

Characteristics of Smoked Edible Film Made from Myofibril, Collagen and Carrageenan

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Abstract : In the last 20 years, packaging materials derived from petrochemicals polymers were widely used as packaging materials. This due to various advantages such as flexible, strong, transparent, and the price is relatively cheap. However, the plastic polymer also has various disadvantages, such as the transmission monomer contamination into the material to be packed, and waste is non-biodegradable. Edible film (EF) is an up to date materials, generated after the biodegradable packaging materials. The advantages of the EF materials, is the materials can be eat together with food, and the materials can be applied as a coating materials for a widely kind of foods especially snack foods. The aims of this research are to produce and to analyze the characteristics of smoked EF made from carrageenan, myofibril and collagen of Black Marlin (*Makaira indica*) industrial waste. Smoked EF made with an addition of 0.8 % smoke liquid. Three biopolymers i.e. carrageenan, myofibril, and collagen were used as treatments, and homogenate for 1 hours at speed of 1500 rpm. The analysis carried out on the pH and physical properties i.e. thickness, solubility, tensile strength, % elongation, and water vapor transmission rate (WVTR), as well as on the sensory characteristics of texture i.e. wateriness, firmness, elasticity, hardness, and juiciness of the coated products. The result shown that the higher the concentration the higher the thickness of EF, where as for myofibril proteins appeared higher than carrageenan and collagen. Both of collagen and myofibril shown that concentration of 6% was most soluble, while for carrageenan were in concentration of 2 to 2.5%. For tensile strength, carrageenan was significantly higher than myofibril and collagen; while for elongation, collagen film more elastic than carragenan and myofibril protein. Water vapor transmission rate, shown that myofibril protein film lower than carrageenan and collagen film. From sensory assessment of texture, carrageenan has a high elasticity and juiciness, while collagen and myofibril have a high in firmness and hardness.

Keywords : edible film, collagen, myofibril, carrageenan

Conference Title : ICFSN 2015 : International Conference on Food Science and Nutrition

Conference Location : Paris, France

Conference Dates : August 27-28, 2015