ABSTRACT

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PARTIAL SUBSTITUTION OF HEAT MOISTURE TREATMENT MODIFIED PORANG (*AMORPHOPHALLUS MUELLERI* B.) FLOUR TO WHEAT FLOUR IN AFFECTING PHYSICOCHEMICAL AND ORGANOLEPTIC CHARACTERISTICS OF STRAIGHT-DOUGH PAN BREAD

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Bread is a staple food widely consumed in many countries across the world. However, wheat flour used to make pan bread is an imported commodity. Porang (*Amorphophallus muelleri* Blume) can be utilized to partially substitute wheat flour to decrease its use. Due to the poor properties of native flour, a modification was needed to produce flour with better properties. This research was conducted to prepare porang flour and be modified with Heat Moisture Treatment (HMT), determine the effect of temperature and time of Heat Moisture Treatment (HMT) modification on porang flour characteristics to select the best treatment based on the swelling power, solubility, and lightness, and to determine the effect of wheat flour and modified porang flour ratios on the physicochemical and organoleptic properties of pan bread. Porang flour was modified with HMT at 70^{o}C, 80^{o}C, and 90^{o}C for 6, 8, and 10 h. Pan bread were made with 95:5, 90:10, 85:15, 80:20, 75:25, and 70:30 substitution ratios. HMT increases the swelling power and solubility of porang flour. Porang flour modified at 80^{o}C for 10 h was chosen as the best treatment as it produced flour with the highest swelling power of 7.95±0.72 g/g. The moisture, protein, fat, and amylose content decreased, whereas the ash, carbohydrate, starch, and amylopectin content increased upon modification. Pan bread with a 95:5 ratio had similar volume, hardness, and overall acceptance scores to the control (100:0 ratio) bread which are 1002.50±28.17 cc, 547.56±51.21 g, and 5.80±0.14, respectively. It was chosen as the best formulation. Partial substitution of wheat flour with modified porang flour increased moisture, ash, and carbohydrate content. On the other hand, protein and fat content decreased. The moisture, fat, protein, ash, and carbohydrate content of the chosen bread are 40.07±1.33%, 6.42±0.55%, 9.37±0.23%, 1.73±0.06%, and 42.41±1.33%, respectively. Therefore, pan bread can be made by partially substituting 5% of wheat flour with modified porang flour.

Keywords : Heat-Moisture Treatment, porang flour, pan bread, partial substitution

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