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Prolonged biomedical materials based on modified cellulose

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Abstract

The development of targeted drug delivery systems to the affected body is currently one of the most promising areas of development of systems with controlled release of the active substance. In this case, the most important property of such dressings for wound healing, as already noted, is their biodegradability without the formation of toxic decomposition products. The study of the kinetics of degradation of the created therapeutic systems, as well as the analysis of the compounds formed in this process, is one of the main stages in the development of wound healing coatings, not only justifying the safety of the use of the compositions, but also explaining the principle of their work on the wound. The process of destruction of both cellulosic carriers and the finished therapeutic compositions based on them, as well as the dynamics of changes in their basic properties over time (composition, hydrodynamic radius, zetta potential, enzymatic and antioxidant activity of the preparations) were studied. Based on the literature and experimental data, it is concluded that chitosan stabilizes both immobilized hydrolases and oxidized cellulosic carrier. During the storage of immobilized drugs, solid-phase modification of chitosan-containing derivatives takes place. The scheme of the structure of immobilized drugs is proposed. On the basis of the received and literary data it is possible to assume the mechanism of action of the preparations resulted in work. At the first stage, desorption of mechanically involved and weakly bound drugs takes place. Then the drugs bound by chemical bonds are desorbed (as a result of dissociation or rupture of the bond), and the last to come out preparations after hydrolytic destruction of polysaccharide compositions.

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