

SELECTION OF EXCIPIENTS AND STUDY OF THEIR INFLUENCE ON QUALITY INDICATORS OF TABLETS WITH DRY EXTRACT OF CLOVER AND CALENDULA

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Introduction. Cardiovascular diseases, coronary heart disease and stroke, are the leading causes of death and one of the main factors of disability worldwide. In Ukraine, cardiovascular disease is the leading cause of mortality. Our country remains one of the world leaders in this indicator. The occurrence and course of cardiovascular and cerebrovascular diseases are closely related to the presence of risk factors, the main ones being high blood pressure, impaired lipid metabolism, overweight, unhealthy lifestyle (smoking, unhealthy diet, alcohol abuse, lack of physical activity), and environmental factors (psycho-emotional stress, harmful environment at work and at home). Some studies show that the risk of heart disease is higher among groups of people who have more than one of these risk factors (e.g., sedentary smokers). When choosing preventive herbal medicines, patients are guided by their own preferences, experience, pharmacists' advice, advertising, etc. We chose dry clover and calendula extract as the active ingredient.

The aim of the study. The primary objective of the master's thesis is to study the physicochemical and pharmacotechnological properties of dry clover and calendula extract, substantiate the composition and technology of tablets, and determine the effect of excipients on the quality of tablets.

Research methods. To solve the tasks, physical, chemical and pharmacotechnological studies were used, namely:

- methods for determining fluidity, bulk density, angle of natural slope, pressability of powders and pressing force, resistance of tablets to crushing, disintegration.

- methods for determining the average weight and abrasion resistance.

Main results. Clover roots, leaves and flowers are saturated with essential oils and contain a considerable number of organic acids (coumaric, salicylic, ketoglutaric), vitamins (groups A, B, B1, C, K and E), tannins, fiber, protein, macro- and microelements (chromium, selenium, iron, phosphorus, magnesium, calcium, etc.). The green mass and flowers of clover include proteins, tannins, many flavonoids, carotenoids, as well as furfural, xanthine, tyrosine, asparagine, and other useful substances. Clover increases the level of healthy HDL cholesterol, thins the blood, and has a protective and strengthening effect on the cardiovascular system.

Purified water was chosen as the solvent for the dry extract. Carbomer 971 NF, Na-CMC, CMC, agar-agar, carbomer, xanthan gum, apple pectin and their combinations were used as gelling agents. Sorbic acid was used as a preservative. Experimental samples were prepared, and their structural and mechanical properties were studied. Na-CMC was chosen as a gelling agent. Flavor corrigents (fructose, sodium saccharinate, stevia extract, sucralose) and flavorings (raspberry, banana and cherry) were used to improve taste characteristics. The research allowed us to choose sucralose at a concentration of 0.15% and banana flavoring as a flavor corrigent.

Conclusions. As a result of technological studies, the shape and particle size of dry clover and calendula extract were studied. The physicochemical and pharmacotechnological properties of the substance and the kinetics of moisture absorption were studied. The results of the study made it possible to predict the possibility of using the direct pressing method in the production of tablets.

Excipients were selected as the most used in direct pressing. The concentration of each component was selected experimentally and the effect of each excipient on the quality of tablets was studied.

AEROSIL® 200 Pharma was chosen as a moisture-absorbing agent in the amount of 1%. The amount of aerosil is sufficient to obtain a fluid mass. The method of obtaining tablets - direct pressing - was substantiated, the technology of their production was developed, and the corresponding technological scheme was drawn up.