

EVALUATION OF THE STMP (SODIUM TRIMETAPHOSPHATE) USE AS A CROSSLINK AGENT IN THE PROPERTIES OF A CASHEW AND XANTHAN GUM FILM

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Resumo (Texto Científico) - Máximo 300 palavras | Abstract (Scientific Text) - (Maximum 300 words):

Plant polysaccharides have been used as polymer matrices for the preparation of biodegradable films for food. Crosslinking agents can be used for forming bridge connections between two polysaccharide chains, promoting changes in barrier properties and water solubility. This work aimed to evaluate the influence of the sodium trimetaphosphate (STMP) concentration in the properties of a film prepared with cashew gum (CG) and xanthan gum (XG). The film solution was prepared with modified CG (15% w / v) with STMP (0%, 1%, 3% and 6% w / v), XG (0.5% w / v), glycerol (15% w / v) Tween (0.1% w / v). Films were prepared by cast method, using a stainless steel bar with 1.0 mm as initial thickness in Mylar® plastic sheet and glass plates and dried (24h, 25 °C, 50% RH). The films were evaluated for visual appearance, thickness, opacity, water solubility and permeability to water vapor (WVP). The films showed increased thickness and opacity with increasing STMP concentration, and the film with 6% STMP was the thicker one (0.159 mm), and less transparent (336,73 A.nm). In this study, there was no influence of crosslinking on the solubility of the films, because the presence of glycerol increases the hydrophilic nature of the matrix and its solubility. However, the crosslinked film with 1% STMP showed the lowest WVP (1.80 g.mm/kPa.h.m²) which can be associated with the smallest film thickness as well as the decrease in free volume of the polymer matrix by the presence of crosslinking, which prevents incoming of water vapor in its inner layer. The crosslinking polysaccharides may contribute to the preparation of food films with improved barrier properties.

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