ABSTRACT

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OPTIMIZATION OF WHEAT (Triticum spp.), SORGHUM (Sorghum bicolor), AND MUNGBEAN (Vigna radiata) FLOUR COMPOSITION ON BISCUIT QUALITY
(xiv + 141 pages; 28 figures, 21 tables, and 36 appendices)

The aim for this research is to develop the utilization of wheat-sorghum-mungbean flour in the making of biscuits. This is due to the fact that most common biscuits are wheat based, while Indonesia is incapable to grow wheat, but capable in cultivating sorghum which is not yet well-known, but its flour has almost similar properties to wheat flour, although lower in protein content, which is hoped to be raised by mungbean flour. Three factors are used in the optimization of the flours composition using Mixture Experiment D-Optimal from Design Expert 7.0®, which are wheat flour (30g – 100g), sorghum flour (0g – 70g) and mungbean flour (0g – 30g). Results of the organoleptic analyses show that incorporation of sorghum flour decreases the biscuit acceptance, while incorporation of mungbean flour increases the biscuit acceptance. Results of the physico-chemical analyses show that incorporation of sorghum flour and mungbean flour affect the lightness and degree of hue of biscuits significantly, but do not significantly affect spread ratio, hardness, fracturability and moisture content of biscuits. Biscuit made from combination of 44.091g wheat flour, 31.936g sorghum flour and 23.973g mungbean flour has best panelists’ preferences, and contains 3.23% moisture, 1.82% ash, 2.23% protein, 21.81% fat, 70.91% carbohydrate and 11.54% dietary fiber. With this amount of dietary fiber, optimum biscuit can be categorized as good source of dietary fiber.

Keywords: biscuit, mixture experiment, mungbean, sorghum
References: 63 (1989 - 2014)