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Production of Pectin-based Edible and Biodegradable Films/Coatings

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Packaging has been an important element in the preservation concepts for providing the appropriate protection to the commodity. Biodegradable and edible films and coatings, which are made from naturally occurring polymers and functional ingredients, and formed on the surface of foods, offer an excellent promise for food protection and preservation. These films/coatings prolong the shelf-life, and improve the quality of fresh, frozen, dehydrated, fried or formulated food products. Films made form natural products are not only inherently biodegradable but also are potentially recyclable. One of the polymers used to develop biodegradable films is pectin. Pectins are a class of complex water-soluble polysaccharides well distributed in the cell walls of higher plant. There are many agricultural sources of pectin that are currently underutilized. In addition its pharmaceutical activities and nutritional benefits for human health, it has good film-making and gel properties. In this study, a series of films with different functional properties were developed using pectin as the basic structural component and sorbitol and beeswax were added to improve flexibility and barrier properties of films; respectively. The effects of pectin, beeswax and sorbitol concentration on water vapor permeability, mechanical properties and opacity of the films were evaluated. Water vapor permeability increased by pectin and sorbitol concentration and was decreased by beeswax concentration. Mechanical properties were mainly affected by pectin and sorbitol concentration. Beeswax was the most influential factor that affected opacity which increased with increasing beeswax concentration.

Keywords: Pectin, edible films/coating ,permeability, tensile stength

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