ABSTRACT

The theoretical part of thesis provides information on the biopharmaceutical classification system of drugs and its context in the research and development of pharmaceuticals. The methods used to increase the solubility and acceleration including electrospinning are presented.

The experimental part is the pilot study on the evaluation of conditions suitable for dissolution testing of newly prepared nanofibers made from polyvinylpyrrolidone membranes with a high content (up to 35 per cent) gatrin as a substance poorly soluble in aqueous vehicles.

The parameters of determination of gatrin by HPLC using C18 sorbent and a mobile phase of acetonitrile: phosphate buffer pH 8 were preliminarily evaluated as perfectly applicable to vehicle type-phosphate buffer pH 6.0. The same conditions were found to be in a severe collision with a polymer material of nanofibrous membrane during the dissolution evaluation or with acetonitrile in the mobile phase, an accurate determination of gatrin was not obtained in this case.

These findings lead to the proposal to change the formulation of the nanofiber membranes using polymer different from polyvinylpyrrolidone (eg. hydroxypropylcellulose) or the replacement of acetonitrile for methanol at the mobile phase for HPLC.

However, in all cases, all the analytically available amount of gatrin was always determined within 10 to 12 minutes from the start of the dissolution test. It can be considered suitable for oral as well as some types of mucosal dosage forms.