

**QUALITY ASSESSMENT OF RICE BEVERAGE MADE FROM
TRADITIONAL RICE VARIETIES FERMENTED BY *Lactobacillus
plantarum***

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This study was conducted to investigate the fermentation characteristics and suitability of traditional rice flour for fermented beverage production using four traditional rice varieties. Fermented rice beverage was prepared using *Lactobacillus plantarum* (2%) as a probiotic bacterium. Rice varieties: *Suwandel*, *Pachchaperumal*, *Kalu heenati*, and *Madathawalu* were used with 1:12 rice flour to water ratio to develop the fermented rice beverage. The best variety was selected by a sensory evaluation with thirty untrained panelists using nine-point hedonic scale after one day of production. Titratable acidity (TA), pH, Total soluble solid (TSS), probiotic counts and yeast & mould counts of the fermented rice beverage samples were tested during the storage (4°C, 3 weeks). Parametric and sensory data were analyzed using two-way ANOVA Completely Randomized Design (CRD) and Friedman test, respectively. After one day of storage, pH and TSS was significantly decrease and TA was significantly increase in all rice varieties. *Suwandel* variety resulted in the best sensory properties for color, aroma, texture, taste and overall acceptability ($p < 0.05$). There was a significantly higher pH and lower TA in *Suwandel* variety among other rice varieties. Furthermore, the TSS of *Suwandel* was significantly higher after 1 week of storage among other rice varieties. The probiotic count of all samples was beyond the threshold of minimum therapeutic value (10^6 CFUml⁻¹). There was an increase of probiotic bacteria count till 6th day of storage and decrease thereafter. Therefore, these results infer that it is healthier to consuming fermented rice beverage up to 1 week of storage period. Yeast and mold count of all rice beverage samples was within the acceptable range (< 1000 CFUml⁻¹) during the 3 weeks of storage period. According to the results, *Suwandel* variety could be effectively used to produce fermented rice beverage without quality deterioration for 3 weeks storage at 4°C.

Keywords: *Laetobacillus plantarum*, Probiotic, Rice beverage, Traditional rice varieties