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DETECTION TECHNOLOGY OF CALCIUM ION IN BAIHU DECOCTION

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Abstract:This paper summarizes the detection methods of calcium ion in Baihu Decoction in recent years. The results showed that the different detection methods were different according to the existence form of calcium and the in vitro and in vivo methods. This paper describes the in vitro assay of free calcium, which provides a choice for laboratory studies of calcium ions in Baihu Decoction.

Key words:calcium, Detection method, Baihu decoction

Baihu Decoction, from the Han Dynasty Zhang Zhongjing famous "Treatise on the". From gypsum, anemarrhena, licorice, japonica rice composition. The main component of the antipyretic effect of baihu decoction is still a controversial issue. It may be argued that Ca²⁺ in gypsum is the main component of heat removal or the combination of glycyrrhizin acid and trace metal in gypsum to form a complex, [1]. This paper introduces the principle of ICP-OES and the process of detection of the importance of the detection of calcium ions.

1. EDTA titration With the gauze will Baihu Tang solution concentrated to 500mL. Accurately weighed 25mL, with NaOH solution to adjust the PH value of 13, add a little calcium indicator, with EDTA standard solution titration solution from purple to pure blue [2].

2. ICP-OES 1mL from the liquid made from 500mL decoction, put Xpress microwave digestion tank (power 800W, 5min temperature rose to 180 °C, keep 18min), add 8mL nitric acid. After cooling in the 50mL volumetric flask volume, with ICP-OES detection. The RF power is 1.150KW, the frequency is 27.12Hz, the pump speed is 50r / min, the auxiliary air flow rate is 0.5L / min, the integration time is 30s, the line selection is 315.887nm.

3. LC Chromatographic conditions for high performance liquid chromatography (HPLC): C18 column (4.6 mm x 250 mm, 5 µg); detection wavelength 256 nm; column temperature 30°C; flow rate 1 mL / min. In the literature, the mobile phase was acetonitrile-KH₂PO₄ (75:25), and a few literatures used mobile phase methanol-0.2% ammonium acetate solution - glacial acetic acid (61:39:1) [3] .

It has been studied that ultra-high liquid chromatography (UPLC) can also detect calcium ions in gypsum decoction. The chromatographic conditions were as follows: C18 column (2.1mm × 100mm, 1.7µg); mobile phase was acetonitrile-0.1% phosphoric acid (15:85); detection wavelength 258nm; column temperature 35 °C; flow rate 0.3mL / min. The resulting spectrum is compared with the standard map of calcium, with overlapping peaks (except for solvent peaks) that the presence of calcium in the Baihu Decoction.

4. FAAS Determination of Calcium in Gypsum Decoction by Detecting Calcium Ion Content in Calcium Gluconate in Oral Liquid. The detection conditions were wavelength 422.7nm, lamp current 5mA, slit width 0.5nm, acetylene flow 2.0L / min, air flow 10.0L / min. In the weighed sample gradually added nitric acid-perchloric acid (4:1) heated to brownish black, and finally was colorless transparent or slightly yellow, cooled in the volumetric flask, diluted to the mark. Weigh the solution by adding 0.1 g / mL of solution and then set the volume. Sampling into the atomic spectrophotometer for detection. The detection of the absorbance compared with the standard calcium can be detected whether the oral liquid containing calcium ions.

5. Conclusion The calcium ion in gypsum is the main component, 1:1 (Ca²⁺ and organic ligand) Hans liquid in vitro culture test can enhance rabbit alveolar macrophages on Staphylococcus aureus and colloidal gold phagocytosis, and promote macrophage maturation , To enhance phagocytosis of macrophage activity, to maintain its macrophage physiological function play a role in its antipyretic effect. In

addition, calcium ions also have the effect of reducing vascular permeability. Therefore, calcium ions on white tiger soup has played an important role in clinical efficacy. But its antipyretic effect remains to be further studied.

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THE EFFECT OF ZUOGUIYIN ON LIVER AND KIDNEY FUNCTION AND FREE RADICAL METABOLISM OF SUBACUTE AGING MODEL RAT INDUCED BY D-GALACTOSE

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Abstract Modern research found that Zuoguiyin has anti-aging effect. In this study, we tested the levels of liver and kidney function and free radical metabolism in each group of experimental rats. To elucidate the relationship between the effect of tonifying kidney yin and anti-aging, and Zuoguiyin's effect on liver and kidney physiological function, the purpose is to provide a basis for the study of anti-aging theory of Zuoguiyin.

Key words: Zuoguiyin, Anti-aging

Objective Study on Zuoguiyin affecting the liver and kidney function and their free radical metabolism of subacute aging model rat induced by D-galactose, to explore its anti-aging mechanism.

Materials and methods Materials :72 healthy SD rats (aged 12 months), females accounted for 50%, body weight (200 ± 20) g ;Zuoguiyin (a prescription for tonifying kidney yin), Liuweidihuangwan; detection kits (CREA, BUN, ALT, AST, ALP, SOD, MDA, T-AOC); D-galactose, vitamin E, saline, other reagents and chemicals were of analytical grade.

Methods: 72 SD rats were randomly divided into six groups: control group, model group, administration group (vitamin E group, Zuoguiyin high and low dose group, Liuweidihuangwan group). In addition to the control group, the subcutaneous injection of saline, the other groups of the back of the neck were injected with D-galactose subcutaneous aging model. At the same time, the rats in each administration group were treated with vitamin E, high and low dose Zuoguiyin and Liuweidihuangwan. The control group and the model group were given equal volume of distilled water. After 8 weeks of continuous administration, the abdominal aorta was collected and the liver and kidney tissues were removed. Detection of blood alanine ALT, AST, ALP, CREA, BUN, and free radical metabolism of liver and kidney tissues of SOD, MDA, T-AOC and other indicators of the level.

Results and discussion In the liver and kidney function index, compared with the normal control group, the model group except ALT slightly decreased, AST, ALP, CREA and BUN were significantly increased. Compared with the model group, each group of all indexes were decreased; in the metabolism of free radicals, compared with normal control group, the levels of SOD and T-AOC in liver and kidney tissue of rats in model group were significantly decreased, MDA level increased significantly, compared with the model group, the levels of SOD and T-AOC to the organization the medicine group in liver and kidney of rats were significantly increased, MDA decreased significantly.

In the current study of anti-aging, scholars generally recognized that free radical theory proposed by D Harman in 1956, The theory that, under normal circumstances, the body of free radicals can be antioxidant enzymes removed, do not cause damage to cells, When the body of antioxidant enzymes weakened and the number of free radicals increased. this time, too much free radicals will cause the body of DNA, protein and lipid damage, affecting the body's normal function, leading to aging. SOD is the body an important antioxidant, it can remove superoxide anion radical redundant, MDA is a product of lipid peroxidation in vivo, T-AOC is the total antioxidant capacity of various antioxidants, both antioxidant and anti-aging of old modern detection in the important index. The results showed that the Zuoguiyin can increase the levels of SOD and T-AOC in the liver and kidney of rats, and decrease the content of MDA, which is similar to that of vitamin E in western medicine.

Thus, the study shows that Zuoguiyin has the function of improving liver and kidney function and delaying senility.

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