

Study on Physicochemical Properties of Chitosan and Skin Irritation Test for Chitosan Membranes

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Abstract

The physicochemical properties such as solubility and moisture content of chitosan were determined and the moisture content was found to be 15.0 %. The molecular weight and degree of deacetylation of chitosan were observed as 3.4×10^4 Da and 85 % respectively. Chitosan membranes (chitosan - 1, 2, 3) were prepared by various concentration of chitosan solution (1 %, 1.5 % and 2 %). These membranes were prepared by using casting and solvent evaporating methods. These membranes have smooth surfaces, highly transparent and pale yellow colour. The mechanical properties such as tensile strength, elongation at break and tear strength of these prepared membranes were determined. Based on the mechanical properties of the prepared membranes, chitosan-2 membrane was chosen for further studies. The antimicrobial activities of these membranes were tested by agar well diffusion method. The skin irritation test was conducted by Draize's method. These selected (chitosan-2) membranes indicated that there is no irritation potential in albino rabbit skin.

Keywords: chitosan membranes, mechanical properties, antimicrobial activities, skin irritation test

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