 'Qi Insufficiency', today we apply for coronavirus infection along with fatigue and physical weakness.

If patient has no sign of physical weakness only manifests chills, high fever , headache , body aches, cough with profuse whitish

phlegm , chest tightness , we can remove Renshen (Ginseng/ Radix Ginseng ) , Bohe (Peppermint/ Herba Menthae) and Shengjiang (Fresh Ginger/ Rhizoma Zingiberis Recens) from the above formula and add Jingjie (Schizonepeta/ Herba Schizonepetae) and Fangfeng (Ledebouriella Root / Radix Ledebouriellae) to form another formula termed ' Jing Fang Baidu San ( Schizonepeta and Ledebouriella Detoxing Powder).

## 3. Shegan Mahuang Tang ( Decoction of Belamcanda & Ephedra)

Indication: Apply for moderate and severe cases of coronavirus infection or pneumonia with severe cough, sticky and white phlegm, breathing difficulty and chest tightness.

Source: See Chapter 7 of the book [Jin Kui Yao Lue/ Synopsis of the Golden Chamber] [8] by Dr Zhang Zhongjing in the Eastern Han dynasty, he lived around 150-219 AC.

Ingredient : 9 grams of Shegan (Belamcanda/ Rhizoma Belamcandae ) , 3-6 grams of Mahuang (Ephedra/ Herba Ephedrae), 12 grams of Shengjiang ( Fresh Ginger/ Rhizoma Zingiberis Recens, 3 grams of Xixin ( Asarum /Herba Asari ) , 9 grams of Ziwan ( Tartarian Aster Root/ Rdx Asteris ) , 9 grams of Kuandonghua (Coltsfoot Flower/ Flos Farfarae ) , 12 grams of Wuweizi ( Schisandra Fruit/ Fructus Schisandrae ) , 7 of Dazao ( Chinese Dates /Fructus ZiziphiJujubae ) , 12 grams of Banxia ( Pinellia Tube/ Rhizoma Pinelliae).

Usage: In China the decoction is widely used; while in the United Kingdom, we mainly use concentrated granules. Each herb is 1 gram per day; but the amount of Mahuang ( Ephedra /Herba Ephedrae) and Xixin ( Asarum /Herba Asari) should not exceed 0.3-0.5 grams. Mix and dissolve all ingredients in the formula in a glass of boiling water. Take half a dose in the morning and half a dose in the evening. Continue for 2 weeks.

For children aged 6 to 12 years old, use half of the above adult dosage; Children under 6 years, not recommended.

Generally, the symptoms are obviously relieved after taking the above herbal medicines for 5-7 days, and the symptoms disappear after two weeks. In some serious cases, it takes about 3 to 5 weeks of continuous herbal treatment to fully recover, but the formula will need to be modified according to the patient's condition at the time.

Discussion: This formula originally was for bronchitis and asthma due to the phlegm stagnation in the throat, bronchi and the lungs manifesting as cough, breathing difficulty, wheeze or chest tightness, or spitting saliva, white or greasy fur of the tongue, tight pulse . In the UK, we may use Jiegeng (Platycodon Root / Radix Platycody) instead of Xixin (Asarum /Herba Asari). Now I prescribe this formula for coronavirus infection and pneumonia marked by severe cough, breathing difficulty, sputum sticking to throat and bronchus, chills and fever.

## 4. Zhuye Shigao Tang ( Lophatherum & Gypsum Decoction)

Indications : For later stage and recovery period of coronavirus infection manifesting as feverish body or low fever , fatigue , lassitude , dry mouth , loss of smell and taste ,nausea, poor appetite , insomnia.

Source: See my book [Shang Han Lun Study Guid/ Infectious Diseases and Herbal Formulas] [9]. Originally this formula derived from the book [Shang Han Lun / Treatise on Febrile Diseases ] by Dr Zhang Zhongjing in the Eastern Han dynasty , he lived around 150-219 AC.

Ingredients: 9 grams of Zhuye ( *Lophatherum/Herba Lophatheris* ) ,10 grams of Shigao ( *Gypsum/Gypsum Fibrosum* ) , 9 grams of Banxia ( *Prepared Pinellia Tube/Rhizoma Pinelliae Praeparata* ), 18 grams of Maimendong ( *Ophiopogon Root/Radix Ophiopogonis* ) , 6 grams of Reshen ( *Ginseng/Radix Ginseng* ), 6 grams of Zhi Gancao ( *Prepared Licorice Root/Radix Glycyrrhizae Praeparata* ), 9 grams of Jingmi ( *Polished round-grained nonglutinous rice/Semen Oryzae Nonglutinosae* ).

Usage: The original usage involved boiling the ingredients except Jingmi ( *Polished round-grained nonglutinous rice/Semen Oryzae Nonglutinosae* ) in 2000 ml of water to a reduction of 1200 ml ; then remove the herbal dregs and add the rice into the decoction and continue boiling until the rice is well cooked. Finally get the decoction, take 200 ml each time, warm, 3 times a day. In the UK I prescribe concentrated herbal granules, all the above ingredients can be used in 1 gram per herb for daily use, to be dissolved in boiling water in a cup, taken orally, half of it in morning , and another half in evening . Continue for 2 weeks.

For children aged 6 to 12 years old, use half of the above adult dosage; Children under 6 years, not recommended.

Generally, the symptoms are obviously relieved after taking the above formula for 5-7 days, and the symptoms disappear after two weeks. In some chronic cases, it takes about 3 to 5 weeks of continuous herbal treatment to fully recover, but the formula will need to be modified according to the patient's condition at the time.

Discussion: I have successfully applied this formula for treatment of fatigue syndrome for 20 years; today I use it for later stage and recovery period of coronary infection. It is very simple but really effective.

However , If the patient still presents with alternate spells of chills and fever , chest tightness , bitter taste in the mouth , low emotion , poor appetite and dry throat , add 9 grams of Chaihu ( *Bupleurum Root/Radix Bupleuri* ), 9 grams of Huangqin ( *Scutellaria Root/Radix Scutellariae* ); if loss of smell , add 1 gram of Xinyi ( *Magnolia Flower /Flos Magnoliae* ) and 1 gram of Cangerzi ( *Xanthium / Fructus Xanthii* ) ; if loss of taste, add 1 gram of Chenpi ( *Tangerine Peel/ Pericarpium Citri Reticulatae* ) , 1 gram of Wumei ( *Schisandra Fruit / Fructus Schisandrae* ) , 1 gram of Sharen ( *Amomum Fruit/ Fructus Amomi* ) and 1 gram of Shanza ( *Hawthorn Fruit / Fructus Crataegi* ).

### 5. Dr Enqin's Anti-Coronavirus Herbal Granule Mixture

Indications: Apply for most of conditions including mild , moderate and severe cases manifesting as cough or with white or yellowish phlegm , shortness of breath, or breathing difficulty , chest tightness , low or high fever , fatigue, the nucleic acid test positive , swollen tongue with white fur , and taugt and rapid pulse.

Source: It is from my experiences. Ingredients ( the dosages below are for concentrated herbal granules ) : 1 grams of Shegan ( *Belamcanda /Rhizoma Belamcandae* ) , 0.3-0.5 grams of Mahuang ( *Ephedra/ Herba Ephedrae* ) , 1 grams of Ziwan ( *Tartarian Aster Root/ Radix Asteris* ) , 1 grams of Kuandonghua ( *Coltsfoot Flower/Flos Farfarae* ) , 1 grams of Gualou ( *Trichosanthes Fruit/ Fructus Trichosanthis* ) , 1 grams of Xiebai ( *Macrostem Onion /Bulbus Allii Macrostemi* ) , 1 gram of Chaihu ( *Bupleurum Root / Radix Bupleuri* ) , 1 grams of Huangqin ( *Scutellaria Root/Radix Scutellariae* ) , 1 grams of Qianghuo ( *Notopterygium Root/Rhizoma seu Radix Notopterygii* ) , 1 grams of Jingjie ( *Schizonepeta/Herba Schizonepetae* ) , 1 grams

of Fangfeng ( *Ledebouriella Root / Radix Ledebouriellae* ) , 1 grams of Gancao ( *Licorice Root/Radix Glycyrrhizae* ) , 1 gram of Chenpi ( *Tangerine Peel/ Pericarpium Citri Reticulatae* ) .

Usage: All the above ingredients are to be mixed and dissolved in boiling water in a cup, taken orally, half in morning, and half in evening. Continue for 2 weeks.

For children aged 6 to 12 years old, use half of the above adult dosage; Children under 6 years, not recommended.

In most cases, the symptoms are obviously relieved after taking the above herbal formula for 3-5 days, and the symptoms disappear after 10-14 days. In some serious cases, it takes about 3 to 5 weeks of continuous herbal treatment to fully recover.

Case study: Mr XXX, male , 50 years old, a businessman , visited me on 14/03/2020 through the WeChat , he said in recent 3 day, he had nasal discharge, dry cough, breathing difficulty, chest tightness, fever (38.5 degrees celsius), fatigue, insomnia, the nucleic acid test positive ; swollen tongue with white fur , taugt and rapid pulse. Diagnosis: coronavirus infection. Prescription: the above formula, 'Dr Enqin's Anti-Coronavirus Herbal Granule Mixture'. Result: 3 days after taking the above formula, cough, chest tightness, breathing difficulty and fever were relieved; after 10 days, the most of symptoms disappeared. Until now there is no any symptom at all. Furthermore, the nucleic acid test negative.

## CONCLUSION

Clinical observation and experience show that herbal formulas introduced in this article can effectively treat the symptoms of coronavirus (COVID-19). Each herbal formula has different function and scope of application: 'Qing Fei Pai Du Tang ( the Lung-clearing & Detox Decoction )' is for the patients presenting with mild, moderate and severe conditions ; 'Sang Ju Yin (Decoction of Mulberry Leaf and Chrysanthemum)' is mainly for prevention and treatment of the early symptoms and mild case with coronavirus ; 'Baidu San ( Detoxing Powder)' is used for mild , moderate and severe cases along with fatigue and physical weakness; 'Shegan Mahuang Tang ( Decoction of Belamcanda & Ephedra )' is used for moderate or severe cases along with obvious lung symptoms such as severe cough , breathing difficulty and chest tightness; 'Zhuye Shigao Tang ( *Lophatherum & Gypsum Decoction* )' is especially for later stage and recovery period of the disease . The last one is based on my own experience, called 'Dr Enqin's Anti-Coronavirus Herbal Granule Mixture', it can be widely used for various conditions including mild, moderate and severe cases. Clinically we must choose a right formula that is suitable for individual clinical presentation of each patient. Sometimes it is necessary to select one as a basic formula, and then add additional herbs for complex case based on each patient's symptoms. If the herbal formula is selected correctly, in most cases the symptoms will be relieved after taking 3-5 days, and the symptoms will disappear after 1-2 weeks of herbal treatment. In my experience, in some serious cases, it takes about 3 to 5 weeks of continuous herbal treatment to fully recover, but the formula will need to be modified according to the patient's condition at the time. Additionally, what needs to be emphasized is: these herbal prescriptions require further laboratory research through modern pharmacological experimental studies to reveal their effective ingredient and mechanism of action, so that these herbal formulas can be understood by British medical pharmaceutical communities and applied in NHS hospitals in the future.

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