



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

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<https://doi.org/10.34302/crpjfst/2019.11.3.5>

Article history:

Received:

2 January 2019

Accepted:

28 May 2019

Keywords:

Amylograph;

Dynamic rheology;

Pasting characteristics;

Pigeon-pea flour;

Rice flour

Wheat.

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 reduced the setback viscosity (347-376 BU) compared to 100% wheat flour (387 BU). The 50%:50% wheat-rice flour blend had the highest (802 BU) final viscosity followed by 100% wheat flour (746 BU) while 100% wheat flour had the best pasting temperature and peak viscosity. Inclusion of pigeon-pea flour to rice-wheat blends produced mixing quality close to 100% wheat flour in terms of dough consistency 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.
