ABSTRACT

Batter Rheology and Bread Texture of Sorghum-Based Gluten-Free Formulations Modified with Native or Pregelatinised Cassava Starch And A-Amylase

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Summary The influence of a-amylase (0–0.3 U g)1) on the crumb properties of gluten-free sorghum batter and bread, respectively, was investigated. The formulations were modified using native or pregelatinised cassava starch (i.e. batter A – 17% pregelatinised starch, 83% sorghum, 100% water fwb; batter B – 17% native starch, 83% sorghum, 100% water fwb; and batter C – 30% native starch, 70% sorghum, 80% water fwb). The batters had solid viscoelastic character with the storage modulus predominant over the loss modulus. Storage moduli of batter A decreased with increasing angular frequency, whereas the moduli of batters B and C were independent from the angular frequency. Increasing enzyme concentration did not affect the loss factors of the batters. Batters' resistance to deformation, from highest to lowest, followed the order C > A > B. Increasing enzyme concentration decreased crumb firmness, cohesiveness, springiness, resilience and chewiness but increased adhesiveness. Overall, breads containing native starch had better crumb properties (i.e. springier and less firm, chewy and adhesive) than breads containing pregelatinised starch.

Keywords: A-Amylase, Cassava Starch, Gluten-Free Bread, Sorghum.