DETERMINATION OF PHYSICAL AND CHEMICAL PROPERTIES OF THE SOLID DOSAGE FORM COMPONENTS WITH ANTICONVULSANT ACTIVITY

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Introduction. Development of tablets always starts with the study of the properties of the basic drugs, which largely determine a rational way of tableting and selection of assortment and quantity of auxiliary substances.

For the substantiation composition of the developed tablets at the first stage was necessary to conduct study the properties of the obtained substance samples. We studied the following parameters: organoleptic - appearance, color and odor; physical and chemical - form of particles, solubility, residual moisture; technological - microscopic and sieve analysis, fractional composition, bulk density and bulk volume, flowability, pressing, ability to shrinkage, strength of tablet model.

Objects and research methods. The objects of research were chosen 1. MCC-101, 2. Magnesium hydroxide, 3. Sodium starch glycolate 4. Carbamazepine, 5. Gelatin. Technological research conducted according to methodology of SPU 1 edition.

Results and their discussion. At the first stage of work was conducted research of the physico-chemical and technological properties of active ingredients. We have been studied solubility for predicting biopharmaceutical characteristics tablets developed. Was studied solubility of the samples in these solvents a) water, b) sodium hydroxide NaOH 0.1 M and in hydrochloric acid 0.1 M HCl. It was determined that all samples are soluble in all taken solvents and increase in volume, ie slightly swell.

The nature of the surface of the particles also essentially influences technological properties: the more complex surface of powder particles, the more connectivity and less flowability and vice versa. Therefore, we have studied the microscopic indicators of the substances. In the analysis of the photographs detected heterogeneous by size mixture of particles that requires study of the fractional composition and predicts the using wet granulation.

The next step was to study the properties of the auxiliary substances. Organoleptic properties of auxiliary substances that are proposed for introduction in composition of tablets are studied visually. Results of the study of organoleptic properties of the studied samples are presented in Table 1.

Table 1

Organoleptic properties of the studied powders

№, Substance	Characteristic
1. MCC-101	The white crystalline powder, tasteless and odorless.
2. Magnesium hydroxide	Finely dispersed white odorless powder, crystals of which have a cubic crystal lattice
3. Sodium starch glycolate	White, free flowing powder tasteless and odorless
4. Carbamazepine	White or almost white crystalline powder, practically insoluble in water, soluble in methylenechloride, sparingly soluble in acetone and alcohol
5. Gelatin	Dry gelatin - amorphous, fragile, colorless or pale yellow substance tasteless and odorless.

For tableting are also important the chemical properties as the presence of crystallization water, wetting and water absorption, the residual moisture.

From the table data seen that the value of residual moisture allows to tablet the researched mixtures (samples 5 – 4.0% and 6 – 3.70%) without pre-drying and stored without special conditions. The value of residual moisture of samples 2 (4.80%) and 3 (5.00%) is at the upper limit of the optimum value and requires correlation.

Conclusion. Were identified physicochemical properties of the components of solid dosage forms with anti seizure activity. Established that all samples have good solubility, gelatin has the ability to swell. According to microscopic research has established that the mixture for tableting requires study of the fractional composition. Established, that for conducting rational technological process is appropriate to use a wet granulation.