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THE ROLE OF ELECTROSTATIC INTERACTION IN ALGINATE–CHITOSAN POLYELECTROLYTE COMPLEX FORMATION

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Abstract. Polyelectrolyte complexes (PECs) were obtained by mixing aqueous solutions of two polymers carrying opposite charges. Alginate as polyanion and chitosan as a polycation, when dissolved with a ratio of 1:1 and pH of 5.28 approximately, can interact in each other to form polyelectrolyte complex. This study aims to investigate the formation of alginate-chitosan polyelectrolyte. Hence, the analysis of Fourier transform infrared spectroscopy (FTIR), X-ray diffraction (XRD), thermogravimetric analysis (TGA), differential scanning calorimetry (DSC), and scanning electron microscopy (SEM) has been conducted. The results of characterization by FTIR, XRD, TGA, DSC, FTIR, and SEM was confirmed that PEC membrane was formed by electrostatic interaction which generated unique structure and properties and offered for further application such as a matrix for bioassay.

Keywords: alginate, chitosan, polyelectrolyte complex, electrostatic interaction.