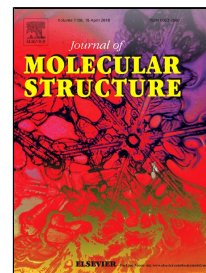


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Structure of chitosan thermosensitive gels containing graphene oxide

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## Structure of chitosan thermosensitive gels containing graphene oxide

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### Abstract

The supramolecular hydrogels of chitosan and graphene oxide (GO) have been prepared at temperature of the human body, by controlling the concentration of GO and ratio of chitosan to GO. During the preparation of gels the sodium  $\beta$ -glycerophosphate (Na- $\beta$ -GP) was used as a neutralizing agent. The structure of obtained gels was determined on the basis of FTIR spectra and XRD diffraction patterns. The results of structural studies have been referenced to gels without graphene oxide. It was found that the gels crystalline structure after the addition of GO does not change. The XRD diffraction patterns are characterized by a number of peaks associated with precipitated NaCl during drying and presence of sodium  $\beta$ -glycerophosphate.

### Keywords:

Chitosan, Hydrogel, Graphene oxide (GO)

## 1. Introduction

Carbon nanostructures such as graphene and graphene oxide are widely tested in biomedical areas, including biomedical engineering. According to the research presented in the literature, graphene due to its structure (sharp edges) can have negative effects on living cells, while in biomedical research biocompatible form containing OH groups is most commonly used (graphene oxide and reduced graphene oxide).

In turn, chitosan is one of the most extensively studied natural biodegradable polymers with prospects for future applications. They are widely tested for use as drug carriers of controlled activity, wound dressing and as material for scaffolds.

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