



DETERMINATION OF TECHNOLOGICAL PROPERTIES OF MADDER EXTRACT

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Relevance: Urolithiasis (urolithiasis) is a polyetiologic, polypathognomonic metabolic disorder characterized by the formation of kidney stones. Urolithiasis is common at any age, most often between 20 and 50 years. Urolithiasis accounts for 30-40% of the reasons for hospitalization in urology departments of hospitals. According to the World Health Organization According to the World Health Organization (WHO), herbal medicines constitute a significant portion of production volume. Madder is widely used in Uzbekistan, the Russian Federation, India and China. Rhizomes and roots of madder as the dominant group substances contain anthraquinones, which help prevent stone formation in the kidneys, their destruction in the kidneys, and also remove oxalic, phosphate and other salts.

The purpose of the study. The purpose of the scientific research is to determine the technological properties of madder extract. (*Rubia tinctorum* L.).

Materials and methods: Granulometric (fractional) composition. The determination was carried out by sifting 100.0 g of the substance through a sieve set consisting of 5 sieves with a mesh diameter of 2 mm, 1 mm, 0.5; 0.35 mm and 0.25 mm. The set was hermetically sealed with a casing. The sample was sifted on a vibrating installation with a number of oscillations of 340-360/min for 5 min. The operation was repeated 3 times and the average values of the mass of the substance that passed through a sieve of a certain diameter were calculated. Particle shape and size. The shape and size of the particles were determined on an optical microscope, with a magnification range from 4 to 64 times. Angle of repose. The angle of repose was determined on a special device "Measuring equipment for the angle of repose DF-1-05", corresponding to the national standard of the People's Republic of China GB / T16913-2008. The measuring instrument's funnel is made of stainless steel with a 5 mm diameter opening. Measurements were performed in triplicate (according to the procedure described in OFS.1.4.2.0016.15 "Degree of Powder Flowability" of the State Pharmacopoeia, 14th edition) using a protractor in three planes and expressed as angular degrees. Flowability. Determined using a slope measuring device, according to the procedure described in OFS.1.4.2.0016.15 "Flowability of Powders" of the State Pharmacopoeia of the Russian Federation, 14th edition. This is the time during which a specified mass of a substance passes (flows) through an opening of a given size. Three consecutive measurements were conducted, and the average value, expressed in seconds, was calculated. The measurement was conducted under different conditions: in the first case, a 5 mm diameter funnel was used without vibration; in the second case, the funnel diameter was 10 mm, and the test was conducted on a vibration rig. Residual moisture content was determined using an Elviz-2S moisture analyzer. This instrument features a software module that automates the process of measuring residual moisture in a sample. Before operation, it is set to automatic mode, after which the drying program is launched, which occurs under the influence of an infrared lamp built into the instrument lid. Upon completion of the process, the automatically calculated parameters are displayed on a digital display, calculations are performed, and the alphanumeric indicator displays the measurement results: the percentage moisture content or the percentage dry matter content of the sample. The compressibility of the test substance was



determined using a Hydraulic Press. Compressibility is assessed by the compressive strength of the tablets and is expressed as absolute values (MPa) or as a compressibility coefficient, which is the ratio of the tablet mass to its height. To determine the compressibility coefficient, a sample of 0.4 and 0.6 g of material was pressed in a 10 or 12 mm die, respectively, using a hydraulic press. The resulting tablets were weighed on an analytical balance to determine the tablet mass; the tablet height was determined using a micrometer.

Conclusions: Thus, based on a study of the substance's technological characteristics, the need to introduce excipients into the tablet mass was identified. To obtain the tableted drug, it is advisable to use a preliminary wet granulation method, which will produce high-quality tablets. If the recommendations and production rules are followed, the resulting tablets should meet quality indicators and regulatory requirements.