

APPLICATION OF TRADITIONAL CHINESE MEDICINE COMPOSITION IN PREPARATION OF MEDICAMENT FOR PREVENTING AND TREATING CORONAVIRUS INFECTION COMBINED WITH LUNG DAMAGE

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CROSS-REFERENCE TO RELATED APPLICATION

[0001] The present application claims priority to and the benefit of Chinese Patent Application No. 202010165355.1, filed March 11, 2020, entitled “APPLICATION OF TRADITIONAL CHINESE MEDICINE COMPOSITION IN PREPARATION OF MEDICAMENT FOR PREVENTING AND TREATING CORONAVIRUS INFECTION COMBINED WITH LUNG DAMAGE”, the entire contents of which are incorporated herein by reference.

TECHNICAL FIELD

[0002] The present disclosure relates to a traditional Chinese medicine composition, in particular to an application of a traditional Chinese medicine in preparation of medicament for preventing and treating coronavirus infection combined with lung damage.

BACKGROUND

[0003] On February 11, 2020, International Committee on Taxonomy of Viruses (ICTV) announced “severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2)” as the official name of novel coronavirus.

[0004] In the early stage of infection with the novel coronavirus, the imaging shows multiple small patchy shadows and interstitial changes, more apparent in the peripheral zone of lungs. As the disease progresses, the imaging shows multiple ground-glass opacities and infiltration in both lungs. In severe cases, pulmonary consolidation may occur, but pleural effusion is rare. The novel coronavirus can cause diffuse alveolar damage, formation of hyaline membrane in lungs, and pulmonary fibrosis, and can even cause respiratory failure in severe cases.

[0005] Therefore, subject infected with the novel coronavirus would suffer severe lung damage, which would aggravate the subject’s condition and make it more difficult to cure.

[0006] The novel coronavirus is highly contagious and mainly transmitted via respiratory droplets, close contact, and the like. At present, no efficacious medicament for SARS-CoV-2 is available on the market, exposing the subject’s health to great danger.

[0007] Traditional Chinese medicine has its unique advantages in preventing and treating diseases. The present disclosure has developed a medicament for coronavirus infection combined with lung damage through a large number of screening experiments, which is of great

significance for improving clinical recovery rate from coronavirus infection.

SUMMARY

Objectives

5 [0008] The objective of the present disclosure is to overcome shortcomings of the prior art and develop a novel clinical application of a traditional Chinese medicine composition. The experimental results show that the traditional Chinese medicine composition is very capable of preventing and treating infection with coronaviruses like the novel coronavirus (SARS-CoV-2) combined with lung damage, pulmonary fibrosis, and others.

Technical solutions

10 [0009] To achieve the aforementioned objective, the present disclosure adopts the following technical solutions:

[0010] An application of a traditional Chinese medicine composition in preparation of medicament(s) for preventing and treating coronavirus infection combined with lung damage.

15 [0011] An application of a traditional Chinese medicine composition in preparation of medicament(s) for preventing and treating coronavirus infection combined with pneumonia.

[0012] An application of a traditional Chinese medicine composition in preparation of medicament(s) for preventing and treating coronavirus infection combined with pulmonary fibrosis.

20 [0013] The traditional Chinese medicine composition plays the role of treating coronavirus infection combined with lung damage by increasing the levels of albumin, lymphocytes, lymphocyte percentage, neutrophils, and CD8⁺ T cells.

[0014] The traditional Chinese medicine composition plays the role of treating coronavirus infection combined with lung damage by reducing the levels of C-reactive protein and lactate dehydrogenase.

25 [0015] A preferred technical solution is an application of a traditional Chinese medicine composition comprising Radix Astragali (milkvetch root), Radix Paeoniae Rubra (red paeony root), and Fructus Psoraleae (malaytea scurfpea fruit) in preparation of medicament(s) for improving respiratory functions and relieving fatigue in convalescence from lung damage after coronavirus infection.

30 [0016] Preferably, in the application, the coronaviruses include severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2 for short), SARS coronavirus, MERS coronavirus, or HcoV-229E coronavirus.

[0017] The traditional Chinese medicine composition according to the present disclosure is made from Radix Astragali, Radix Paeoniae Rubra, and Fructus Psoraleae. Preferably, the

traditional Chinese medicine composition is made from 72 parts of Radix Astragali, 72 parts of Radix Paeoniae Rubra, and 36 parts of Fructus Psoraleae.

[0018] The traditional Chinese medicine composition according to the present application is prepared by a process comprising: cutting Radix Astragali into slices and pulverizing Radix Paeoniae Rubra and Fructus Psoraleae into coarse powders, soaking the slices and the powders in ethanol, performing percolation extraction, collecting a percolate and subjecting the percolate to concentration under reduced pressure to afford a fluid extract, vacuum drying the fluid extract to obtain a dry extract, and pulverizing the dry extract into an extract powder; and blending the extract powder with starch to obtain a homogeneous mixture, granulating the mixture by adding 90% ethanol, drying the granulated particles, and preparing capsules, tablets, granules or pills by using the granulated particles as prepared above and pharmaceutically acceptable carrier(s).

[0019] Preferably, the traditional Chinese medicine composition according to the present application is prepared by a process comprising: cutting 72 parts of Radix Astragali into slices and pulverizing 72 parts of Radix Paeoniae Rubra and 36 parts of Fructus Psoraleae into coarse powders, soaking the slices and the powders in ethanol in the amount of 4 to 12 times the weight of crude drugs, performing percolation extraction twice, collecting the percolate and concentrating under reduced pressure into a fluid extract, vacuum drying the fluid extract to obtain a dry extract, and pulverizing the dry extract into an extract powder; and blending the extract powder with starch to obtain a homogeneous mixture, granulating the mixture by adding 90% ethanol, drying the granulated particles, and preparing capsules, tablets, granules or pills using the particles and pharmaceutically acceptable carrier(s).

[0020] The traditional Chinese medicine composition provided in the present disclosure shares the same recipe as a medicament named Bufei Huoxue Capsule (Approved National Drug Code Z20030063) and produced by Guangdong Leiyunshang Pharmaceutical Co., Ltd., and both of them are made from Radix Astragali, Radix Paeoniae Rubra, and Fructus Psoraleae. Bufei Huoxue Capsule has the functions of invigorating the lung and strengthening the kidney, promoting diuresis and reducing swelling, relieving cough and resolving phlegm, tonifying qi and nourishing blood, and improving immunity. It is nowadays clinically used for cough and shortness of breath, or cough and gasp with dyspnea, palpitation and shortness of breath, etc. caused by deficiency of both lung and kidney.

Beneficial effects

[0021] 1. The present disclosure has screened traditional Chinese medicine compositions for an intervening effect on the novel coronavirus (SARS-CoV-2). The experimental results show that a traditional Chinese medicine composition composed of Radix Astragali, Radix Paeoniae Rubra, and Fructus Psoraleae is very capable of inhibiting lung damage and pulmonary fibrosis

caused by the novel coronavirus (SARS-CoV-2). In particular, the traditional Chinese medicine composition can raise the levels of albumin, lymphocytes, lymphocyte percentage, neutrophils, and CD8⁺ T cells, and lower the levels of C-reactive protein and lactate dehydrogenase. Also, it can assist in the treatment of infection with the novel coronavirus and improve the recovery rate.

5 [0022] 2. The traditional Chinese medicine composition according to the present disclosure is markedly efficacious in improving respiratory functions of subjects suffering lung damage after infection with the novel coronavirus (SARS-CoV-2), relieving their fatigue, and enhancing their exercise ability.

10 BRIEF DESCRIPTION OF THE DRAWINGS

[0023] Figure 1 is CT images taken before and after treatment in Example 2.

DETAILED DESCRIPTION

[0024] The present disclosure is hereinafter further explained with reference to embodiments.

15 It should be appreciated that the embodiments are only used to describe the present disclosure and not meant to limit its scope. Amendments in various equivalent forms that a person skilled in the art makes to the present disclosure after reading the present disclosure all fall within the scope defined by the claims.

[0025] Example 1:

20 [0026] 1. Case selection

[0027] Twenty subjects (10 males and 10 females, aged 37 to 78 years) confirmed with the novel coronavirus (SARS-CoV-2) infection were selected. The CT images of the 20 subjects showed patchy ground-glass opacities beneath the pleura on both sides, coarsening of bilateral lung markings, increased consolidation shadows in both lungs, and obvious formation of foci with various degrees of lung inflammation and lung damage. The subjects also displayed the symptoms like cough and fever. The biochemical indicators showed that the levels of lymphocytes, lymphocyte percentage, neutrophils and CD8⁺ T cells in the subjects were significantly lower than the normal ones, and their blood oxygen levels were 87% to 96%.

[0028] 2. Treatment method

30 [0029] In addition to essential supply of oxygen and maintenance of vital signs, the traditional Chinese medicine composition according to the present disclosure (Bufei Huoxue Capsule with a drug approval number of Approved National Drug Code Z20030063) was orally administered to the 20 subjects by the dosage regimen of 4 capsules (0.35 g per capsule) at a time, 3 times a day. After 1 week and 2 weeks of continuous medication, the subjects were investigated for therapeutic effects.

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[0030] 3. Clinical effect observation

[0031] After oral administration of the composition for 1 week, some of the subjects had a weakened cough, their CT images showed, in both lungs, fewer consolidation shadows, less coarsening of lung markings and fewer patchy opacities, and their blood oxygen levels rose to a certain extent. The composition achieved a total efficacy rate of 45 %. After the subjects orally took the composition for 4 weeks, the narrowed scope of foci in both lungs was observed, accompanied by the decreased density thereof, the consolidation shadows gradually became ground-glass opacities, and a few fibrous stripe shadows remained. The biochemical indicators showed that the levels of lymphocytes, lymphocyte percentage, neutrophils and CD8⁺ T cells in the subjects were significantly higher than the ones prior to the medication. The vital signs of the subjects were stable, and none of them became severe or critical cases. The composition achieved a total efficacy rate of 75%. The results indicated that the traditional Chinese medicine formulation provided in the present disclosure were capable of significantly alleviating lung damage as a complication of infection with the novel coronavirus (SARS-CoV-2) and increasing the clinical recovery rate.

[0032] Example 2:

[0033] The female subject Zhou, 40 years old, who had a contact history of epidemic-stricken area in Wuhan, had a fever and tested positive for 2019-nCoV. With the result of CT examination also taken into consideration, the subject was determined to be a confirmed case with the novel coronavirus (SARS-CoV-2) infection. In addition to essential supply of oxygen and maintenance of vital signs, Bufei Huoxue Capsule with a drug approval number of Approved National Drug Code Z20030063 was orally administered to her by the dosage regimen of 4 capsules (0.35 g per capsule) at a time, 3 times a day. After 1 week and 2 weeks of continuous medication, she was found to have a markedly alleviated cough. Figures A, B, and C in FIG. 1 are CT images with pulmonary windows at the same level that were captured before treatment, after 1 week of treatment, and after 2 weeks of treatment, respectively. After 1 week and 2 weeks of treatment, a narrower area with inflammation in the lower lobe of the left lung was observed, accompanied by alleviated clinical symptoms including a relieved cough and an improved blood oxygen level. She had a good prognosis instead of severe or critical deterioration.

[0034] Example 3: Randomized double-blind placebo-controlled clinical study on treatment of subjects in convalescence from novel coronavirus pneumonia (with lung and spleen qi deficiency syndrome)

[0035] 1. This trial was a randomized double-blind placebo-controlled clinical study. Subjects during convalescence from the novel coronavirus pneumonia (NCP) who were suitable and agreed (signed informed-consent forms) to participate in this trial were randomly and evenly

divided into treatment group or control group. In addition to rehabilitation treatment, the medicament in study was orally administered to the subjects from the treatment group by the dosage regimen of 1.4 g at a time, 3 times a day for 90 days after the enrollment; the subjects from the control group were only treated with placebo. Each subject was followed-up, respectively, during the baseline period, 1 month after the enrollment, 2 months after the enrollment, and at the end of the trial.

[0036] During the trial, assessments of changes in the Six-Minute Walk Test results and the Fatigue Assessment Scale (FAS) scores were performed at all prescribed time points before and after the enrollment so that the efficacy of the medicament was evaluated.

[0037] Before and after the enrollment, tests for blood routine, urine routine, hepatic and renal functions, and other indicators were carried out as scheduled so that the safety of the medicament was evaluated.

[0038] 2. Subject recruitment and withdrawal

[0039] 2.1 Diagnosis criteria

[0040] A suspect case, if meeting one of the following criteria, would be diagnosed as a confirmed case with the NCP in accordance with the *Diagnosis and Treatment Protocol for Novel Coronavirus Pneumonia (Trial Version 7)*:

- (1) Real-time fluorescent RT-PCR indicates positive for novel coronavirus nucleic acid;
- (2) Viral gene sequence is highly homologous to known novel coronaviruses.

(3) NCP virus specific IgM and IgG are detectable in serum; NCP virus specific IgG is detectable or reaches a titration of at least 4-fold increase during convalescence compared with the acute phase.

[0041] This case after the treatment ought to meet the criteria for discharge from isolation/hospital:

- (1) Body temperature is back to normal for more than three days;
- (2) Respiratory symptoms improve obviously;
- (3) Pulmonary imaging shows obviously alleviated acute exudative lesions;
- (4) Nuclei acid tests negative twice consecutively on respiratory tract samples such as sputum and nasopharyngeal swabs (sampling interval being at least 24 hours).

[0042] As described in the section under the headline “Traditional Chinese Medicine treatment” in the Protocol, when being in convalescence, the syndrome is differentiated as “lung and spleen qi deficiency syndrome”.

[0043] This syndrome is primarily a deficiency syndrome, optionally accompanied by other symptoms. The determination refers to criteria including at least one of primary manifestations and optionally a secondary manifestation:

Primary manifestations: fatigue, shortness of breath/wheezing, cough, and anorexia;
Secondary manifestations: bloating, nausea/vomiting, and loose stools/diarrhea;
The tongue is pale and greasy, and the pulse is thin or weak.

[0044] 2.2 Inclusion criteria

- (1) No younger than 18 years, without gender limitation;
- (2) Diagnosed as the NCP by the *Diagnosis and Treatment Protocol for Novel Coronavirus Pneumonia (Trial Version 7)*;
- (3) The case after the treatment meets the criteria for discharge from hospital stipulated in the *Diagnosis and Treatment Protocol for Novel Coronavirus Pneumonia (Trial Version 7)*;
- (4) At the time of subject screening, the Traditional Chinese Medicine (TCM) differentiation type for the syndrome in convalescence is lung and spleen qi deficiency syndrome, in accordance with the *Diagnosis and Treatment Protocol for Novel Coronavirus Pneumonia (Trial Version 7)*; and
- (5) Voluntarily participating in the study and signing the informed consent form.

[0045] 2.3 Exclusion criteria

- (1) Known or suspected allergy to the components of the medicament in study.
- (2) Combined with acute infections with other viruses and bacteria, and not yet clinically cured.
- (3) Abnormal results of tests for hepatic and renal functions (the values of ALT, AST, and SCr are not less than 1.5 times the upper limits of normal).
- (4) Currently participating in clinical trials of other medicaments.
- (5) Pregnant and lactating women; or those who cannot take effective contraceptive measures during the trial.
- (6) Subjects with severe liver diseases (such as liver tumors, various types of hepatitis, etc.) or with a history of drug-induced liver damage, and subjects who are taking or expected to take the medicines that potentially cause liver damage (immunosuppressants such as cyclosporine, tacrolimus, etc.; anti-tuberculosis drugs such as rifampicin, isoniazid, etc.; chemotherapeutic drugs such as cyclophosphamide, methotrexate, azathioprine, etc.; and traditional Chinese medicines comprising liver-damaging medicinal materials such as Radix Polygoni Multiflori, Herba Sedi Aizoon, and Herba Tripterygii Wilfordii) during the study.
- (7) Other cases not suitable for participating in the trial, as determined by the trial organizer.

[0046] 3. Treatment protocol

[0047] 3.1 Supply of medicament

[0048] Bufe Huoxue Capsule

[0049] Ingredients: Radix Astragali, Radix Paeoniae Rubra, and Fructus Psoraleae.

[0050] Description: This product is capsule, the content of which is dark brown fine particles and powders, smelling slightly fragrant and tasting slightly sour and bitter.

[0051] Indications: Tonifying qi and promoting blood circulation, and invigorating the lung and strengthening the kidney. Suitable for pulmonary heart disease (in remission), which is differentiated as qi deficiency and blood stasis syndrome with the following symptoms: cough and shortness of breath, or cough and gasp with dyspnea, palpitation and shortness of breath, cold limbs, fatigue and asthenia, weakness of loins and knees, cyanotic lips, pale tongue with white coating or dark purple tongue, etc.

[0052] Specification: 0.35 g/capsule.

[0053] Administration and Dosage: Orally, 4 capsules each time, 3 times a day.

[0054] Shelf life: 24 months.

[0055] Drug approval number: Approved National Drug Code Z20030063.

[0056] Manufacturer: Guangdong Leiyunshang Pharmaceutical Co., Ltd.

[0057] 3.2 Use of medicament

[0058] The subjects in each group received oxygen inhalation, aerosol inhalation, breathing training, exercise prescription and other rehabilitation treatments depending on their actual situations and were periodically tested for the novel coronavirus nucleic acid in accordance with relevant regulations.

[0059] In addition to the rehabilitation treatment, Bufe Huoxue Capsule was orally administered to the subjects from the treatment group by the dosage regimen of 1.4 g (4 capsules) at a time, 3 times a day, for 90 consecutive days after the enrollment (the duration of medication could be adjusted based on the changes in symptoms during the follow-up).

[0060] The subjects from the control group were given the placebo by the same dosage regimen.

[0061] Trial period: 90 days of continuous observation. The subjects were followed-up, respectively, during the baseline period, at the end of 1 month after their enrollment, at the end of 2 months after their enrollment, and at the end of the trial.

[0062] Note: During the trial, the subjects were not allowed to take traditional Chinese medicines of the same type or having similar pharmacological effects (other traditional Chinese medicines/traditional Chinese medicine formulations containing Radix Astragali, Radix Paeoniae Rubra, and Fructus Psoraleae). Unless required by the condition, the subject should try to avoid the use of other medicaments that affect the efficacy evaluation, and would have to withdraw from the trial in case of the use unavoidable.

[0063] 4. Efficacy evaluation criteria

[0064] Primary indicators for efficacy evaluation

[0065] (1) Six-Minute Walk Test (during the baseline period, at the end of 1 month after the enrollment, at the end of 2 months after the enrollment, and at the end of 3 months after the enrollment)

[0066] Evaluations were carried out, respectively, during the baseline period, at the end of 1 month after the enrollment, at the end of 2 months after the enrollment, and at the end of the trial, and changes in the observed results from the baseline were recorded.

[0067] (2) FAS scores at each time point and changes in the scores

[0068] The subjects were assessed for FAS scores, respectively, during the baseline period, at the end of 1 month after their enrollment, at the end of 2 months after their enrollment, and at the end of the trial.

[0069] 5. Sample size

[0070] This trial was an exploratory study under special circumstances and did not make a sample size estimation based on statistical considerations. 120 cases in total, with 60 cases in the treatment group and 60 cases in the control group, were planned to be involved in the trial.

[0071] 6. Experimental statistics

[0072] 6.1 Comparison between two groups of subjects in Six-Minute Walk Test

[0073] There was no significant difference in the distances of Six-Minute Walk Test between the treatment group and the control group ($P>0.05$)—that is, their distances were comparable—before the treatment. After 3 months of the treatment, the distance in Six-Minute Walk Test of the treatment group was significantly longer than that of the control group, and the difference was statistically significant ($P<0.05$). The increase from the baseline in the distance of Six-Minute Walk Test of the treatment group was significantly higher than that of the control group, and the difference was statistically significant ($P<0.01$).

Table 6.1 Distances Walked by Two Groups of Subjects in Six-Minute Walk Test in Different Follow-ups

Follow-up		Treatment group ($N=64$)	Control group ($N=65$)	Statistic	P
Baseline	N (Nmiss)	64(0)	65(0)	$t=0.60$	0.5509
End of 1 month	Mean±Std	427.3±73.6	435.0±73.3		
	N (Nmiss)	64(0)	65(0)	$t=0.64$	0.5214
End of 2 months	Mean±Std	441.5±64.8	449.0±67.9		
	N (Nmiss)	64(0)	65(0)	$t=1.78$	0.0770
End of trial	Mean±Std	466.6±68.5	442.7±83.0		
	N (Nmiss)	64(0)	65(0)	$t=2.40$	0.0178

Table 6.2 Changes from Baseline in Distances Walked by Two Groups of Subjects in Six-Minute Walk Test

Follow-up		Treatment group (N=64)	Control group (N=65)	Statistic	P
End of 1 month	N(Nmiss)	64(0)	65(0)	t=0.03	0.9784
	Mean±Std	14.3±43.7	14.0±47.8		
	95%CI	(3.3,25.2)	(2.2,25.9)		
	Intra-group t	2.61	2.37		
	Intra-group P	0.0114	0.0210		
	Inter-group Difference	0.2±8.1			
	95%CI	(-15.7,16.2)			
	N(Nmiss)	64(0)	65(0)	t=2.83	0.0055
End of 2 months	Mean±Std	39.3±57.0	7.7±69.4		
	95%CI	(25.1,53.6)	(-9.5,24.9)		
	Intra-group t	5.52	0.89		
	Intra-group P	<0.0001	0.3760		
	Inter-group Difference	31.7±11.2			
	95%CI	(9.5,53.8)			
	N(Nmiss)	64(0)	65(0)	t=3.30	0.0013
End of trial	Mean±Std	42.9±62.1	3.1±74.5		
	95%CI	(27.4,58.5)	(-15.4,21.5)		
	Intra-group t	5.53	0.33		
	Intra-group P	<0.0001	0.7414		
	Inter-group Difference	39.9±12.1			
	95%CI	(16.0,63.8)			
	N(Nmiss)	64(0)	65(0)	t=0.03	0.9784

[0074] 6.2 Comparison between two groups in Fatigue Assessment Scale (FAS) scores

[0075] There was no significant difference in the FAS scores between the treatment group and the control group ($P>0.05$)—that is, their scores were comparable—before the treatment. After 3 months of treatment, the FAS scores of the treatment group decreased and were significantly lower than the scores of the control group, and the difference was statistically significant

($P < 0.05$).

Table 6.3 Fatigue Assessment Scale (FAS) Scores of Two Groups of Subjects in Different Follow-ups

Follow-up		Treatment group ($N=64$)	Control group ($N=65$)	Statistic	P
Baseline	N(Nmiss)	64(0)	65(0)	$t=1.21$	0.2280
	Mean $\pm$ Std	119.1 $\pm$ 26.2	112.9 $\pm$ 31.6		
End of 1 month	N(Nmiss)	64(0)	65(0)	$t=0.04$	0.9699
	Mean $\pm$ Std	109.2 $\pm$ 27.5	109.0 $\pm$ 28.9		
End of 2 months	N(Nmiss)	64(0)	65(0)	$t=0.25$	0.7994
	Mean $\pm$ Std	101.5 $\pm$ 26.9	102.7 $\pm$ 25.5		
	M(Q1~Q3)	102.0(84.0~117.5)	107.0(94.0~117.0)		
	Min~Max	44~164	32~137		
End of trial	N(Nmiss)	64(0)	65(0)	$t=2.13$	0.0352
	Mean $\pm$ Std	89.7 $\pm$ 29.9	100.1 $\pm$ 25.6		

[0076] The above trial results suggest that the traditional Chinese medicine composition of Radix Astragali, Radix Paeoniae Rubra, and Fructus Psoraleae provided in the present disclosure can significantly improve the quality of life of subjects who were in convalescent from the NCP (differentiated as lung and spleen qi deficiency syndrome) and treated with the composition for 3 months, alleviate their symptom of fatigue, and prolong the distances walked by them in the Six-Minute Walk Test (indicating an improved exercise endurance), compared with subjects to whom the placebo was administered.

[0077] Only preferred embodiments of the present disclosure have been described above. It should be pointed out that for a person skilled in the art, several improvements and modifications can also be made to the present disclosure without departing from the principles of the present disclosure, and such improvements and modifications should also be deemed to fall under the scope of the present disclosure.

CLAIMS

1. Use of a traditional Chinese medicine composition comprising Radix Astragali, Radix Paeoniae Rubra, and Fructus Psoraleae in preparation of a medicament for preventing and treating coronavirus infection combined with lung damage.

2. Use of a traditional Chinese medicine composition comprising Radix Astragali, Radix Paeoniae Rubra, and Fructus Psoraleae in preparation of a medicament for preventing and treating coronavirus infection combined with pneumonia.

3. Use of a traditional Chinese medicine composition comprising Radix Astragali, Radix Paeoniae Rubra, and Fructus Psoraleae in preparation of a medicament for preventing and treating coronavirus infection combined with pulmonary fibrosis.

4. Use of a traditional Chinese medicine composition comprising Radix Astragali, Radix Paeoniae Rubra, and Fructus Psoraleae in preparation of a medicament for improving body functions in convalescence from coronavirus infection.

5. Use of a traditional Chinese medicine composition comprising Radix Astragali, Radix Paeoniae Rubra, and Fructus Psoraleae in preparation of a medicament for improving respiratory functions and relieving fatigue in convalescence from lung damage after coronavirus infection.

6. The use according to any one of claims 1 to 5, wherein the traditional Chinese medicine composition comprises 50 to 100 parts of Radix Astragali, 50 to 100 parts of Radix Paeoniae Rubra, and 25 to 50 parts of Fructus Psoraleae.

7. The use according to claim 6, wherein the traditional Chinese medicine composition is made from 72 parts of Radix Astragali, 72 parts of Radix Paeoniae Rubra, and 36 parts of Fructus Psoraleae.

8. The use according to claim 6, wherein the traditional Chinese medicine composition is prepared by a process comprising: cutting Radix Astragali into slices and pulverizing Radix Paeoniae Rubra and Fructus Psoraleae into coarse powders, soaking the slices and the powders in ethanol, performing percolation extraction, collecting a percolate and subjecting the percolate to concentration under reduced pressure to afford a fluid extract, vacuum drying the fluid extract to obtain a dry extract, and pulverizing the dry extract into an extract powder; and blending the extract powder with starch to obtain a homogeneous mixture, granulating the mixture by adding 90% ethanol, drying the granulated particles, and preparing a capsule, a tablet, a granule or a pill by using the granulated particles as prepared above and a pharmaceutically acceptable carrier.

9. The use according to any one of claims 1 to 5, wherein the coronavirus includes severe acute respiratory syndrome coronavirus 2, SARS coronavirus, MERS coronavirus, or HCoV-229E coronavirus.