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## **The Use of Irradiation for Production of Oligochitosan Conjugated with Oxide Graphene**

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The use of natural biopolymers has attracted significant attention in biomedical areas, as they are versatile, biocompatible and sustainable, presenting a promising alternative to synthetic materials. Chitosan and its oligomeric forms - oligochitosan - are produced from chitin and have interesting characteristics, such as biocompatibility, biodegradability and potential to interact with different materials, which makes them suitable for various applications, including the development of nanocomposites.

Oligochitosans (OCH) can synthesize nanocomposites with graphene oxide (GO). To this end, in this work, ionizing radiation was used to determine the characteristics of the biopolymer in oligomers, and subsequent functionalization with graphene oxide, obtaining the OCH/GO conjugate, which was characterized and evaluated about its cytotoxicity.

### **Results**

The incorporation of oligochitosan into graphene oxide, forming the nanocomposite, was possible, as demonstrated by the atomic force microscopy image (Fig. 5), and cytotoxicity assay (Fig.6 ) demonstrated good viability for to use the nanocomposite in biological applications.

### **Conclusions**

The results showed that it was possible to synthesize oligochitosans using irradiation and even incorporate them into graphene oxide, thus allowing the material to gain biocompatibility and can be used in various biomedical applications.