

Proximate Compositions, Texture, and Sensory Profiles of Gluten-Free Bario Rice Bread Supplemented with Potato Starch

ABSTRACT

Current gluten-free food development trends tend to favour pigmented rice flour. Bario Merah Sederhana is a type of red-pigmented rice that is indigenous to Sarawak, Malaysia. This research investigates the nutritional, texture, and sensory properties of gluten-free rice bread produced from a composite of BMS rice flour and potato starch, producing samples referred to as F1 (100:0), F2 (90:10), F3 (80:20), and F4 (70:30). The gluten-free rice bread formulations demonstrated higher ash and crude fibre content and lower carbohydrate content than wheat bread. However, the crude protein content of the bread decreased significantly ($p < 0.05$) with a decreased amount of rice flour, owing to wheat flour containing greater protein. The crumb of rice bread appeared to be darker due to the red pigment of rice flour; in contrast, the crust was lighter than the control sample, possibly due to a lower Maillard reaction. Among rice bread formulations, F4 demonstrated the lowest hardness in dough and bread, as well as the highest stickiness and springiness in dough and bread, respectively. The wheat bread received the highest rating ($p < 0.05$) in the sensory test; nonetheless, among the rice breads, F4 was considered to be an acceptable formulation owing to its high score in colour (7.03), flavour (5.73), texture (6.03), and overall acceptability (6.18). BMS has potential in gluten-free rice breads; the formulation of 70% rice flour combined with 30% potato starch was indicated to be acceptable.