

**THE BASIS OF THE FORMULATION OF A WATER EXTRACT FROM  
THE HERBAL COLLECTION «DENTA-PHYT»**

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In the creation of medicines the special place occupies the basis of a rational technology. Phytoremedies in the form of collection are used as water extracts that patients can prepare at home. Biologically active substances (BAS) are obtained from the plant cell in the process of extraction influenced by a range of pharmaceutical factors. One of such factors is a reduction stage of the particles of the medicinal plant raw material (MPRM) that is taken into account at the stage of the mix of components of the collection and characterizes the surface extraction. The time of making an infusion and cooling also have a considerable impact on the extraction yield. The aim of the work was to study the impact of pharmaceutical factors such as the extraction regimen and the fineness of powder of the MPRM on the quality of water extracts from the collection «Denta-Phyt» that was assessed according to the dry residue content.

The research was conducted for three fractions of collection an equal content of components but with a different particle diameter. The first fraction included the MPRM particles measuring 1-2 mm, the second one – 2-3 mm, the third one – 3-4 mm. The impact of the extraction regimen was studied by using different time of making the infusion on the boiling water bath and at room temperature. Water extracts were prepared according to the guidelines for making infusions (1:10), taking into account the experimentally determined water saturation coefficient. Twenty variants of the extraction regimen were studied for each fractions of the collection. Making the infusion on the boiling water bath of the particular sample was held at regular intervals in 6.5 min increments of time from 2 to 28 min. For each heating regimen cooling was performed during 15, 30, 45 and 60 min at room temperature and the infusion was filtered by making up a total volume of water extracts through the MPRM with purified water to the proper volume. So, dry residue content was

determined for 60 different variants of infusions of collection with defined values of a reduction stage in infusion regimens described above. Analyzing the obtained results, the largest value of the dry residue for the infusion sample of collection with a reduction stage of the MPRM of 1-2 mm was marked while making the infusion on the boiling water bath during 15 and 21.5 min and cooling during 45 min. For water extracts of the collection «Denta-Phyt» with particle diameters of 2-3 mm it has been established that the time increment of making the infusion till 45 min contributed to the increase of calculated rates of dry residue. It was observed that by increasing the time of cooling at room temperature for more than 45 min there was an insignificant reduction of dry residue content value. This is typical for infusion samples of the collection at different time of making the infusion on the boiling water bath. The maximum values of the dry residue at a fineness of powder of 2-3 mm were obtained for the samples heated during 15 and 21.5 min. According to the obtained data, for water extracts of samples of the collection studied with a fineness of powder of plant components of 3-4 mm similar dependence of dry residue content on the infusion regimen was observed. However, the indicator values studied were lower in comparison with the corresponding values of dry residue in the infusions of collection which contained the particles of a smaller diameter.

It has been established while studying the impact of a fineness of powder of the particles of the collection that the maximum values of dry residue were noted in the process of getting water extracts from the collection, MPRM of which was divided up to the volume of particles of 1-2mm and 2-3 mm. Taking it into account, it is expedient to combine the two fractions in one main fraction (the diameter of particles is 1-3mm). Taking into consideration the obtained results, it has been stated that the most optimal time of making infusions on the boiling water bath was 15 min and cooling at room temperature lasted 45 min. Experimentally defined regimens of getting water extracts from the herbal collection «Denta-Phyt» adjust to the regimens according to the generally accepted technology of making infusions. The experimental study can be used in phytochemical researches as an example of the basis of the formulation of water extracts from MPRM while creating phytomedicines.