

## Effect of Adding *Moringa oleifera* Leaf Powder on the Nutritional, Microbiological Properties and Polyphenolic Compounds of Sorghum Based *Mahewu*

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### Abstract

*Mahewu* is a non-alcoholic beverage that is consumed in South Africa as a ready to drink beverage, however this product lacks some nutrients. It is produced from different cereal grains including maize, sorghum, and millet through fermentation. This study investigated the effect of adding *Moringa oleifera* leaf powder (MOLP) on the nutritional, microbiological properties and polyphenolic compounds of sorghum based *mahewu*. *Moringa oleifera* leaf powder *mahewu* was prepared by substituting a portion of sorghum with MOLP at 1, 2, 3, 4% (v/v) levels. Moisture content ranged from 65.99%-66.71% for *mahewu* sample, while of MOLP and sorghum flour was 6.68 and 8.31%, respectively. Fat ranged from 0.98%-1.71% for *mahewu*, MOLP had the highest fat content of 8.14 and sorghum flour had the lowest fat content (0.86%). Sorghum flour had the lower ash content of 2.21 compared to MOLP which had 14.97%. Ash content increased with the levels of MOLP in *mahewu* samples ranging from 2.30-6.04%. Sorghum had protein content of 9.99%, while MOLP had the highest protein content of 29.77%, protein content in *mahewu* increased ranging from 7.26% to 12.83%. The pH of *mahewu* samples ranged from 3.99 to 3.83, total titratable acid increased from 0.40 contro while, brix ranged from 13.34 14.60. There was no significant difference in the total plate count, yeast and mould and lactic acid bacteria at ( $p < 0.05$ ) although coliform count was higher. Bioactive compounds and antioxidant activity of *mahewu* samples increased with the increase in level of MOLP. *Moringa oleifera* leaf powder can be used as functional ingredient to improve the nutritional and polyphenolic compounds of non-alcoholic beverages such as *mahewu*.