The analytical technique of the antioxidant activity measurement of the tincture of roots of *Echinacea purpurea* and tincture of *Echinacea purpurea* flowers extracts was elaborated by DPPH test, namely a volume and dilution of the tincture was selected, rutin was chosen for the calibration curve, and calibration curve was plotted. The calibration curve was constructed in the concentration range of 95 to 305 mg/L of rutin. The equation was $y=0.228x+7.0992$, $R^2=0.9945$.

The remaceration for the roots and flowers gave the following antioxidant activity: 4.4 and 1.4 mg of rutin-equivalents in 1 g of the roots and flowers, respectively. Such a difference can be explained by histological structure of the raw material. The flowers of *Echinacea purpurea* are very hard that can cause difficulties in the extraction of biologically active substances.

Honey in a concentration of 20 % was employed in order to impart a sweet tasteto the oral drops. The tincture of *Monarda fistulosa herb* provides a pleasant specific odour to the oral drops. Special technological features of the development of the oral drops were: obtaining the solution of honey (at elevated temperatures). The mixtures were thoroughly stirred until homogeneous liquid was obtained. The oral drops were packed into containers with a nominal content of 25 ml.

Conclusion. The developed oral drops were greenish liquids with slight turbidity caused by the high concentration of honey, nice strong odour, and a sweet taste.

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RATIONALE OF DEVELOPING A SOLID DISPERSION TO CREATE A GEL WITH NITROFURAL AT A CONCENTRATION OF 0.02 %

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Introduction. Based on the literature, one of the most promising methods to increase solubility is the formation of a solid dispersion. Solid dispersions are systems of two or more components consisting of the active substance and the carrier; represent a highly dispersed solid phase of the active substance or molecularly dispersed solid solutions with partial formation of complexes of variable composition with the carrier material. The solid dispersion method is used for the active substance with a strong crystalline structure and poor wetting properties.

In addition to increasing the solubility, the use of the active substance in combination with a polymer carrier solid dispersion allows to optimize the release of the active substance from the dosage form, which enhances the therapeutic effect of

the active substance by increasing solubility and dissolution rate; slow down or modify the release of the active substance.

Aim of the research to develope a solid dispersion to create a gel with nitrofural at a concentration of 0.02 %.

Materials and methods. In the analysis of the literature data, it was found that to improve the biopharmaceutical properties in the creation of a solid dispersion, polyvinylpyrrolidone and polyethylene glycol with different molecular weights are most often used as carrier polymers.

Obtained results. In the proposed technology of obtaining gels of the active substance with the polymer is introduced into the soft dosage form in the form of an aqueous or water–alcohol solution (in the case of polyvinylpyrrolidone–10000 ± 2000) or in the form of a solution in polyethylene glycol–400. The peculiarity of the developed technology is the lack of solid dispersion as an intermediate product, which requires the introduction of additional methods of quality control at the intermediate technological stage of production.

The concentration of nitrofural in the drugs presented on the modern pharmaceutical market based on nitrofural is primarily due to its low solubility in water (1: 4200). Aqueous solutions of nitrofural for external use are used in a concentration of 0.02 %. Analysis of the literature indicates that the active substance in this concentration shows the required therapeutic efficacy. Based on this, a series of gel formulations with a solid dispersion of nitrofural with an active substance concentration of 0.02 % was developed using different combinations of excipients. The low solubility of nitrofural limits its use in the form of an aqueous solution and the introduction of soft water–soluble dosage forms by type of solution in a concentration of more than 0.02 %.

Conclusions. Based on these results, it was decided to develop the composition and technology of the gel from a solid dispersion of nitrofural with a concentration of active substance in a dosage form of 0.02 %. The use of a solid dispersion of nitrofural allows to increase the concentration of the active substance in the gels to 0.02 %, which increases the therapeutic effect of the drug.

STUDY OF ULTRASONIC EXTRACTION OF CORN COLUMNS WITH STIGMAS

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Introduction. Herbal extracts are commonly used both directly in both medicines and to create new medicines. Extracing of biologically active substances from plant materials into the extractant is the main stage of obtaining extracts. One of the promising methods is the use of ultrasound. This is a modern, highly efficient, cost–