

Title Effect of materials, plasticizer and lipids on the physical properties of edible films

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Abstract

Introduction: The use of edible films has been increasing in the last years due to functional characteristics such as carriers of antioxidants, nutraceuticals and flavors. The benefits of edible films have been demonstrated for many years, however, the commercial production of edible films have not been as successful as the production on a laboratory scale. Films have been produced using casting, thermal-compression-molding and extrusion. Materials used for edible films formation can be grouped into three categories: Hydrocolloids, lipid compounds and combination of hydrocolloids and lipids. There is a need for new materials that allow to produce films tailored to match a target application. The goal of this study was to determine the effect of different materials on the physical properties of edible effect of different materials on the physical properties of edible film using extrusion. **Materials and Methods:** The materials evaluated included: wheat gluten, ovoalbumin, carrageenan, microcrystalline cellulose, chitosan and casein. Additives tested were: apple fiber, wheat fiber, carnauba wax, safflower oil, sodium carbonate and glycerol as plasticizer (7 different concentrations). Films were obtained using extrusion. Physical properties evaluated were hardness, deformation (texture analyzer) and water vapour permeability. **Results and Discussion:** Wheat fiber at 3 and 2% concentration was the most adequate for lower values could decrease film transparency and it did not affected water vapour permeability. Safflower oil increased water vapour permeability. The best glycerol concentration was 4.5% pH value did not have an effect on permeability.