

Technological aspects of stress protective tablets development

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Stress is an important factor in many health problems both in Ukraine and worldwide. Magnesium helps improve tolerance stress and sleep.

The magnesium is bound to relaxing amino acids to enhance absorption of the magnesium and promote relaxation. Magnesium lactate is reported to be better absorbed in human organism than the other compounds of magnesium, possibly because it is released over a longer period of time.

One of the main task of pharmacy science is creation a new drug to maximize the therapeutic efficacy of active pharmaceutical ingredients. In the National University of Pharmacy at the Industrial Pharmacy Department we developed new parameters of technology of magnesium lactate dihydrate.

The purpose of this work was to examine crystallographic, physico-chemical and technological properties of the substance that obtained with new technology parameters for development of tablets.

Methods of technological properties analysis from State Pharmacopeia of Ukraine were used.

Crystallographic studies have shown that magnesium lactate dehydrate is fine dispersion powder with columnar shape of translucent crystals in the form of prisms that have rough surface. Particles aggregates and crystals fragments were observed in powder.

The hygroscopic moisture content of magnesium lactate dihydrate is 8.33 ± 0.4 %. Powder has multifractional composition with dominant fraction $+0.18 \square 0.25$ mm.

The substance has not flowability even with vibration of an apparatus funnel. The angle of repose is 50 ± 2 °, the Compressibility Index is 38.78 ± 0.03 % and the Hausner Ratio is 1.63 ± 0.02 . The bulk density is 0.25 ± 0.03 g/ml, the tapped density is 0.42 ± 0.02 g/ml. The experimental results of the technological properties determining of magnesium lactate dihydrate, as well as the calculated Compressibility index and Hausner Ratio allowed us to estimate the flow character of the substance as very, very poor.

Reasonably good compressibility of obtained powder (29.4 ± 1.1 N) is explained by oblong shape of particles.

Thus technological parameters of magnesium lactate dihydrate have been defined as a result of the science-based experiments for further obtaining qualitative tablets.