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Effect of Different Parameters in the Preparation of Antidiabetic Microparticules by Coacervation

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Abstract : During recent years, new pharmaceutical dosage forms were developed in the research laboratories and which consists of encapsulating one or more active molecules in a polymeric envelope. Several techniques of encapsulation allow obtaining the microparticles or the nanoparticles containing one or several polymers. In the industry, microencapsulation is implemented to fill the following objectives: to ensure protection, the compatibility and the stabilization of an active matter in a formulation, to carry out an adapted working, to improve the presentation of a product, to mask a taste or an odor, to modify and control the profile of release of an active matter to obtain, for example, prolonged or started effect. To this end, we focus ourselves on the encapsulation of the antidiabetic. It is an oral hypoglycemic agent belonging to the second generation of sulfonylurea's commonly employed in the treatment of type II non-insulin-dependent diabetes in order to improve profile them dissolution. Our choice was made on the technique of encapsulation by complex coacervation with two types of polymers (gelatin and the gum Arabic) which is a physicochemical process. Several parameters were studied at the time of the formulation of the microparticles and the nanoparticles: temperature, pH, ratio of polymers etc. The microparticles and the nanoparticles obtained were characterized by microscopy, laser granulometry, FTIR and UV-visible spectrophotometry. The profile of dissolution obtained for the microparticles showed an improvement of the kinetics of dissolution compared to that obtained for the active ingredient.

Keywords : coacervation, gum Arabic, microencapsulation, gelatin
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