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PaperTitle **Proteolysis in Sorghum Malt Brewing**

Main Author **Mugode Luke Mr**

Presentor

**Mugode Luke Mr**

*University of Pretoria Department of food Science Pretoria SOUTH AFRICA s26378087@tuks.co.za*

Co-Authors

#### **ABSTRACT**

There is considerable interest in Africa in the use of sorghum for the production of lager beer. The venture will not only provide consumers with a wider beer option but provide African farmers with a market for sorghum and additionally save foreign exchange required to import barley.

When brewing with sorghum, insufficient proteolysis due to the corneous nature of the endosperm in sorghum grain has a negative effect on production of free amino nitrogen (FAN) and extracts levels. FAN is important as a source of nitrogen essential for yeast growth during fermentation. Starch granules in the corneous endosperm portion are embedded in a protein matrix which impedes amylases from accessing the starch during mashing resulting in low extract (starch solubilisation).

The objective of the study consequently was to ascertain the effect of exogenous proteases on their efficiency in brewing with sorghum malt with particular inference to the development of FAN. FAN was determined by using the European Brewery Convention ninhydrin method.

Investigation of a variety of exogenous proteases showed there could be improvement in FAN when appropriate conditions of temperature and duration of mashing were used. In fact, addition of exogenous proteases and low temperature mashing appear to improve wort FAN levels to the point considered sufficient for rapid fermentation. However, none of the exogenous proteases examined were particularly effective at degrading the protein in the sorghum malt, probably as a consequence of the very hydrophobic and cross-linked nature of the sorghum endosperm protein.