EFFECT OF ADDITION OF WHEAT AND PIGEON-PEAN ON THE RHEOLOGICAL CHARACTERISTICS OF RICE FLOUR

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ABSTRACT
Evaluation of the pasting characteristics, dough mixing properties and dynamic rheology of composite flour comprising wheat, rice and pigeon-peas flours was carried out in order to determine suitability of the composite flour for some bake products production. The pasting characteristics, dough mixing properties and dynamic rheology were evaluated using amylograph, farinograph and rheometer respectively. The blend with wheat and rice flour only had zero breakdown viscosity at 50% wheat/50% rice flour and 30% wheat/70% rice flour while 100% wheat flour had the highest breakdown viscosity of 167 BU. However, wheat/rice flour blends had the highest setback viscosity, meaning it will enhance starch retrogradation most. Addition of pigeon-pea flour to rice-wheat blends produced mixing quality close to 100% wheat flour in terms of dough constituency and water absorption. The stability of the blends with pigeon-pea was better than 100% wheat flour. Blend 30% wheat/70% rice flour had poor mixing quality. Addition of pigeon-pea enhanced mixing quality and the dynamic rheology properties (G', G" , shear stress vs shear rate) of the blends.

Keywords:
Amylograph; Dynamic rheology; Pasting characteristics; Pigeon-pea flour; Rice flour; Wheat.