

Substitution of Barlin Banana Rice (*Musa acuminata* AA) on the Physical, Chemical, and Sensory Characteristics of Instant Multigrain Rice

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ABSTRACT

*Instant multigrain rice is a cereal- and legume-based functional food product with potential for development using local ingredients, such as Barlin banana rice (*Musa acuminata* AA.) as a source of dietary fiber and resistant starch. This study aimed to analyze the effect of substituting Barlin banana rice on the physical, chemical, and sensory characteristics of instant multigrain rice and to determine the optimal formulation. Five substitution levels were employed (F0: 0%, F1: 10%, F2: 20%, F3: 30%, F4: 40%) to replace a portion of the sorghum in the formulation. Physical parameters included color and rehydration time; chemical parameters included moisture, protein, fat, and dietary fiber content; and sensory parameters included hedonic and hedonic quality tests. Data were analyzed using descriptive quantitative methods for physical characteristics (color and rehydration time), chemical characteristics (dietary fiber, protein, moisture, and fat content), and sensory characteristics (hedonic and hedonic quality tests). The results showed that increasing the proportion of banana rice raised the dietary fiber content from 11.56% (F0) to 17.98% (F4) but reduced protein, fat, and moisture content, while also slowing rehydration (5.11–6.07 minutes). The highest level of consumer preference was observed in F2, whereas hedonic quality scores increased consistently up to F4. Based on the De Garmo effectiveness index, the best formulation was F2 (20% banana rice, 10% red rice, 20% sorghum, 10% corn, 40% edamame), with an outcome value of 1.016, providing an optimal balance between functional value and consumer sensory acceptance.*

Keywords : Barlin Banana Rice, Instant Multigrain Rice, Physical, Chemical Test, Sensory Characteristics.