

EFFECTS OF QUALITATIVE AND QUANTITATIVE COMPOSITION OF EXCIPIENTS, RESIDUAL MOISTURE AND PRODUCTION TECHNOLOGY ON THE MECHANICAL (CRASING) STRENGTH OF MAGNESIUM LACTATE DIHYDRATE TABLETS

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Introduction. Magnesium commonly used in pharmacy. It appears to be a cofactor for more than 325 enzymes of body. Nowadays 15 pharmacological effects of the Magnesium are known, and one of them is stress-protective action.

We have established that in pharmaceutical market of Ukraine are registered 93 drugs containing magnesium with different pharmacological profile. Magnicum, Magne-B₆ and Magvit which have stress-protective effect were chosen for our research as a comparator drugs that contains magnesium lactate dihydrate as an active ingredient, and a variety of binder excipients such as polyvinyl alcohol, gums, carboxypolymethylene.

However, the above-mentioned drugs have been produced by the technology by the end of the 20th and the beginning of the 21th century.

Aim. To develop a technology to produce tablets using binders that can interact more effectively with active ingredient in order to increase mechanical strength of tablets.

Materials and methods. To achieve this goal were used different modifications of polyvinylpyrrolidone (PVP): Kollidon K-25, Kollidon K-90, Plasdon S-630. Also we experimented with different PVP content in tablet from 0,0175 g to 0,03 g, and residual moisture content between 3.20% and 8.96% after drying. Finally, technologies of wet and dry granulations were compared.

The residual moisture content was determined by heating at 105 °C (Sartorius MA150), the mechanical properties were analyzed using a tablet hardness machine (PTB 311E).

Results and discussions. Best results were obtained with Plasdon S-630. We found that mechanical strength of tablets is proportional to PVP content, and inversely proportional to residual moisture. The use of wet or dry granulations showed no significant difference between them.

These parameters are important for a tablet coating process.

Conclusions. According to the results of the experimental work we have optimized the composition and technology parameters for magnesium lactate dihydrate tablets: quality of binders, their amount and the residual moisture of tablet mass.