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Analysis on the compatibility application of Bidens pilosa

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Abstract: *Bidens pilosa was first published in "Supplement Medica" with clear nature and flavor and outstanding curative effect. Modern pharmacological studies have found that it mainly contains flavonoids, phenolic acids, volatile oils, amino acids, trace elements and other chemical components, which have the effects of liver protection, antibacterial, anti-inflammatory, immune regulation, anti-tumor and so on. In this paper, the seven flavors of Chinese medicines such as Huanglian, Yin Chen, Poria, Ephedra, Summer Hay, Psyllium, Changshan and Bidens pilosa were selected with high frequency of drug use through excavation and analysis of the commonly used medicine of Bidens pilosa.The results found that Bidens pilosa can be compatible with Huanglian can treat dysentery, with Yin Chen can treat jaundice,with poria cocos can treat diarrhea, with Ephedra can treat colds, with Prunella can treat cancer,with Psyllium can treat gonorrhea, with Changshan can treat malaria. The advantages of matching treatment can provide certain ideas and methods for clinical prescription drug selection.*

Keywords: *Bidens pilosa; Be compatible with; Clinical Application*

1. Introduction

As the whole herb of Bidens pilosa in Compositae family, it is also known as ghost hairpin, ghost bone needle, cecum grass, flea grass, etc. Taste bitter, sex flat, with heat and detoxification, activating blood stasis, dry dampness, yellow, antimalarial effect. In recent years, the research of modern medicine is more in-depth, and its clinical use is gradually expanding. Therefore, this paper started with the traditional compatibility concept of traditional Chinese medicine, collected Chinese medicines that could be compatible with Bidens pilosa, and verified the synergistic effect of compatibility by referring to the results of modern pharmacological research, concluded the optimal compatibility mode of Bidens pilosa, and expanded the scope of clinical prescription drug selection.

2. General Situation of Bidens pilosa

It was first seen in the Herb Miscellany, which describes it as "bitter, flat and non-toxic. Master snake and spider bite, pestle ground compress it, also pestle ground juice clothing." "Quanzhou Materia Medica" said it: "Eliminate stasis, town pain, collect golden sore. Treat abdominal knot pain, postpartum stasis..... Bleeding dysentery, blood in the urine." "Mindong Herb" : "Treatment of intestinal carbuncle..... Jaundice, bad urination, injuries from falls." "Chinese Medicinal Plant Pictorial Guide" and "National Chinese Herbal Medicine Compilation" further expanded the scope of application of Bidens pilosa, said that its treatment of dysentery, esophageal dilatation, upper respiratory tract infection, acute jaundice hepatitis, malaria and other diseases. The Dictionary of Traditional Chinese Medicine defines its effect and application: clearing heat and detoxifying, dispersing blood stasis and reducing swelling. Treating malaria, diarrhea, dysentery... Sore throat, bumps and bruises, snake and insect bites. With the rapid development of pharmacology of Chinese medicine, the scope of action of Bidens pilosa is wider. The chemical composition of Bidens pilosa lepidophora is mainly flavonoids, phenolic acids, and a small amount of volatile oil, amino acids and trace elements. Among them, total flavonoids are the main active component, which has good liver protection, antibacterial and anti-inflammatory effects, and can also improve the body's immunity and anti-tumor effects [1].

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3. Analysis of compatibility application

3.1 Bidens pilosa and Coptis chinensis

Ulcerative colitis is a non-specific inflammatory bowel disease, which is clinically manifested as continuous or repeated diarrhea, mucus, abscess and blood stool accompanied by abdominal pain, liesia and severity, and various degrees of systemic symptoms, mostly occurring in young and middle-aged adults, with a course of more than 4 to 6 weeks. The disease is classified in the category of dysentery in traditional Chinese medicine [2], and the cause of dysentery is usually evil dampness and heat blocking the intestine and intestinal conduction dysplasia. Bidens pilosa has a good effect of clearing heat and detoxifying, and Coptidis clears heat and dries dampness, which is a necessary drug for dampness and heat diarrhea. The combination of Bidens pilosa and Rhizoma coptidis, one is that the combined use of the two to clear the force of heat and humidity, and can be directly into the lower coke, wet and heat clear, dysentery stop. Second, Bidens pilosa not only enters into the qi, but also into the blood, promoting blood stasis and clearing heat. After the combination of Bidens pilosa with Coptis chinensis, the two can enhance the power of detoxifying the carbuncle, swelling and sore poison and dispersing blood stasis. Third, the herb is gentle and moist, Coptis chinensis is bitter and cold, Coptis chinensis can relieve the cold and cold of Coptis chinensis, and prevent the cold and cold injury of the spleen and stomach. So the combination of Bidens pilosa and coptis chinensis can be used in dampness and heat relief dysentery.

Modern pharmacological studies have found thatBidens pilosa has a good anti-inflammatory effect. The experimental results of Lin Meiying et al. [3] showed that total flavonoids inBidens pilosa have a protective effect on acute inflammation, and the anti-inflammatory mechanism may be related to regulating the release of inflammatory mediators. In addition, total flavonoids of Bidens pilosa bivata can be absorbed significantly in the intestine. Zhang Yanna et al. [4] studied hyperoside content as an indicator and found that total flavonoids of Bidens pilosa bivata were well absorbed in colon, ileum and duodenum. The modern study of Huanglian has a very good anti-inflammatory and antidiarrhea effect. Jiang Xiaomei et al. [5] have shown that total alkaloids of Coptidis can relieve intestinal mucosal damage in model rats with ulcerative colitis, and the mechanism may be to activate PPARγ, inhibit p38 /NF-κB pathway, and reduce the inflammatory reaction of colon tissue. Therefore, in this combination, the total flavonoids contained in Bidens pilosa and the total alkaloid components in Coptis coptidis can directly act on the colon site, with obvious targeting effect, to achieve the purpose of anti-inflammatory and eliminate the lesion site.

3.2 Bidens pilosa and Yin Chen

In modern medicine, jaundice hepatitis is considered to be hepatitis caused by multiple causes, with serum bilirubin exceeding 17.1μmol/L, accompanied by skin mucosa yellow [6]. Jaundice hepatitis belongs to the category of traditional Chinese medicine jaundice. Chinese medicine believes that the cause of jaundice is the dampness and heat accumulation in the middle of the coke, liver and bile negligence, bile overflow in the skin. Bidens pilosa has a good effect of clearing heat and detoxifying and promoting blood stasis, Yin Chen its gas fragrance Qingfen, bitter slightly cold, slightly clear heat, has the effect of dampness and yellow retreat, the head of dampness and heat jaundice. Bidens pilosa and Yinchen should be used together. Bidens pilosa can help Yinchen to relieve pain and cold and relieve moisture and yellow, and Yinchen can lead Bidens pilosa to clear heat and relieve moisture directly to the lesion. They are used together to relieve liver and biliary dampness and heat, especially for jaundice caused by dampness and heat. It has been reported [7] that Tuihuang Decoction (Bupleurum chinensis, Scutellaria scutellaria, Rhizoma cuspidatum, knotweed cuspidatum, Cress cress, salvia miltiorrhiza, Zeilan, Tianjihuang, Bidens pilosa monophylla, Hedyotis chinensis and dried rape) was used in the treatment of acute jaundice hepatitis, and the therapeutic effect was very significant.

At present, pharmacological studies have found that Bidens pilosa potentilla has a good hepatoprotective effect. Cheng Xinyan [8] and Li Hong et al. [9] found that total flavonoids of Bidens pilosa potentilla have a hepatoprotective effect, and the mechanism may be related to antioxidant and cytotoxic inhibition. Yinchen has the functions of protecting the liver, improving the gallbladder and reducing inflammation. Yinchen can induce the liver enzyme system, enhance the uptake, binding and excretion ability of the liver to bilirubin, and promote the clearance of bilirubin, thus treating jaundice[10]. Bidens pilosa has a strong function of promoting blood circulation and removing blood stasis. Studies have shown that the combination of the drugs for promoting blood circulation and removing blood stasis with gallbladder drugs can reduce the content of serum bilirubin and has a more

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significant effect on improving gallbladder [11]. Therefore, the liver can recover the normal functions of bilirubin uptake, conversion and excretion after the combination of Bidens pilosa and Henchen.

3.3 Bidens pilosa and ephedra

In modern medicine, colds are mostly divided into viral colds and bacterial colds. In traditional Chinese medicine, colds are mainly divided into two categories: wind cold and wind heat. Needle ghost clear heat through the table, clear lung heat, ephedra for the first surface drug. The combined action of two medicines is manifested in three aspects: first, it not only spreads the stroke heat of the lung, but also clears the heat in the lung. Second, the Bidens pilosa ghost can use the Xin temperature of ephedra to go channelling, leading the evil of wind and heat to solve from sweat. Three, the effect of Bidens pilosa herb bitter, smooth, moist and reduce the dryness of ephedra. Compatible use can be used for external exposure to wind and heat obstructing lung syndrome.

At present, pharmacological experiments have provided a good proof for the combined use of the two. Zhang Ruijiang et al. [12] found that the extract of Bidens pilosa had antibacterial and antiviral effects, and in vivo, the anti-epidermal glucose ED was 024.62g·kg-1, and in vivo the anti-Staphylococcus aureus ED50 was 29.16g·kg-1. At the same time, the extract of Bidens pilosa can also inhibit influenza A and B viruses. Ephedra has good pharmacological effects such as antipyretic sweating, antibacterial, analgesic and anti-inflammatory [13]. The strong antiviral and antibacterial effect of Bidens pilosa and the antipyretic and perspiratory effect of ephedra are good evidence that Bidens pilosa and ephedra have remarkable efficacy in combination, and better play the advantages of traditional Chinese medicine in cold disease.

3.4 Bidens pilosa and Poria cocos

Chronic diarrhea is a common functional gastrointestinal disease that is closely related to the composition and function of intestinal flora [14]. Diarrhea belongs to diarrhea of traditional Chinese medicine. The basic pathogenesis is spleen deficiency and dampness.Bidens pilosa bitter, flat, bitter main to dry wet, and into the foot Yangming stomach meridian and hand Yangming large intestine meridian, can clear intestinal moisture. The function of poria cocos is to strengthen the spleen, promote water infiltration and stop diarrhea, and the two are used in combination. Bidens pilosa cocos can enhance the water infiltration effect of poria cocos, and improve the temper. It can fill the temper and cure the root cause while removing dampness and stopping diarrhea with Bidens pilosa cocos.

Modern studies have proved that Bidens pilosa bioluminata has good antibacterial and anti-inflammatory effects. Zheng Yanqing et al. [15] found that Bidens pilosa bioluminata aqueous solution, when used in combination with Western medicine, has a good antibacterial effect on Escherichia coli producing ultra-broad spectrum β-lactamase. Zhou Xianjun [16], through animal experiments, found that ethanol extract of Bidens pilosa could not only inhibit edema and exudation at the early stage of inflammation, but also inhibit tissue hyperplasia and granulation tissue formation at the late stage of inflammation. Poria cocos diuretic effect is stronger, Tian Ting [17], such as found in diuresis and tuckahoe peel ethanol extract could increase the discharge of electrolyte Na^+, reduce the discharge of K^+, Na^+ / K^+ ratio in the urine, poria cocos suggests that the ethanol extract is Na^+ diuretic, produced similar to inefficient diuretic spironolactone row of potassium sodium. After the efficacy of traditional Chinese medicine and modern experiment evidence, if the two drugs used together to treat diarrhea, one can relieve urine to solid stool, water while not causing water and sodium retention, but also can metabolize the excess water of the human body, will not cause electrolyte disorders; Two can be antibacterial and anti-inflammatory, prevent intestinal bacterial infection and inflammation caused by diarrhea.

3.5 Bidens pilosa and Prunella

Canceration disease is a general term for various malignant tumors in traditional Chinese medicine. There are three pathological factors: Qi stagnation, blood stasis, phlegm formation, and tangible mass after a long time. Bidens pilosa monophylla has a good effect of promoting blood circulation and removing blood stasis, clearing heat and drying dampness, and Prunella prunus is a good medicine for eliminating phlegm and eliminating swelling. On the one hand, the power of Bidens pilosa lebiflora to clear heat and dry moisture helps Bidens pilosa lebiflora to dissipate phlegm and disperse phlegm, and both Bidens pilosa lebiflora and Bidens pilosa lebiflora have the power to dissipate heat, which is suitable for the cancer of phlegm-heat obstruction. On the other hand, Prunella Xianxia is xin, bitter,

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partial to Qingxie, good at walking and channeling, Bidens pilosa and its compatibility, enhance the force of activating blood, the two can also be used for Qi stagnation blood stasis caused by cancer. Modern medicine is paying more and more attention to the side effects of cancer chemotherapy. How to select suitable anti-cancer treatment on the basis of not killing human normal cells but slowing down the proliferation and metastasis of cancer cells has become a research hotspot at present.

The pharmacological activities of Bidens pilosa bipinnata and Prunella can well meet the needs of modern anti-cancer. Feng Tao et al. [18] found that the antitumor effect of 90% ethanol extract of Bidens pilosa monophylla on U14 tumor bearing mice was to inhibit the tumor growth of mice by improving the body immunity. Ma Minghua et al. [19] observed the therapeutic effect of Prunella mixture on Lewis lung cancer mice, and the results showed that the living condition and quality of life of mice were improved to a certain extent. It can inhibit the growth of tumor cells, and has a protective effect on normal cells, and has a better effect on the growth of lung cancer. When used together with Prunella prunella, the extracts of both have good anticancer activity. The advantages of both lie in that while inhibiting tumor cells, they have a protective effect on human normal cells, which does not harm the body's positive qi, and positive victory leads to evil retreat.

3.6 Bidens pilosa and plantain

Prostatic hyperplasia is characterized by enlargement of the prostate glands, obstruction of the bladder outlet, and lower urinary tract symptoms. Lower urinary tract symptoms are the most common reasons that affect and reduce patients' quality of life, including frequent urination, urgent urination, increased nocturia, interrupted urination and other symptoms [20]. According to its characteristic symptoms of traditional Chinese medicine into the category of uroschesis, more because of the evil of the bladder invasion of damp and hot, lead to kidney and bladder dysfunction gasification. Bidens pilosa ghost bitter, slightly cold, Tongli and clear down, dry wet heat. Psyllium sweet cold, the main effect is to clear heat diuresis, wetting and diarrhea. The herb is compatible with Psyllium, which can not only help Psyllium dehumidify, but also strengthen the power of clearing heat and detoxifying; Plantain seed can be Bidens pilosa straight guide medicine herbs force, through the channel, for pathogens to pathway, the compatibility is applicable to damp and hot accumulate knot caused by retention of urine.

It has been found that prostatic gland has good targeting effect on prostatic gland. Li Qiaolan [21] found that 60% ethanol extract of Bidens pilosa floriculata had good anti-prostatic hyperplasia activity by in vitro experimental research method. The modern research of Psyllium has found that it can not only diuretic, but also inhibit prostatic hyperplasia. Yan Sheng et al. [22] found that psyllium extract can reduce urinary reabsorption by the kidney by down-regulating the expression of aquaporin AQP2 and AQP1mRNA, thus producing diuretic effect. Wang Yuping et al. [23] found that plantar extract had the effect of inhibiting benign prostatic hyperplasia, possibly because it inhibited the activity of 5α-reductase in prostate tissue and reduced the content of dihydrotestosterone in the tissue. When combined with Psyllium, both of them can inhibit prostatic hyperplasia. Because of the strong diuretic effect of Psyllium, the microcirculation around the bladder can be enhanced, and the diuretic swelling reduction has been achieved.

3.7 Bidens pilosa and Changshan

Malaria is an infectious disease caused by Plasmodium, which is transmitted to human through the bites of infected female anopheles mosquitoes, and is one of the most destructive infectious diseases in the world [24]. Chinese medicine classifies malaria as cold malaria, warm malaria, miasma malaria, or cold or heat. Bidens pilosa has the effect of cutting malaria and clearing heat and detoxifying. It has bitter, bitter and cold taste, which is the essential medicine for the treatment of malaria. The two must be used together. First of all, the antimalarial effect of the two is greatly improved when the herb is compatible with Changshan. Moreover, although the herb has the potential to clear heat, it is moist but not strong, which can alleviate the bitter cold bias of Changshan and reduce the toxic and side effects.

Brandao et al. [25]found that the extract of Bidens pilosa clover had the strongest antimalarial activity, which was related to the polyenes and flavonoids contained in it. Some experimental studies [26] found that among 28 kinds of traditional Chinese medicine produced in western Yunnan, β-hydroxymethemoerythron in the extract of Bidens pilosa mondii was found to have good anti-malaria activity. Zhou Zeqin et al. [27] screened antimalarial drugs, and the experimental results showed that the 50% alcohol extract of Changshan Compound had an inhibition rate of 83.46% against malaria, which

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showed significant antimalarial activity and could be used as a candidate drug to fight malaria. Modern malaria still exists in many countries and regions, so it is urgent to find suitable antimalarial drugs. Both of the active ingredients of P. mongolicum and P. changshanensis can kill the malaria parasite, which is also the verification of their antimalarial efficacy. Under the condition of reasonable dosage, the two can be fully used in the treatment of malaria, and contribute to the world's malaria control work.

4. Summary

The medicinal value of Bidens pilosa is very high. In recent years, it has gradually entered the public and doctors' vision. A large number of experimental studies have identified the active ingredients and pharmacological effects of Bidens pilosa. However, at the present stage, the research on Bidens pilosa is limited to the pharmacological action and efficacy mechanism of monomer, and no standardized research on compatible drug use has been formed. The compatibility of TCM is the characteristic of TCM medicine, and the superposition or attenuating effect between drugs can make the compatibility effect of drugs better applied in clinic. Therefore, on the basis of summarizing the traditional efficacy and modern research conclusions of Bidens pilosa, this paper summarizes the advantages of Bidens pilosa through collecting literature data.The results find Bidens pilosa can be compatible with rhizoma coptidis to treat dysentery, with ephedra to treat colds, with Poria to treat diarrhea, with Prunella to treat cancer, with psyllium to treat occlusion, with Changshan to treat malaria, and use pharmacological proof of the advantages of the compatibility in the treatment of diseases, so as to broaden the scope of clinical drug thinking and application.

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