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**PHYSICAL, CHEMICAL AND PHARMACOTECHNOLOGICAL
RESEARCH OF MATRIX TINCTURE CAPSICUM ANNUUM**

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Introduction. The high interest of practical medicine in the homeopathic method of treatment, which has received official recognition and distribution in our country, encourages further work in this direction by specialists and scientists [6].

According to the Law of Ukraine "On Medicines", homeopathic medicines have the status of medicinal products and are entered into the Register as a separate pharmacotherapeutic group. Traditionally, most of them are produced in specialized pharmacies in the form of extemporal dosage forms. In addition, a wide range of homeopathic medicines produces a number of domestic manufacturers [1, 6].

It should be noted that homeopathic medicines are made from basic preparations (stocks) - substances, products or preparations that are usually for raw materials of plant, animal or human origin - matrix tincture or glycerol macerate; for raw materials of chemical or mineral origin - the substance itself.

Thus, basic preparations are used as starting materials for the production of homeopathic drugs, therefore, much of the attention in the homeopathic pharmacopoeia of various countries of the world is paid to the technology of their preparation and quality control [1, 4, 5].

Purpose of the study. The aim of the study was to develop the composition and technology of the matrix tincture and granules based on it from medicinal plant materials *Capsicum annuum*.

Research methods. In Ukraine, the production of homeopathic medicines is carried out according to the State Pharmacopeia of Ukraine, which contains only general articles. Due to the lack of monographs on individual homeopathic medicines in State Pharmacopeia of Ukraine, it is temporarily allowed to use the guidance of Dr. Wilmar Schwabe and the German Homeopathic Pharmacopeia [7, 8].

In accordance with the guidance of Dr. V. Schwabe, which is traditionally used in Ukraine in the production of homeopathic medicines, and the German Homeopathic Pharmacopoeia, dried fruits with seeds are used to make homeopathic medicines from the *Capsicum annuum* medicinal plant [2, 3, 7, 8].

The starting materials for the production of State Pharmacopeia of Ukraine from raw materials of plant origin are usually matrix tincture. It must meet the requirements of the article "Matrix tinctures for homeopathic medicines" and other applicable regulatory documents. Usually they are evaluated on the basis of general quality indicators: description, relative density, pH of the medium, dry residue and alcohol content [2, 3].

Main results. According to the State Pharmacopeia of Ukraine, fruits and seeds are crushed to a particle size of up to 0.5 mm. But for each type of plant raw materials an optimal degree of grinding should be established, which will ensure the

completeness and speed of extraction of active substances.

In order to substantiate the degree of grinding of raw materials, we have made 3 samples of the matrix tincture “Capsicum annum” tincture with different particle sizes:

Sample 1 - particle size of green seeds 0.5 mm.

Sample 2 — green seed particle size 5.0 mm.

Sample 3 - not chopped green seeds (~ 1.0 cm).

The organoleptic and physico-chemical properties of the matrix “Capsicum annum” tincture are investigated according to the methods given in Table 1.

Table 1

Physical and chemical indicators of samples of matrix tincture Capsicum annum

Indicators	Sample 1	Sample 2	Sample 3
Colour	yellow– red		
Odor	specific		
Taste	spicy		
Transparency	transparent		
Ethanol content, %	88,91±1,45	88,85±1,38	88,93±1,42
Relative density, ρ_{rel}	0,905±0,002	0,904±0,003	0,904±0,002
Dry residue, %	1,51±0,01	1,49±0,02	1,46±0,01

Note: n = 3; P=95 %

According to the results of the study, it was established that all the samples of the Capsicum annum matrix tincture are a yellow liquid with a specific smell and bitter taste. The content of ethanol in them is in the range of 87–91%, the relative density and the content of extractive substances correspond to the norms of the indicators given in the German Homeopathic Pharmacopoeia and the manual of W. Schwabe and are not significantly different. That is, the degree of grinding of raw materials does not have a big impact on the yield of extractive substances.

Table 2

Matrix tincture Capsicum annum quality indicators

Quality indicators	MT	GHP	V. Schwabe
Colour	yellow-red		
Transparency	transparent		
Taste	baking, spicy		
Smell	specific		
Relative density, g / cm ³	0,832±0,002	-	0,825-0,44
Dry residue,%	2,45±0,02	-	2,1 – 3,25
The alcohol content,%	89,55±1,60	-	-

Note: n=5; «-» – this indicator is not given.

To establish the quality of the obtained matrix tincture “Capsicum annum”, the organoleptic characteristics (color, transparency, smell, taste), relative density, dry residue and alcohol content were determined. The research results are summarized in table 2.

Conclusion.

1. The analysis of the regulatory framework of various countries of the world on the features of the manufacture of homeopathic matrix tinctures was carried out. Identified excellent and common features and concluded that the relevant articles of State Pharmacopeia of Ukraine are harmonized with the European Pharmacopoeia.

2. The influence of the degree of grinding of the dried fruit *Capsicum annuum* on the physical and physico-chemical characteristics of the matrix tincture was studied. It is established that the degree of grinding does not significantly affect such important indicators as dry residue and relative density.

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RESEARCH THE PRICE AVAILABILITY OF DRUGS WITH CODEINE IN PHARMACIES IN DIFFERENT REGIONS OF UKRAINE

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Introduction. Among the problems of our own society is not the most serious problem of drug addiction. In total, there were 250 million ill for drug addicts (4% of the population), 330 deaths per capita.