

## ABSTRACT

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### **STUDY ON UTILIZATION OF SQUARE BANANA FLOUR (*Musa balbisiana*) AS A SOURCE OF DIETARY FIBER IN REDUCED CALORIE-GLUTEN FREE COOKIE MAKING**

(xv + 134 pages: 33 tables, 7 figures, and 26 appendices)

*The utilization of square banana as a food ingredient is still limited even though its production in Indonesia is abundant. Its high carbohydrate content might make it good gluten free flour. This research was aimed to study the effect of incorporation of fiber from square banana flour into gluten free cookies. In the preliminary research, substitution of sucrose in the cookie ingredient with combination of maltitol and acesulfame-K was done in 80:20 ratio of equivalence to 37.68g of sucrose's sweetness. Triangle test conducted between control cookies made with sucrose and cookies made with combination of maltitol and acesulfame-K resulted in insignificant difference between the two samples. Cookie substituted with maltitol and acesulfame-K was observed to possess 25% lesser calorie compared to cookie made with sucrose in same sweetness intensity. Upon the physical analysis on the effect of banana flour ratio to modified cassava flour with different pre-treatment, it was noted that banana flour ratio to modified cassava flour was found to have a significant negative effect towards the diameter increase and lightness of cookies but positive effect towards spread ratio of cookies. Interaction between the two factors affects the hardness of cookies significantly. Sodium metabisulfite pre-treatment on banana flour was chosen as the most optimum anti-browning pre-treatment as it produced the lightest flour color as well as the highest yield. Ratio of banana flour to modified cassava flour affect the hedonic analysis of cookies significantly. Cookies incorporated with 20:80 ratio of banana flour to modified cassava flour showed the highest degree of preference. This cookie was observed to contain 4.99% protein, 28.85% fat, 2.27% ash, 55.47% carbohydrate and 5.72% fiber. The amount of fiber can be considered as source of dietary fiber for reduced calorie-gluten free cookies.*

Keywords : cookies, dietary fiber, flour, gluten-free, modified cassava flour, reduced calorie, square banana, maltitol, Acesulfame-K

References: 72 (1953-2013)