DEVELOPMENT OF A METHOD FOR OBTAINING A DRUG USED IN UROLITHIASIS

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According to the World Health Organization (WHO), herbal medicines account for a significant portion of the pharmaceutical industry. A significant portion of the population of developing countries uses traditional natural medicines as part of the primary health care system. The lack of clear criteria and methods for evaluating herbal medicines has led to the fact that both medicines and dietary supplements are currently produced from the same type of raw material. For the full use of herbal medicines in medical practice, it is necessary to clearly understand the fact that standardization of medicinal plant materials and improvement of quality control methods for herbal medicines is the most important condition for their effective use. The main collection of regulatory documents on medicines are the State Pharmacopoeias of individual countries or Europe, which contain general articles on standardization of medicines and monographs on the use of individual types of raw materials of plant origin. Certain difficulties arise during the standardization of herbal medicines. It is necessary to use modern physicochemical methods for their analysis. Such methods, with the appropriate degree of selectivity, accuracy, availability for implementation in industrial production, are optical and electrochemical methods of analysis in combination with various types of chromatography. In recent years, spectrophotometric methods have become widespread in determining the composition of herbal medicines, allowing for a high degree of accuracy in determining the qualitative and quantitative characteristics and identifying individual components in total herbal preparations, as well as in the original types of raw materials. As a rule, the chemical components of plants vary depending on the species, variety and part of the plant, growing conditions (soil, humidity, temperature), season and age of the plant. These differences make the standardization of active ingredients very important, but this procedure is complex and not always available. Traditional medicine considers madder as a plant with antispasmodic and diuretic properties. Traditional healers recommend taking the extract for a number of serious diseases, including gout, tuberculosis and even oncology. The natural chemical composition of the raw material and the natural combination of anthraquinones with substances of other groups are of value for pharmacology. The strongest pharmacological action is provided by madder extract. Therefore, it is used as a separate drug, and also introduced into the composition of other medicines. At present, in the Russian Federation, madder extract tablets of 250 mg are produced and used. Due to the imperfection of the methods for the quantitative determination of anthracene derivatives in the State Pharmacopoeia of the Russian Federation of the XIV edition, the European Pharmacopoeia, a study was conducted to substantiate new methodological approaches to the standardization of the amount of anthracene derivatives in madder. This study examined the possibility of using similar methods for determining the amount of anthracene derivatives in madder extract tablets. Results. There are several ways to obtain an alcohol extract of madder for making a tincture: by maceration or percolation (from the Latin *percolatio* - filtering), i.e. passing the extractant through the raw material; to increase the yield

of the final product, multiple repeated percolation of the raw material (repercolation) is used. The most effective way to obtain the extract was the method of fractional maceration with ultrasound, which consists of extracting the rhizomes and roots of madder in a ratio of raw material and extractant (alcohol) of 1:5. The extractant was divided into 4 parts and the raw material was successively infused in each part, the total infusion time was 2 days. Successive changes of the extractant allowed the raw material to be depleted as much as possible. Then, extraction was carried out for 30 minutes in a water bath, 15 minutes using ultrasound, and the extract was filtered. This method showed the highest yield of anthracene derivatives compared to other methods of obtaining the extract, which was confirmed by studying the UV spectra of the aqueous extract of madder raw materials in an alkaline-ammonia medium.The content of anthracene derivatives in the tincture of madder obtained by fractional maceration with ultrasound, in terms of ruberitric acid, was 8.7%.