Grain hardness as modification index for sorghum and its relationship to the alcohol content of burukutu.

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ABSTRACT

Introduction and Objectives: Methods in use for monitoring grain modification are expensive to rural industrialists in developing countries. This study therefore used the Monsanto Hardness Tester to investigate the changes in sorghum grain hardness during malting in relation to free amino nitrogen (FAN) and other indices of grain modification and how these affect the alcohol content of burukutu, a beverage in Nigeria, Ghana and Benin Republic.

Methodology: Local red and white sorghum grains were malted for 1-6 days by the two-step wet steep method and each day's malt used to produce burukutu. The malts were analysed for grain hardness, FAN and other indices of grain modification, while the burukutu was analysed for alcohol content.

Results and Discussion: During malting, the FAN content peaked in the 6 day malts at 976.5mg/kg in the white malts and 714 mg/kg in the red. Grain hardness decreased from 80.91 to 30.50N in the white malts and 88.16 to 31.28N in the red. Alcohol content of burukutu increased to a peak of 2.76% (v/v) in the white and 2.96% in the red in the 6 day malts. Grain hardness had significant (p<0.05) correlation with FAN, other indices of grain modification and alcohol content.

Conclusion: Grain hardness determination using the Monsanto hand-held tester is a simple, fast and accurate index of grain modification in malting sorghums. The measurements are good indicators for other indices of grain modification. Its relationship to FAN and other grain modification indices indicates sorghum malt suitability for alcoholic beverage production.