



# Protein enrichment and sensory acceptability of wheat– Bambara groundnut composite bread

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Bread is a staple food in Nigeria; however, it is often low in essential nutrients, particularly protein. This study investigated the effect of Bambara groundnut (*Vigna subterranea*), a popular nutrient-dense legume in Enugu, on the protein content and sensory quality of wheat-based bread. Three bread samples were formulated: A (0% Bambara), B (10% Bambara), and C (20% Bambara). Results revealed a significant improvement in protein content with increasing Bambara substitution, ranging from  $4.12 \pm 0.10\%$  in the control to  $13.71 \pm 0.11\%$  at 20% inclusion of Bambara groundnut. However, loaf volume decreased from  $255.50 \pm 0.15 \text{ cm}^3$  in the control to  $238.50 \pm 0.10 \text{ cm}^3$  for sample C. Sensory evaluation indicated that bread with 10% Bambara flour (Sample B) achieved the highest overall acceptability score ( $7.8 \pm 0.11$ ) compared to other samples, balancing enhanced protein quality with desirable sensory attributes. These findings suggest that incorporating 10% Bambara groundnut flour into wheat bread offers a nutritionally improved and consumer-acceptable product, supporting food diversification and protein enrichment in the bakery industry.

**Keywords:** Food biotechnology, nutritional enhancement, functional foods, Bambara groundnut, public health nutrition.

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