

## ABSTRACT

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

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Bread is one of the most consumed staple foods with wheat flour, yeast and water as its main ingredient. However, over the years wheat flour has been greatly imported in Indonesia. Thus, utilization of local crops as an alternative source of flour such as porang (*Amorphophallus muelleri* B.) must be done to decrease the dependency of wheat flour. However, due to the low swelling power and solubility of porang flour, a modification is needed. The objective of this research is to determine effect of Heat Moisture Treatment (HMT) temperature and time towards swelling power, solubility, and lightness of porang flour, to select best treatment, and to determine effect of substitution ratio towards physicochemical and organoleptic characteristics of pan bread. Porang flour was modified with HMT at 70°C, 80°C, and 90°C for 6, 8, and 10 h. HMT increases the swelling power and solubility of porang flour. Porang flour modified at 80°C for 10 h yielded in flour with the highest swelling power of 8.05±0.58 g/g. Therefore, it is selected as the best treatment to produce modified flour. Modification of HMT resulted in decreased content of moisture, protein, fat, and amylose content and increased ash, carbohydrate, starch, and amylopectin content. Pan bread was made with substitution ratios of 95:5, 90:10, 85:15, 80:20, 75:25, and 70:30. Pan bread with 90:10 ratio showed similar volume and hardness compared to control (100:0) which are 887.5±40.59 cc and 824.364±52.30 g, respectively. Thus, it was chosen as the best pan bread formulation. Partial substitution of wheat flour with modified porang flour in pan bread production showed increased content moisture, fat and ash content, while protein and carbohydrate content decreased. The moisture, protein, fat, ash and carbohydrate content of the selected pan bread are 32.47±0.73%, 16.27±0.31%, 8.52±1.94%, 1.67±0.15% and 41.07±2.59. In conclusion, the selected pan bread may be used as future alternative to pan bread production.

Keywords : Heat-Moisture Treatment, porang flour, pan bread, sponge dough

References : 85 (1995-2022)