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## **NUTRITIONAL PROTEIN QUALITY EVALUATION OF WHEAT BREAD SUPPLEMENTED BY RICE BRAN FLOUR**

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### **ABSTRACT**

The effect of partial replacement of wheat flour by different levels (5, 10, 15 and 20%) of rice bran flour (RBF) on the sensory and chemical characteristics for breads produced was studied. Also, these breads prepared were evaluated for their amino acid contents and biological properties, and compared to the control bread (100% wheat flour). Results revealed that bread samples processed from wheat flour supplemented by 5 or 10% of RBF had higher acceptance scores for all sensory characteristics than other blend bread samples. Results of chemical analysis indicated that incorporation of RBF into bread samples formula was obviously increased of protein, fat, fiber, ash and indispensable amino acid (IAAs) contents with increasing RBF levels. The amino acids composition revealed that RBF-bread samples contained most of IAAs at higher concentrations than reference protein pattern of FAO/WHO, with exception of lysine and sulfur amino acids (Meth+cyst). Lysine was the first limiting amino acid in wheat bread (36%). Lysine score was elevated and reached to 90% after supplementation with 20% RBF. Rat feeding experiments indicated that supplementation of wheat bread with 5, 10, 15 and 20% RBF substantially improved their nutritive quality. Hence rats fed on bread diets containing RBF exhibited extremely higher values in gain of weights, food intake and protein consumption as compared to rats fed on wheat bread diet. The bread diets containing 15 or 20% RBF recorded the highest values of PER, NPR and NPU between all tested diets.

**Key words:** Biological evaluation - Bread – Chemical composition- Rice bran - Sensory properties