PP 5 - Oxidative Degradation of Chitosan Using Hydrogen Peroxide

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Factors affecting the depolymerization process of chitosan and the impact of molecular weight on chitosan properties were studied. The depolymerization of chitosan with 92 % deacetylation was conducted by oxidative degradation using two levels of hydrogen peroxide (1.5 % and 3.5 % w/w), for 90 or 180 min. The degradation was monitored by gel permeation chromatography (GPC). Fourier transform infrared (FT-IR) and ^{1}H –NMR spectrum analysis, were used to identify the chitosan structure after depolymerization process. The antimicrobial effect of the depolymerised chitosan were tested against gram positive bacteria, such as *Listeria innocua*, as model strain of listeria monocytogenes.
Different reaction times and hydrogen peroxide concentration gave chitosan with different molecular weights. The degree of deacetylation of the hydrolysis products decreased compared with the initial chitosan without observed modification of bioactive properties.