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Synthesis and study of the properties of chitosan-containing materials including proteases and various therapeutic agents. Part 5. The effect of chitosan on the preservation of the enzymatic activities of polyenzyme preparations during production and operation

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Abstract

One of the directions in the development of medical biotechnology is the development and introduction into medical practice of new highly effective drugs for the treatment and prevention of wound healing based on biopolymers. Selective accumulation of the drug in the lesion focus allows solving several problems at the same time: increasing the effectiveness of the drug, reducing its consumption, eliminating the undesirable effect of the drug on healthy organs and tissues. One of the problems in the modification of a therapeutic agent with a polymer is the possible loss of biological activity immediately after modification, or during storage, or during operation (liquid medium, pH and temperature 37 °C).

An important aspect in the use of polymers as drug delivery systems is their place in human metabolism or biodegradability. Polysaccharides are widely used as drug carriers. At present, all over the world, there is an increase in the interest of specialists in preparations based on chitin.

The most important derivative of chitin is chitosan, which, unlike chitin, is soluble in dilute acids, which expands the possibilities of its practical application for practical use. Due to its chemical nature, chitosan is capable of various types of interactions with the formation of 4 main types of bonds. Therefore when chitosan in a cationic form is added to aqueous solutions (dispersions) of mineral, organic, or living objects, depending on the concentration, either flocculation or stabilization of particles occurs in an aqueous medium.

The work studied the effect of cysteine, glucose, glucosamine, *N*-acetyl glucosamine and chitosan on the preservation of the enzymatic activity of proteases in the process of

obtaining composites. The multidirectional effects of the studied factors on the enzymatic activities of the investigated proteases were established.

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