

PS 4 - Characterization of Chitosan Heterooligosaccharides Fractions Obtained with Enzymatic Depolymerization

G. Galed, **B. Miralles**, M. Mengíbar, A. Heras

Instituto de Estudios Biofuncionales/ Dpto. Química Física II. Facultad de Farmacia. Universidad Complutense de Madrid. 28040 Madrid, Spain

It would be of great interest to find a simple and reproducible method to produce low molecular chitosans. Enzymatic depolymerization processes are preferable to chemical reactions because the reaction course as well as the distribution of the products are easy to control due to the higher specificity.

Reaction conditions (enzyme concentration, time of reaction, pH and temperature) for the use of lysozyme (EC 3.2.1.17) and chitosanase from *Streptomyces griseus* (EC 3.2.1.14) to depolymerize chitosan have been selected among various possibilities previously studied. Three chitosans of two different deacetylation degrees and two molecular weights have been used for the preparation of the heterooligosaccharides. The reaction products were submitted to pH precipitation in order to remove the higher molecular weight species and further ultrafiltration with 10 and 3 kDa cellulose acetate membranes. Samples were spray dried and a homogeneous white powder was obtained. The physicochemical characteristics (deacetylation degree and degree of depolymerization) of the different fractions obtained were determined. The degree of depolymerization was measured by viscosimetry and ¹H CP/MAS-NMR spectroscopy, making possible the comparison of one commonly used technique with a newly proposed method.