

## ABSTRACT

### Quality of Porridge from Sub-Saharan Africa Evaluated Using Instrumental Techniques and Descriptive Sensory Lexicon - Part 1: Thick (Stiff) Porridge

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The sensory attributes of thick porridges made from different composite flours in neutral, citric acid or sodium bicarbonate media was identified using instrumental methods and modified quantitative descriptive analysis. The results showed that composite flours with high cassava concentrations had lower pasting temperatures but higher peak, breakdown, final and setback viscosities than the cereal-rich flours. The onset pasting temperatures of alkali-treated slurries were higher ( $p < 0.05$ ) than for the neutral- or acid-treated slurries. Acid-treated slurries had higher ( $p < 0.05$ ) peak viscosities than neutral- or alkali-treated slurries. Acid-treated slurries had higher ( $p < 0.05$ ) breakdown viscosities as compared to the neutral slurries. The toughness and work of shear of thick porridge ranged between 0.21 - 0.58 kg and 0.83 - 5.95 kg·mm, respectively. Thick porridge cooked in alkaline media was significantly darker ( $p < 0.05$ ) than that made in neutral or acid media. Principal component analysis identified four major principal components (PCs) that accounted for 87.6% of the total variance in the sensory attribute data. The principal component scores indicated that the location of each porridge along each of the four scales corresponded with attributes associated with sodium bicarbonate aroma and taste (PC1); cassava aroma and hardness (PC2); colour of thick porridge (PC3); and finger millet/sorghum aroma (PC4). Thick porridges targeting specific consumer groups in sub-Saharan Africa can be developed by appropriate choice of flours and pH thereby forming the basis for commercial production of thick porridges for different population categories in sub-Saharan Africa with diverse sensory expectations of the product.

**Key words:** Colour, texture, thick porridge, quantitative descriptive analysis.

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