Biotechnologia Acta V. 8, No 3, 2015

DOI: 10.15407/biotech8.03.104
P. 104-109, Bibliography 18, English
Universal Decimal Classification: 577.15 (088.8)
MUCOADHESIVE GEL WITH IMMOBILIZED LYSOZYME: PREPARATION AND PROPERTIES

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The study of non-covalent immobilized lysozyme, as well as physico-chemical and biochemical properties of obtained mucoadhesive gel was the aim of the research. Lysozyme activity was determined by bacteriolytic method (Micrococcus lysodeikticus cells acetone powder was a substrate). Lysozyme immobilization was conducted by the method of entrapment in gel. Enzyme carrier interaction was studied by viscometric, spectrophotometric and spectrofluorimetric methods. Mucoadhesive gel with immobilized lysozyme, possessing antiinflammatory and antimicrobial activities, was prepared. Due to immobilization, protein-polymer complex with the original enzymatic activity was formed. The product is characterized by high mucoadhesive properties, quantitative retaining of protein and bacteriolytic activity, prolonged release of the enzyme, improved biochemical characteristics (extended pH-activity profile, stability in acidic medium and during storage for 2 years), and it is perspective for further studies. The proposed method for lysozyme immobilization in the carboxymethyl cellulose sodium salt gel allows to obtain a stable, highly efficient product, with high adhesive properties for attachment to the mucous membranes, that is promising for use in biomedicine.

Key words: lysozyme, immobilization, mucoadhesive gel.

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