Biomedical coatings based on chitosan

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Nowadays, scientists are focused on the preparation of innovative materials that find application in such areas as bone surgery, regenerative medicine and implantology. Materials such as metal alloys are widely used. However, it is necessary to form additional coatings on such alloys to improve their physicochemical and biological properties. Therefore the main aim of the presented studies is to develop biomedical coating based on chitosan which is currently one of the leading polysaccharide on the polymer market. This results from its properties such as biodegradability, biocompatibility or antimicrobial activity. As result, this polysaccharide finds application in a wide variety of areas such as medicine and relative fields.

Methodology of the preparation of the mentioned chitosan coating involves photopolymerization. Reaction mixture consisting of chitosan, other polymers (e.g. gelatin), crosslinking agent and photoinitiator. Additionally, other additives may be added to the reaction mixture to provide the material with additional desired properties. Obtained chitosan based polymer coating may be subsequently used as coating for metal alloys used for biomedical purposes.

The combination of chitosan coating with metal alloy (e.g. titanium) allows to obtain materials with high application potential in the fields of medicine and implantology. Thus obtained materials are characterized by good mechanical properties and biocompatibility that guarantee their multidirectional operation.

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