

A Review of the Processing Method and Clinical Application of Traditional Chinese Medicine Rhubarb

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Abstract: After reviewing the books and related literature of previous generations of *Materia Medica*, it was found that there were as many as 20 processing methods of rhubarb, and the processing methods of rhubarb were sorted out. The differences in the processing methods, processing purposes and clinical applications of ancient and modern rhubarb were analyzed and summarized. So, this paper can provide corresponding reference for the follow-up research and clinical use of rhubarb.

Keywords: Rhubarb; Processing; Apply; Roundup

1. Introduction

Rhubarb is one of the common Chinese medicine tablets, for the plant of the family *Tateaceae*, with roots and rhizomes into medicine, with diarrhea attack, clear heat and fire, cool blood and detoxification, gradually stasis through menstruation, moisture and yellowing and other effects [1]. Rhubarb has a long history of medicinal use and is widely used in clinical practice, in order to meet the clinical drug needs and expand the scope of clinical application, the ancients prepared rhubarb in different ways. There have been as many as 20 processing methods of rhubarb throughout the ages, among which the processing methods of wine rhubarb, cooked rhubarb, rhubarb charcoal, and Qingning tablets have been used to this day. By consulting relevant literature and historical herbal books and other materials, the processing methods of previous dynasties are summarized and compared, and they are summarized as follows.

2. Rhubarb processing method

2.1 Rhubarb processing history through the generations

Han Dynasty: cannon ripening, wine washing, wine immersion ("Yuhan"); peeling, sake washing, wine immersion ("Typhoid Fever"); Steamed ("Golden Curse"). Eastern Jin Dynasty: Crispy stir-fry ("Prepare for Emergency"). Southern and Northern Dynasties: Steam with wax, steam with honey ("Lei Gong"). Tang Dynasty: fried in vinegar ("Food Therapy"); Stir-fry ("A Thousand Gold"); boiling yellow and black, steaming rice ("Secrets of the Outer Stage"); Simmer in wet paper ("Cranial Fontanelle"). Song Dynasty: wine steaming ("Medicinal Evidence"); Nine steamed and nine dry, wine soaked and stir-fried, honey roasted, vinegar stir-fried, ginger ("General Record"); steamed in wet paper ("Puben"); vinegar steaming ("Boji"); children's bowel control ("Su Shen"); bran steaming ("Three Causes"); wine soaking ("Subtlety"); rice dipping (Book of the Living); For baking ("Taiping Huimin"). Jin and Yuan periods: three-sided dipping ("Health Treasure Guide"); Burning is the end (The Book of the Ten Medicines God); When the wine is soaked in two or three times, the paper is wrapped in fire and simmered ("Ruizhutang"); Wu Zhu made, human milk soaked ("Shou Shi Bao Yuan"); Wine dipping, wine simmering ("Miracle Recipe"); Children's stool soaking, wine immersion, steaming and cutting, simmering rice swirl ("Compendium of *Materia Medica*"). Ming and Qing dynasties: soaked in ginger juice ("Southern Yunnan *Materia Medica*"); vinegar simmering ("The Yardstick"); Wine boiling ("Pujifang"); Aged wine is boiled, sliced, and stir-fried with lime ("The Complete Life of Surgery"); Leek juice mixed and dried ("Medical Sect").

Rhubarb was originally recorded in the book "Shennong *Materia Medica*", but it only wrote about the efficacy and taste of rhubarb, but did not see its preparation method, Zhang Zhongjing's "Jin Kui Yuhan Sutra" mentions rhubarb "either cannon or raw" There are two kinds of processing records, raw

and cooked, which is also the earliest recorded processing method of rhubarb. Since the Han Dynasty, the processing methods of rhubarb have been increasing, from simple peeling, cutting, stir-frying, steaming to washing, stir-frying, simmering, steaming with wine, vinegar, honey, wheat bran, rice swill and other auxiliary materials. The methods of Rhubarb before the Tang Dynasty are cannon cooking, wine immersion, crisp stir-frying, honey steaming, etc. Since the Tang Dynasty, people began to use vinegar as an auxiliary material for vinegar frying, rice steaming, wet paper wrapping and simmering and other processing methods. Until the Song Dynasty, rhubarb's processing method is more comprehensive and perfect, for the first time there is baking method, nine steaming and nine exposure, ginger system, children's feces, rice swill immersion. Diversified processing methods such as wheat bran simmering, and at the same time transformed from a single processing to a variety of processing methods combined use. Such as "urine immersion for seven days" in "Chicken Peak Pujifang" and simmering with wet paper. Wrapped in wet paper and steamed under three buckets of rice, the rice is cooked and removed, and the paper is baked^[2]. It is recorded in the "Taiping Huimin and Pharmacy Bureau Fang" that "rice is steamed, taken out after cooking, and exposed to dry"^[2]. It is proposed that the time of processing needs to control the duration of processing, and there are also detailed explanations of the fire and the amount of auxiliary materials for processing. In the Jin Yuan period, new auxiliary materials such as evodia juice, three-sided dip, and human milk dip appeared, and the rhubarb charcoal processing method was proposed, and in the Ming and Qing dynasties, in addition to the previous processing method, leek juice mixing and drying methods also appeared.

2.2 Rhubarb modern processing method

After modern times, China has promulgated the "Chinese Pharmacopoeia" and the specifications for the processing of traditional Chinese medicine in various provinces and cities, and have been continuously revised and improved, mainly for raw rhubarb, wine rhubarb, cooked rhubarb, vinegar rhubarb, rhubarb, rhubarb charcoal, Qingning tablets and other rhubarb cannon products to make a series of regulations. Different regions and different periods, the processing specifications have obvious differences in the processing products and processing methods, such as the "National Traditional Chinese Medicine Processing Specification"^[3] records raw rhubarb, wine rhubarb, wine ripe rhubarb, rhubarb charcoal, vinegar rhubarb and Qingning tablets six kinds of concoction products, the 1980 edition of the "Shanghai Traditional Chinese Medicine Processing Specification"^[4] only raw rhubarb, wine wash rhubarb, Rhubarb cannon products made of wine.

3. Preparation composition and clinical application of rhubarb

Raw rhubarb bitter cold settlement, diarrhea effect, easy to hurt stomach gas, at the same time may cause abdominal pain, nausea, vomiting and other gastrointestinal reactions, rhubarb contains free and bound anthraquinone derivatives, in addition, rhubarb also contains tannin, naphthol glycosides, stilbene glycosides, benzene and other components^[5], of which bound anthraquinone and sennosides are the main components under rhubarb diarrhea, raw rhubarb is concocted, bound anthraquinone is reduced, diarrhea effect is weakened, Reduced toxic side effects.

3.1 Differences in composition of different concoction products

Wu Xuerong^[6] found that rhubarb has tannin content in different cannon products: raw rhubarb> wine rhubarb> ripe rhubarb> rhubarb charcoal; Free anthraquinone content: cooked rhubarb> wine rhubarb> raw rhubarb> rhubarb charcoal; Bound anthraquinone content: raw rhubarb> wine rhubarb> ripe rhubarb > rhubarb charcoal, it can be seen that different processing conditions have obvious changes in anthraquinone content, the total anthraquinone content of rhubarb charcoal is significantly reduced, and the degree of decline is significantly higher than that of cooked rhubarb, while the total anthraquinone content of wine rhubarb has not decreased significantly, only through the decomposition of bound anthraquinone after wine burning into free anthraquinone, which alleviates the diarrheal effect of rhubarb, and the lowest content is the tannin and anthraquinones of rhubarb charcoal, which has almost no diarrheal effect. Li Huifang et al.^[7] also found that the contents of bound anthraquinone and tannin in raw rhubarb, wine rhubarb, cooked rhubarb and rhubarb charcoal increased sequentially, and the content of rhubarb charcoal, raw rhubarb, wine rhubarb and cooked rhubarb free anthraquinone decreased sequentially. Yan Yonggang et al.^[8] used HPLC to determine the content of rhubarb cannon products, and the content of gallic acid, catechins, sennoside B and anthraquinone components after raw rhubarb was made into vinegar rhubarb, wine rhubarb, cooked rhubarb, rhubarb, rhubarb charcoal

was reduced, except for the increase in gallic acid content in cooked rhubarb, and catechin, sennoside B, emodin-1- O-glucoside, aloe emodin and rhubarb acid were not detected in rhubarb charcoal. It can be seen that the composition of rhubarb under different conditions is also different, and the degree of change is related to the intensity of processing, and the new ingredients need to be further studied for how the components of rhubarb are transformed after processing.

3.2 Research on pharmacological effects and clinical application of rhubarb

Studies have shown ^[9] that rhubarb has pharmacological effects such as diarrhea, hemostasis, regulation of immunity, and antivirus. The diarrheal effect of raw rhubarb is the strongest, the diarrheal effect of wine rhubarb is slightly weaker, the diarrheal effect of cooked rhubarb and rhubarb charcoal is the weakest ^[10], Liu Chunfang et al ^[11] The study found that mice had diarrhea reaction about 3 hours after administration with raw rhubarb and wine rhubarb, but after administration with wine rhubarb, it was found that the diarrhea time was delayed than that of raw rhubarb, and the number of diarrhea was relatively reduced. The amount of cooked rhubarb and rhubarb charcoal was twice that of raw rhubarb, and there was no diarrheal reaction.

The chrysanob in rhubarb can reduce the permeability of capillaries, reduce wound exudation, improve vascular fragility, shorten the clotting time, and enhance the function of platelet production. Experiments have shown that ^[5] through internal administration of raw rhubarb, cooked rhubarb and rhubarb charcoal, it has a good hemostatic and preventive effect on the bleeding of experimental gastric ulcer and the occurrence of bleeding foci. In the clinical verification of gastrointestinal bleeding in the treatment, raw rhubarb shows that it has the advantages of fast hemostasis speed and good effect, and it is significantly stronger than cooked rhubarb (wine stew) in the number of days of hemostasis, but cooked rhubarb has few gastrointestinal adverse reactions and is more acceptable to patients.

Rhubarb cannon products have a certain bacteriostatic effect, among which raw rhubarb and wine rhubarb have similar effects ^[12]. The main components of rhubarb's anti-inflammatory effect are emodin, aloe emodin, Su Xiaoli and others ^[13] use rhubarb's concoction products to act on six kinds of bacteria such as streptococcus, Escherichia coli, and Staphylococcus aureus, and its antibacterial and anti-inflammatory effects: wine rhubarb, raw rhubarb> ripe rhubarb> rhubarb charcoal.

Raw rhubarb, wine rhubarb, cooked rhubarb and rhubarb charcoal all have antipyretic effects to varying degrees, but the strength of antipyretic raw rhubarb and wine rhubarb is stronger than that of cooked rhubarb and rhubarb charcoal. In the clinic, rhubarb can be used to treat acute pancreatitis, studies have shown that vinegar rhubarb has the strongest inhibitory ability to trypsin ^[14], raw rhubarb has a significant inhibitory effect on trypsin, pancreatic lipase, pancreatic amylase activities, but has no effect on pepsin ^[15].

Rhubarb has been recorded since the Eastern Han Dynasty, with a long history of medicinal use and wide clinical application. Its raw products have a strong effect, and it is not suitable for the elderly and frail, qi and blood deficiency, etc., in order to expand the scope of adaptation, increase efficiency and reduce toxicity, rhubarb is a necessary way to concoct medicine. Since the Han Dynasty, the processing methods of rhubarb have gradually diversified, and it was not until after 1949 that there was a quality standard for drinking tablets, but the concocted products of drinking tablets in the pharmacopoeia lacked relatively uniform quality standards. Rhubarb under different conditions of the preparation of its composition also changes, the conversion between ingredients and the emergence of new ingredients need to be further studied, different concocted products corresponding clinical efficacy is also different, dialectical treatment, the selection of the most suitable concoction products, but now clinically rhubarb cannon products use a relatively single type, the quality of rhubarb on the market cannot be guaranteed accordingly. The research of rhubarb has always been a research hotspot, and this article reviews the ancient and modern processing methods, clinical applications, pharmacological effects, etc., hoping to provide certain reference significance for subsequent researchers.

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