Abstract

The mechanism of potassium sorbate (K-sorbate) release from chitosan films was studied as a function of immersion time in aqueous solution. Fick's law was applied to calculate the diffusion coefficient and the power law defining the type of diffusion mechanism. The novelty in this study is the compound diffusion mechanisms comparison through chitosan film (CF) and chitosan emulsion film. Initially, the lipid was selected to obtain the emulsion films. The evaluation was based on the water vapor permeability (WVP). The lower WVP (32.45% less than chitosan film) was found using 0.5 g/100 g of palmitic acid for 2.0 g/100 g of chitosan. Then, active chitosan films (ACF) were obtained incorporating K-sorbate on CF at 0.1 and 0.5 g/100 g of K-sorbate. Also, active palmitic acid-chitosan films (APEF) were obtained, incorporating 0.1 g/100 g of K-sorbate. The mechanisms of K-sorbate diffusion through ACF and APEF were mainly non-Fickian. However, the K-sorbate diffusion coefficient did not reduced in lipid presence.