

## Immobilization of proteinases of proteolytic complex of hepatopancreas of crab on some polysaccharides: production, properties, application

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### Abstract

The problem of creation of new wound dressing materials with complex therapeutic action is one of the most relevant problems in modern medicine. Such wound care materials can be designed as a dressing based on natural biodegradable polymers containing immobilized enzymes and other therapeutic compounds. These materials should possess a number of necessary properties, among which the main are the possibility of cleansing a wound surface from purulent-necrotic masses and exudates and of inhibition pathogenic microflora. Advantages of immobilized forms of enzymes over the native ones are well-known, the most important of them are increasing stability and reducing the immunological and allergic reactions by reducing the ability of modified enzymes to stimulate the formation of antibodies and react with them. In this paper we studied the kinetics of interaction between cellulose, dialdehyde cellulose and chitosan with solution of proteolytic complex from hepato pancreas of crab (PC). We stated that the whole interaction between proteolytic complex with named above polysaccharide carriers occurs within one first hour. This research also includes the studying of effect of cellulose carrier and way of production of our materials on effective constants of inactivation rate during immobilization, drying and storing of immobilized materials. It was shown that chitosan stabilizes immobilized forms of PC when storing. We also studied an interaction between chitosan solution and various enzymes; properties of proteinases of PC immobilized on modified cellulose carriers. On the example of treatment of purulent wounds in rats we showed that treatment with immobilized drugs can be more effectively in comparison to unmodified; and also that multienzyme preparations of proteinases stimulates a more rapid healing compared to monoenzyme preparations.

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