

Evaluation of Yeast and Lactic Acid Bacteria Starters for the Production of Rice *Injera*

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Injera is a yeast-risen flatbread with a unique, slightly spongy texture. It is a national staple in Ethiopia that is eaten daily in every household. Despite the fact that injera is a favorite staple food, starters have not been evaluated for the production of rice-based injera combinations of Lactic acid bacteria (*Lactobacillus plantarum*) and yeast (*Saccharomyces cerevisiae*), lactic acid bacteria (*Lactobacillus fermentum*) and yeast (*Saccharomyces cerevisiae*), LAB (*L. plantarum* and *L. fermentum*) and yeast (*S. cerevisiae*) and irsho (back slopping) were used as starters in the fermentation of rice *injera* batter during 96 h. Changes in pH, titratable acidity (TA) and microbial count were analyzed at 6 h intervals. The acceptability of rice injera baked after 24 and 48 h fermentation were determined using a consumer panel (n=30). LAB starters (*L. plantarum* and *L. fermentum* and their co-cultures *S. cerevisiae*) decreased pH from 6.35 to 4.5 and increased TA from 0.33 to 0.95 % (lactic acid w/w) within 18 – 24 h while the spontaneous fermentation with traditional irsho took 48 -54 h to attain 0.38 pH value and 0.93 % TA. LAB and yeast counts in *L. plantarum* and its co-culture *S. cerevisiae* starter increased from 5.13 to 8.36 and 4.11 to 7.5 log cfu g⁻¹ respectively within 24 h. LAB and yeast counts in *L. fermentum* and its co-culture *S. cerevisiae* increased from 5.09 to 8.45 log cfu g⁻¹ and 4.11 to 7.43 log cfu g⁻¹ respectively. LAB and yeast count in *L. plantarum* and *L. fermentum*. LAB starter and their co-cultures *S. cerevisiae* grew from 5.25-8.42 log cfu g⁻¹ and 4.14 to 7.40 log cfu g⁻¹ respectively. In contrast LAB counts in naturally fermented rice injera batter increased from 5.08 log cfu g⁻¹ to 8.30 log cfu g⁻¹ after 48 h and yeast counts increased from 4.1 log cfu g⁻¹ to 7.20 log cfu g⁻¹ in 24 – 48 hrs. With regards to acceptability, rice injera prepared using the *L.plantarum* + *S.cerevisiae* starter scored the highest value 8.83 (like extremely) which is most acceptable while injera prepared with irsho (traditional starter) scored 7.40 (like moderately). Therefore, the *L.plantarum* +*S. cerevisiae* starter combination can be used for commercial production of acceptable rice injera.

Keywords: Rice injera; *Lactobacillus plantarum*; *Lactobacillus fermentum*; *Saccharomyces cerevisiae*

Biography:

Yassin Hassen Umar has completed M.Sc degree from Makerere University in Food Science and Technology, Uganda. Yassin Hassen is a lecturer and researcher in the areas of Nutrition, Food Science and technology.