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## REVIEW: RESEARCH OF MORNING GLORY SEED

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**Abstract** Morning glory seed also known as Caojinling(Master Lei's Discourse on Drug Processing), HeiChou or BaiChou(Compendium of Materia Medica). It belongs to convolvulaceae. It can diuresis, insecticidal and treat constipation ect. This article studies on chemical constituents, pharmacological action and clinical effect of morning glory seed through the literature search. And puts forward the theory of property and flavor of traditional Chinese medicine, start to explore cold-heat nature of the Morning glory seed and its main ingredient.

**Key word** : morning glory seed, TMC

Morning glory seed is the dry and mature seed of *Pharbitis nil* (L.) Choisy or *Pharbitis purpurea* (L.) Voigt of the convolvulaceae family. It has the discharge water aperient, sputum polyester away to drink, and insecticidal attack product function. Clinically, it is used for the treatment of edema puffiness, fecal and urinary stoppage, retention of phlegm and fluid, inverse gas and cough, abdominal pain due to parasitic infestation, etc. In recent years, a lot of chemical composition and clinical application research about morning glory seed have been studied. This paper will explore morning glory seed and the main effective components from the aspects of cold-heat nature of traditional Chinese medicine(TCM) , so as to lay the foundation for further clinical research.

**1 Chemical constituents of morning glory seed** Morning glory seed contains pharbitic glycoside about 3%. Pharbitic glycosides is a kind of resin glycosides, which is glycosides of various organic acid esters of hydroxy fatty acids [1]. Morning glory contains other ingredients, ChuanQiMinNan extracted rhamnose, glucose, fructose, sucrose and so on from White Morning glory seed [2]. GangBuChangZi have further studied that morning glory seed contain plant sugar [3]. Lina Chen [4] obtained effective components of phenolic acids(phycion, emodin, chrysophanol, ethyl caffeate, ect.) from morning glory seed for the first time. The content of fatty oil in morning glory seed was about 11%. Lina Chen [5] got 39 kinds fatty oil by GC-MS for the first time, and identified 36 kinds component. PengHao Li [6] determined that morning glory seed contains large amounts of fatty acids by supercritical fluid extraction and GC-MS. It is said that morning glory seed contain a variety of alkaloids, such as Lysergol, Ergosine, Ergosline, Penniclavine, Ergonovine. etc [7].Morning glory seed are rich in mineral elements and essential trace elements, such as Fe, Mn, Cu, Zn, Mo. Morning glory seed contains 8 kinds of essential amino acids, which accounts for about 34.98% of the total amino acids, while the content of glutamic acid was the highest in the non-essential amino acid [8]. In addition, immature seeds of morning glory seed also contain gibberellin A20, gibberellin A3 (GA3), gibberellin A5 (GA5), protein, cholesterol and pigment. ect [7].

**2 Pharmacological effects of Morning glory seed** It is reported that chemical properties of pharbitic glycoside is similar to Jalapin, having a strong purgative effect [8]. Pharbitic glycoside not only have direct stimulation of the stomach and intestines with vomiting, abdominal pain, diarrhea and bloody mucus, but also may stimulate the kidneys, causing hematuria. Seriously, it can also damage nervous system and induce language barriers and coma [9]. Morning glory seed can accelerate the inulin excretion in the kidney, suggesting that may have diuretic effect. Meanwhile, it proves that pharbitic glycoside have excitatory effect on rabbit intestine and rat uterus in vitro [10].

**3 Clinical effects of Morning glory seed** Mr. Qi [11] treat intractable constipation with morning glory seed powder, the total effective rate was 96%. Mr. Yan [12] used fried morning glory seed powder for treating intractable constipation in 25 cases, and the total efficiency was 96%. Mr. Hu [13] treated liver ascites by morning glory seed, together with zingiber officinale, welsh-onion stalk and brown sugar, and had a good effect. Morning glory seed is often used

with semen lepidii, apricot kernel and orange peel to cure phlegm and fluid, cough, facial edema [14]. Morning glory seed can eliminate insecticide, and can cure the abdominal that caused by roundworm, tapeworm and worm. It can be enhanced enhance the insecticidal by using with Semen Arecae and Fructus quisqualis together [14]. The mixture of morning glory seed and chlorpromazine hydrochloride treat mental illness 150 cases synthetically, has a better effect [15]. Mr. Fang [16] used morning glory seed powder in the treatment of 64 patients with simple obesity, and the total efficiency was 92.2%. Chinese Academy of Medical Sciences used morning glory seed on the original usage of antiepileptic drugs to treat 1155 epilepsy cases, and the total efficiency is 56.7% [17].

**4 Study on cold-heat nature of morning glory seed** Cold-heat nature is not only two important aspects in eight principles of TCM syndrome differentiation, and also the treatment program principle. Distinguishing the nature of the diseases for the clinical diagnosis, treatment and drug selection all have important significance. The nature of cold and heat is the primary pharmaceutical properties of TCM. It is the primary principle of treatment of TCM that heat medicine could treat cold syndrome and cold medicine could treat heat syndrome [18]. HaiXue Kuang [19] believes that the nature of drugs and the medicine effect must have their corresponding material basis. There should be an internal relation between the material basis of the nature and the medicine effect. Therefore, each TCM has many kinds of nature and effect, this maybe express its true meaning. The complexity of nature and drug effect derives from the composition of TCM, drug interactions and the complexity of the interaction between drugs and human body. The complex base material can be split. The splitted component to establish a certain relationship through the taste and function. TMC belongs to heat which can promote energy metabolism and material metabolism, TMC belongs to cold which can inhibit energy metabolism and material metabolism.

Energy metabolism is the most basic form of human metabolism, but the traditional Chinese medicine may affect certain aspects of energy metabolism, and regulate the cold and heat syndrome [20]. The number of ATP reflects the energy metabolism. The increase of activity of Na<sup>+</sup>-K<sup>+</sup> ATPase was accompanied by an increase in ATP consumption and an increase in metabolism. LiPing Huang [21] studied six kinds of typical cold medicine, showing that Na<sup>+</sup>-K<sup>+</sup> ATPase of liver was decreased, indicating that the cold medicine can reduce the body's energy metabolism.

It is said that pharbitidis belongs to cold, and our group also early explore the cold of pharbitidis relationship with the energy metabolism by experiments, but the bitter and cold of pharbitidis whether certain corresponding relation has not be confirmed. The cold and heat of several major components of pharbitidis need to further research.

**5 Summary** There were many studies on the chemical composition, pharmacological efficacy and clinical effect, while few study on the nature of main effective constituents of pharbitidis. The scientific connotation of TCM theory can be revealed and promoted by further studying the cold and hot nature of pharbitidis and its main effective constituents. It also plays an important role for the enrichment and development of TCM basic theory. It has a certain value to further explore the clinical application of morning glory seed.

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## COMPARATIVE STUDY ON PHARMACOKINETICS OF AMERICAN GINSENG IN THE MAIN COMPONENT OF HUAQIZEREN

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**Objectives** Comparative study on HuaQiZeRen of ginsenoside Rb1 and American ginseng of ginsenoside Rb1 in rat plasma pharmacokinetics.

**Materials and methods** The establishment of ultra high liquid chromatography tandem mass spectrometry to study the sensitivity and reliability of HuaQiZeren single herbs ginseng in rats in vivo pharmacokinetic characteristics, improve drugability evaluation HuaQiZeren. SD rats were randomly divided into HuaQiZeren group and American ginseng group were orally given HuaQiZeren and Panax quinquefolium decoction, to give medicine before and after a series of time points of blood plasma samples were collected for determination of Pharmacokinetic parameters were calculated by DAS software, the main medicine ginseng group and active ingredient group ZerenHuaQiZeren ginsenoside Rb1 pharmacokinetic parameters were compared, observe the main pharmacokinetic parameters have no significant difference.

**Results** Between 0.05~10 and g/mL concentrations, ginsenoside Rb1 had a good linear relationship in plasma, with a lower limit of 0.05 g/mL, and the difference between day and day was less than 10%. Citi group and Zeren ginseng group active component ginsenoside Rb1 pharmacokinetic parameters were the main drugs in rats: Cmax (g/L) 779.6 + 70.92 and 608.6 + 85.67; Tmax (H) 2 and 0.75; the elimination half-life t<sub>1/2</sub> (H) 15.58 + 7.574 and 9.947 + 4.099; AUC<sub>0-t</sub> area under the concentration time curve (g/L\*h) 9937 + 1503 and 3662 + 301.5; the average residence time of MRT<sub>0-t</sub> (H) 0.7406 and 14.67. 7.825 + 0.4090; plasma clearance rate of CL (L/h/kg) 0.1968 + 0.04122 and 0.4992 + 0.07002. Comparison of pharmacokinetic parameters and the ginseng group active ingredients of ginsenoside Rb1, Citibank Group HuaQiZeren active ingredients of ginsenoside Rb1 Cmax P<0.01, AUC<sub>0-t</sub> P<0.01, T<sub>1/2</sub> P<0.05 and MRT<sub>0-t</sub> were significantly increased in P<0.01, CL and P<0.01 decreased significantly.

**Conclusion** In vivo the main active ingredients of Citigroup Zeren ginsenoside Rb1 absorption and metabolism is relatively slow, can maintain a high plasma concentration. The compatibility of active ingredients Citibank Zeren of ginsenoside Rb1 in Panax ginseng and absorption.

**Key words:** Huaqizeren; ginsenoside Rb1; HPLC-MS/MS; Comparative pharmacokinetics

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## PROGRESSIN PHARMACOLOGICAL ACTIVITIES OF DIOSMIN

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**Abstract:** Diosmin is flavonoids compound. It can increase the tension of the vein, improve microcirculation, promote lymphatic reflux, and alleviate edema. In recent years, some new pharmacological effects of diosmin have been studied. In this paper, the pharmacological effect from diosmin of recent years were bebriefly reviewed, which provides scientific basis for the development and utilization of diosmin.

**Key words:** Diosmin; pharmacological