

## ABSTRACT

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### **STUDY ON THE ACTIVE EDIBLE FILM MADE OF SAGO FLOUR AND BLACK CUMIN POWDER WITH GLYCEROL**

Thesis, Faculty of Science and Technology (2018)

(xiv + 80 pages : 4 tables, 32 figures, and 8 appendices)

*Indonesia is the largest producer of Sago flour, which has the ability to be used for the formation of edible film and coating due to the high starch content. Black Cumin is studied for the high antioxidant activity. This research was aimed to develop a study on the physical and mechanical characteristics of the active edible film formed from different formulations of Sago flour and Black Cumin powder with glycerol plasticizer. In general, the higher incorporation of Black Cumin powder (Black Cumin powder to Sago flour ratio of 5:95, 10:90, or 15:85) increased the tensile strength (MPa), elongation (%), and dissolution temperature ( $^{\circ}$ C), but decreased in water vapour transmission rate, and no effect on dissolution time (minutes). The selected active edible film were the combination of glycerol content of 40% with Black Cumin powder to Sago flour ratio of 5:95 as it exhibited highest elongation and the combination of glycerol content of 30% with Black Cumin powder to Sago flour ratio of 15:85 as it exhibited highest tensile strength. The two selected formula of active edible film were wrapped on Cashew nut sugar stick (Enting – enting) and stored at room temperature for one month. The active edible film made from glycerol content of 40% with Black Cumin powder to Sago flour ratio of 5:95 showed the ability to prevent primary oxidation of Cashew nut sugar stick by producing lower Peroxide value during the storage period but not secondary oxidation. On the other hand, the active edible film from glycerol content of 30% with Black Cumin powder to Sago flour ratio of 15:85 showed the ability to prevent both primary and secondary oxidation by producing a lower Peroxide value as well as Thiobarbituric acid value.*

Keywords: Antioxidant, Black Cumin, Cashew nut sugar stick, edible film, Sago flour

References: 58(1995-2017)