

## MB 31

### Effect of different lactic acid bacteria on phytic acid content and quality of toast bread made with whole wheat flour

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**Objective:** To study, effect of sourdough from different lactic acid bacteria on phytic acid content and quality of toast bread made with whole wheat flour

**Methodology:** Alvand wheat was cleaned and milled. *Lactobacillus plantarum* (PTCC 1058) and *Lactobacillus reuteri* (PTCC 1655) were transferred to MRS broth medium incubated in 37°C for 18 h, microbial cells harvested in 4000 rpm for 10 min and approximately 10<sup>7</sup>cfu/g of each bacterial strain was added to preferment. Sourdough prepared by DY 250 and 300 and mixed for 1 min was transferred to large beaker, incubated at 37°C for 20 h added to dough formulation in the ratio of 10, 20 and 30% instead of flour.

**Results and conclusion:** Application of sourdough from *Lb. plantarum* with DY=300 and 30% replacement in dough formulation, caused highest decrease in pH of dough. Sourdough from *Lb. reuteri* had lower effect on pH than sourdough from *Lb. plantarum*. Higher DY of sourdough caused higher decrease in pH. Making bread with sourdough from *Lb. plantarum*, caused higher decrease than sourdough from *Lb. reuteri*. In addition, higher DY of sourdough, caused higher decrease in phytic acid content of bread. Toast bread that made with sourdough from *Lb. plantarum* with DY=300 and 30% replacement in dough formulation had lowest phytic acid content (461.7 mg/g) that showed 51.6% decrease. Usage of sourdough caused higher score for bread. The best quality was from bread that was made with *Lb. reuteri*, DY=250 and 30% replacement that scored 81.71 (score of control bread was 59.42). This study showed that we can make loaf bread with whole wheat flour with desired quality in nutritional and sensory properties by means of sourdough.