

# THE POTENCY OF BUTTERNUT SQUASH (*Cucurbita moschata*) IN THE PRODUCTION OF BREAD RICH BETA-CAROTENE AND DIETARY FIBER AS A FUNCTIONAL FOOD ALTERNATIVE FOR INCREASING THE IMMUNITY

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## ABSTRACT

Honey pumpkin or butternut squash (*Cucurbita moschata*) is a food rich in nutrients and bioactive compounds such as beta-carotene and dietary fiber, however, its use in bakery products is still limited. The aim of this study was to evaluate the potential of honey pumpkin (butternut squash) in the production of white bread in order to obtain functional food products rich in beta-carotene and dietary fiber to enhance the body's immune system.

The research method was carried out experimentally using a completely randomized design. The research raw material was butternut squash (*Cucurbita moschata*). The stages of the research consisted of making butternut squash flour and paste, determination the reference formula of white bread, determination the formula of plain bread with butternut squash substitution, determination of consumer preference of butternut squash substituted white bread using 30 semi-trained panelists, and determination of color, texture, proximate, beta-carotene, soluble fiber and insoluble fiber. Data analysis used one-way ANOVA with Duncan's Multiple Range Test at a significance level of 5%.

The composition of bread with the best butternut squash substitution is made from 56.2% high protein flour, 15.0% butternut squash pumpkin paste, 3.7% butternut squash flour, 7.5% sugar, 7.5% margarine, 6.0% egg, 2.2% milk powder, 0.9% yeast, 0.4% bread improver, 0.4% salt, and 20.0% iced water (calculated by the total weight of wheat flour, pasta and flour) honey pumpkin). Bread with butternut squash substitution is yellowish in color, has a distinctive aroma of honey pumpkin, and has a soft texture. The L, a and b values of bread with butternut squash substitution were 64.42 to 65.19, -5.49 to -5.89, and 30.78 to 35.21, respectively. The nutritional composition of bread with butternut squash substitution contained 37.12-44.06% water, 1.79-2.91% ash, 13.56-15.56% protein, 17.58-19.41% fat, 81.51-87.34% carbohydrates, 2.28-6.62% soluble fiber, 15.14-17.42% insoluble fiber, 17.42-24.04% total fiber, and 20.02 -22.79 mg/100 g beta-carotene. The research revealed that bread with butternut squash substitution has a potency as functional food for increasing the body's immunity.

Kata Kunci: *butternut squash, white bread, beta-carotene, dietary fiber, immunity*