

Optimization of Bread Preparation from Wheat Flour and Malted Rice Flour

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Abstract: The feasibility of partially replacing wheat flour with malted rice flour in bread making was evaluated in several formulations, aiming to find a formulation for the production of malted rice-wheat bread with better nutritional quality and consumer acceptance. The whole grains of a local rice variety (*Oryza sativa* L. subsp. *indica* var. Mottaikaruppan) were steeped in distilled water (12 h, 30°C) and germinated for 3 days to obtain high content of soluble materials and amylase activity in bread making. The quality of bread was evaluated by considering the physical and sensorial parameters. When the wheat flour was substituted with malted rice flour, 35% substitution level and the malted rice flour from 3 days of germination was the best according to the physical and sensory qualities of bread. The quality of bread was improved by the addition of 20 g of margarine, 20 g of baking powder and 20 g of yeast in 1 kg of flour. Among different ratios of yeast and baking powder, 2:1 was the best. Bread improver containing amylases and oxidizing agents at the concentration of 40 g/kg was selected as the best concentration. When comparing the final formulation made in the bakery with wheat bread, malted rice-wheat bread contains more soluble dietary fiber (0.62%), insoluble dietary fiber (3.95%), total dietary fiber (4.57%) and free amino acid content (0.64 g/kg) than those in wheat bread (0.5%, 2.73%, 3.23% and 0.36 g/kg, respectively).

Key words: rice; bread; malted rice flour; wheat flour; physical parameters; sensorial parameters