ABSTRACT

Rheological And Textural Properties of Sorghum-Based Formulations Modified with Variable Amounts of Native or Pregelatinised Cassava Starch

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Sorghum bread was made from native or pregelatinised cassava starch and sorghum flour in the ratio 10:90, 20:80, 30:70, 40:60 and 50:50. The other ingredients, measured on flour-weight-basis, were water (100%), sugar (6.7%), egg white (6%), fat (2%), salt (1.7%) and yeast (1.5%). The dynamic oscillatory behaviours of the batters were affected by the amount and type of starch. In the amplitude sweep measurements, increasing concentration of native starch decreased storage modulus, whereas increasing concentration of pregelatinised starch increased the linear viscoelastic range of the batters. In the frequency sweep measurements, the loss factor of batters treated with native starch declined with increasing frequency. Batters treated with 10 or 20% pregelatinised starch showed declining loss factors, whereas batters treated with 40 or 50% pregelatinised starch showed increasing loss factors with increasing frequency. Sorghum-based batters containing native starch gave bread with better crumb properties than batters containing pregelatinised starch. Crumb firmness and chewiness declined with increasing native or pregelatinised starch concentration. Crumb adhesiveness of breads containing pregelatinised starch increased with increasing starch content but was not affected by native starch. Cohesiveness, springiness and resilience increased with increasing native starch content, but were minimally affected by increasing pregelatinised starch content.

Keywords

Cassava, Gluten-free bread, Rheology, Sorghum, Texture