

POLYVINYL (ALCOHOL) GEL SYSTEMS **POLIVINILSPIRTA GĒLA SISTĒMAS**

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Kopsavilkums: Pētījumu priekšmets ir pārsienamie materiāli no polivinilspirta (PVS), to izgatavošanas tehnoloģija, kas pamatojas uz daudzkārtēju PVS ūdens šķīdumu saldēšanu – atkausēšanu, kā arī zāļu izdalīšanās kinētikas izvērtēšana. Analizēti kritēriji, kuriem jāatbilst polimēru materiāliem, kas pretendē izmantošanu medicīnā kā pārsēji: nekaitīgums, sterilitāte, savietojamība ar polimērmaticās ievadītajiem preparātiem un terapeitiskais efekts ārstniecisko vielu izdalīšanās rezultātā. Aplūkotas šo kritēriju izvērtēšanas potenciālās metodes.

The main objective of the present work is to develop original active therapeutic substances (TS) containing polymer systems which provide efficient and controllable transport of TS to the target place of the body and ensure the necessary life of material.

Broad introduction of new TS into the market is connected with necessity to develop adaptable TS delivery systems which are able to realize correctly their functions without undesirable side effects.

Suitable and perspective controllable release systems can be developed on the base of biomaterials combined with TS. Structure features of these biomaterials insure the release of TS from matrix material in definite time and way.

One example of controlled-release drug delivery systems is TS containing wound dressings.

The antiseptic dressing must satisfy definite criteria: harmlessness, sterility, biocompatibility with therapeutic substances and therapeutically effect as a result of releasing of the active agents.

In the research work the heterogeneous composites (mainly, reinforced systems) have been elaborated. The both components of systems (matrix and reinforcement) are made from environmentally friendly, ecologically safe, renewable, natural source materials (starch, cellulose etc). The interconnection between the necessary quality criteria of composites and nature of selected base materials and their relations (concentration and kind of active ingredients, interaction of components) is being clarified.

Study focuses on the elaboration of the composite dressing materials from poly(vinyl alcohol) hydrogels obtained by multiple freezing-thawing method. This method allows obtain systems without use of solvents or crosslinking agents, which may be harmful to a human. The absorption ability and swelling degree of used polymer systems was determined.

Some important characteristics of dressings, such as adhesion ability, important for preservation of undamaged epithelium cells, prevention of infection, and promotion of spontaneous epithelisation assuring decrease of patient pain during the change of dressings as well as TS release kinetics were studied.

Research methods for characterization of some significant functions of wound dressings: absorption of exudation, optimal water, oxygen and heat exchange between the wound and the atmosphere etc. are in stage of development.

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