

Chitosan as a biomaterial with antimicrobial properties: revalorizing by-products from the food industry

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I. INTRODUCTION & AIM

1 Nowadays, there is an **increasing demand** for the **development of biomaterials** in different industrial sectors, including **biomedicine** and **food industries**.

2 Moreover, **circular economy**, based on the revaluation of by-products produced during the manufacturing of one product and which can serve as raw material for the manufacturing of another, has being promoted at governmental level.

Chitosan has come into focus as a **potential biomaterial** for both **biomedical and food sector**, as it possesses inherent antibacterial and antifungal properties, antioxidant activity, good film-forming abilities, biocompatibility, non-antigenicity, and analgesic, anti-inflammatory and hemostatic activities.

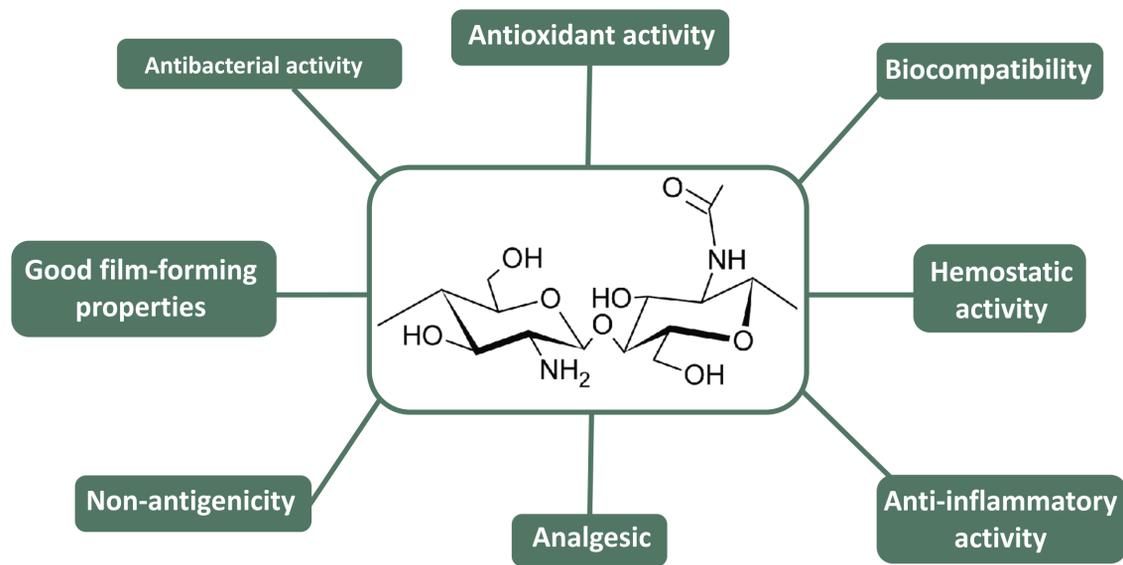


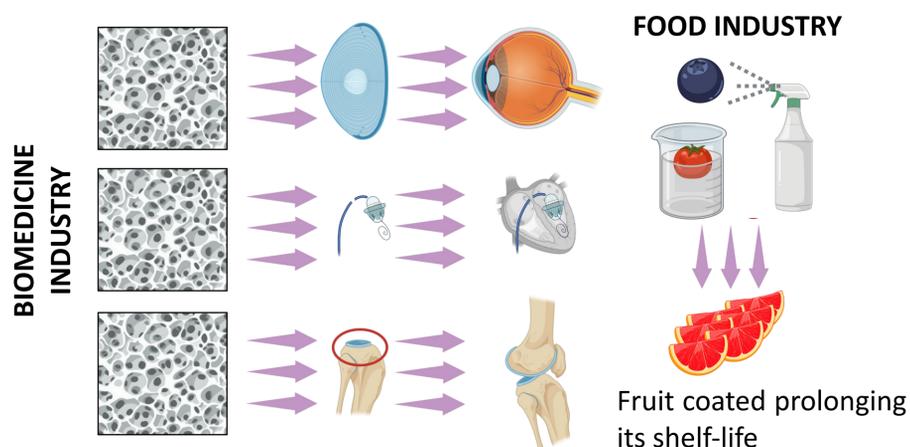
Figure 1. Chemical structure of chitosan and its biological and functional properties

II. RESULTS & DISCUSSION

II.A CHARACTERISTICS OF CHITOSAN

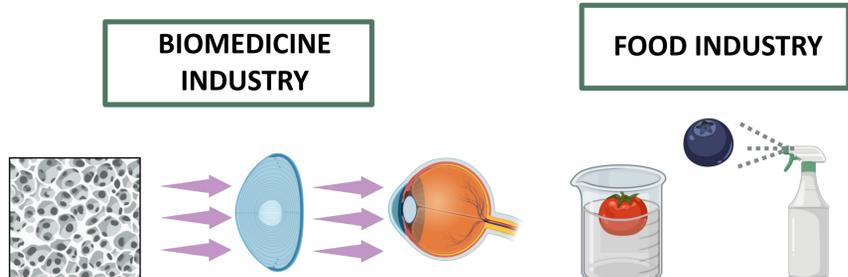
It is a **biodegradable polycationic polysaccharide** which main components are **glucosamine** and **N-acetylglucosamine monomers** disposed randomly and connected by **β-1,4-glycosidic bonds**.

II.C APPLICATIONS OF CHITOSAN AS A BIOMATERIAL



CONCLUSIONS

In conclusion, the formation of antibacterial biomaterials from chitosan has potential application in:



II.B RECOVERY OF CHITOSAN

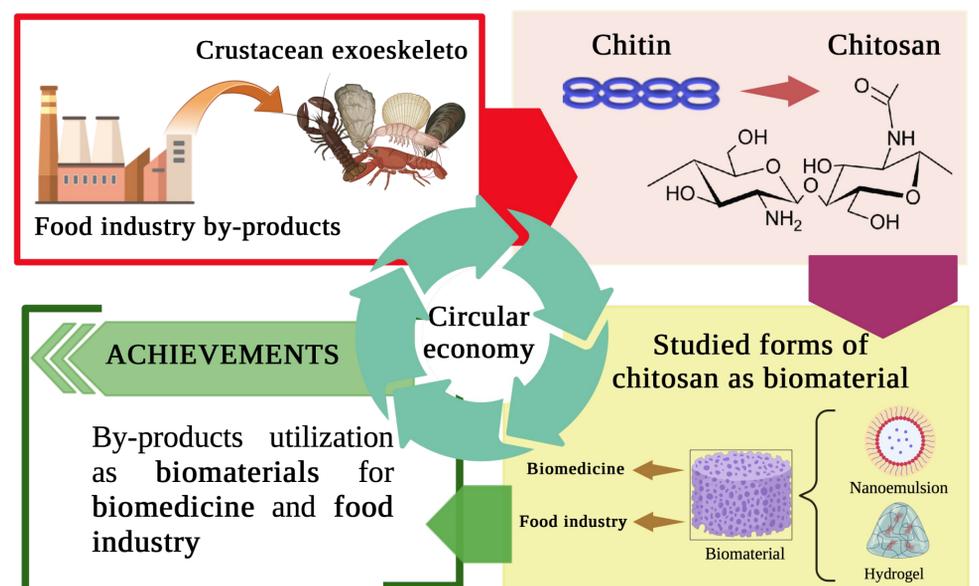


Figure 2. Schematic representation of circular economy of chitosan

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