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# Chitosan partial hydrolysis catalyzed by non-glycosidic enzymes

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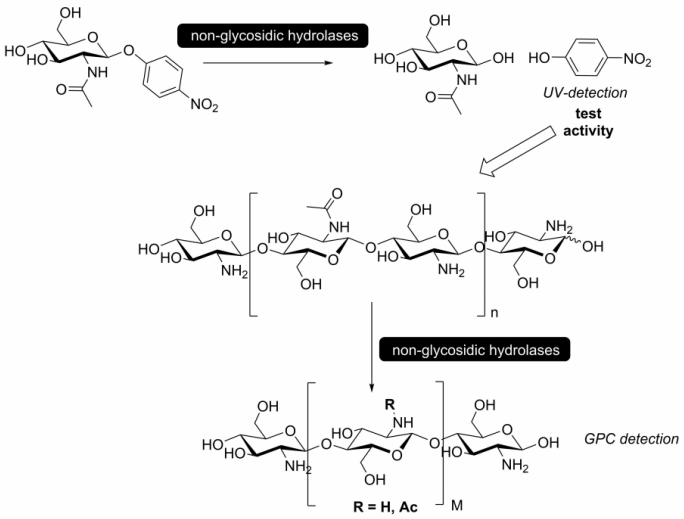
## PURPOSE OF THE ABSTRACT
Chitosan is a versatile biopolymer derived from chitin, which is found in the shells of crustaceans such as shrimp, crab, and lobster. It has gained significant attention in recent years due to its numerous potential applications in various fields, including agriculture, medicine, and food industry [1]. Additionally, chitosan has been shown to have antimicrobial, antifungal, and antioxidant properties, making it a potential natural alternative to synthetic preservatives and antibiotics. These properties are related to a defined structure of chitosans, mainly depending on the chain length (MW) and the acetylation degree (AD) [2].

The industrial use of chitosanases for the generation of chitooligosaccharides possessing controlled MWs and ADs, an usual lab protocol, is impeded by the very high price of these glycosidases, which would make the intensified process unaffordable. In this communication, we will present some results obtained upon the use of different commercial hydrolases applied to the partial hydrolysis of chitosan. The standard substrate 4-Nitrophenyl N-acetyl-β-D-glucosaminide, (NP-GlcNAc) was used to test the promiscuous hydrolysis catalyzed by the non-glycosidic hydrolases, and the results were compared with the activity founded in chitosan hydrolysis, followed by GPC using a dextran calibration curve; MW data were compared to the control chitosan. Reactions without enzyme showed that the observed hydrolysis is solely due to the enzyme since no spontaneous depolymerization of the polymer was observed under the experimental conditions. A detailed report of the resulting products shows the different profile of polymeric fractions obtained.

## FIGURES




## FIGURE 1

## FIGURE 2

Figure 1

General Scheme


## KEYWORDS

chitosan | hydrolases | promiscuity | chitooligosaccharides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