

Utilization of Composite Flour from White Sweet Potatoes (*Ipomoea batatas* L), Germinated Soybeans (*Glycine max* Merr.), and Germinated Mung Beans (*Virginia radiata* L) as Wheat Flour Partial Substituent of Alternative Food, High Energy-Protein Biscuit

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Abstract

An emergency food based biscuit product was formulated by utilizing composite flour from white sweet potatoes, germinated soybeans, and germinated mung beans. This product was designed to meet high protein and energy wick contain protein as minimum as 12% and 50% carbohydrate. Sweet potatoes, germinated soybeans, and germinated mung beans flour were obtained by using drum dryer. The flour characteristics determination showed that there were positive corelation between bulk density and wettability, and had negative corelation with stack angle. The bulk density number of sweet potatoes, germinated soybeans, and germinated mung beans flour were 0.56, 0.38, 0.45 g/m; compact density 0.63, 0.54, and 0.56 g/ml; whiteness degree 49.77, 29.82 and 34.41%; stack angle 30.56, 41.77 and 31.16 degree; wettability 1.104, 345, 20 second; and dispersibility 1.98, 1.06 and 0.70%. Wheat flour could be substituted by sweet potatoes flour as much as 80%. The range utilization of germinated soybeans and germinated mung beans flour were 12-28 % which combined with 25-44% sweet potatoes flour. The nutritional composition of high energy and protein biscuit were within average range of protein 12.34%, fat 24.56%, carbohydrate 60.65 %, and also total dietary fiber 15.01%. The result of organoleptic test showed that high energy and protein biscuit was accepted by consument, so that its very potential to ben as alternative food.

Key words : composite flour, bulk density, compact density, wettability, dispersibility, biscuit