

## PHARMACO-TECHNOLOGICAL STUDIES IN THE DESIGN OF SUBLINGUAL TABLETS

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**Introduction.** Stress is a physiological response that mobilizes body reserves and prepares it for physical activity such resistance, struggle. There is a positive and negative stress. The consequences of the latter cause various systemic diseases (coronary heart disease, atherosclerosis, memory impairment, insomnia, etc.). Almost three quarters of adults (74%) claim that they experienced at least one symptom of stress over the past year. After conducting marketing research on the pharmaceutical market in Ukraine, it was determined that the creation of a new combined drug in the form of pills for therapy and prevention of stress conditions is a promising direction.

**Aim.** The aim of the research was to study pharmaco-technological properties of active pharmaceutical ingredients and their mixtures.

**Materials and methods.** Pharmaco-technological studies (flowability, angle of repose) of substances samples was carried out. Flowability was determined on the VP-12A device by measuring the sample leakage time of the powder (100.0 g). Determination of granulometric composition was carried out using a set of sieves according to the requirements of the SPHU. Magnesium citrate, glycine, as well as their mixture were selected as research objects.

**Results.** Determination of the flowability and the angle of repose were carried out using the methods of the SPHU. According to the results, the angle of the repose of magnesium citrate is 36 degrees, which is a satisfactory value, glycine is 50 degrees, which is an unsatisfactory indicator and it requires the use of a vibration dam, and the active pharmaceutical ingredients (API) mixture has the angle of the repose 44 degrees, but during the experiment sometimes we observed the hang of the mixture.

The results of the sieve analysis indicate that glycine is almost evenly distributed between sieves No. 0.5 and No. 0.1 and completely sifted through the latter. Magnesium citrate, in the amount from 0.08% to 0.52%, remains on screens No. 3 – No. 0.1. At that, 98.47% of the substance is completely sifted through the sieve No. 0.1.

**Conclusions.** The results of the studies showed low flowability of the mixture of magnesium citrate and glycine, and the uneven size of the API particles, which makes it impossible to use the method of direct compression for tablets and requires the use of auxiliary substances.

## OBTAINING AND RESEARCH OF NICOTINIC ACID DERIVATIVES

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**Introduction.** As aging involves oxidant injury, we examined the role of the recently described Na/K-ATPase oxidant amplification loop (NKAL). First, C57Bl6 old mice were given a western diet to stimulate oxidant injury or pNaKtide to antagonize. The western diet accelerated functional and morphological evidence for aging whereas attenuated these changes. Next, human dermal fibroblasts (HDFs) were exposed to different types of oxidant stress *in vitro* each of which increased expression of senescence markers, cell-injury, and apoptosis as well as stimulated. Further stimulation with ouabain augmented cellular senescence whereas treatment attenuated it. Although N-Acetyl Cysteine and Vitamin E also ameliorated overall oxidant stress to a similar degree as pNaKtide, the pNaKtide produced protection against senescence that was substantially greater than that seen with either antioxidant. In particular, appeared to specifically ameliorate nuclear oxidant stress to a greater degree. These data demonstrate that the NKAL is intimately involved in the aging process and may serve as a target for anti-aging interventions.

**Aim.** With this medicine, people will live up to 120 years.