

## **Nutritional composition and sensory evaluation of cake fortified with moringa oleifera leaf powder and ripe banana flour**

### **ABSTRACT**

Micronutrient deficiency is raising concern worldwide, especially among children and pregnant women in Africa, Southern Asia, and certain developing countries, posing a significant risk to the nutritional status. This study aimed to develop cake fortified with Moringa leaf powder (MOLP), ripe banana flour (RBF) and assessed the effect of MOLP and RBF on the nutritional composition as well as consumer acceptability. The nutritional, mineral, vitamin A and sensory attributes of MOLP and RBF fortified cakes were assessed. Proximate analysis results showed that the addition of MOLP and RBF significantly increased from 5.79% to 8.90% for protein, 1.25% to 1.66% for ash, 2.70% to 6.98% for fiber, and 53.0% to 60.88% for carbohydrate. However, the fat and moisture content decreased from 20.16% to 13.06% and 17.77% to 13.54%, respectively. The mineral contents (phosphorus, potassium, iron, and zinc) increased significantly in the fortified cake compared to the unfortified control. The vitamin A content (3.40–5.62 mg/100 g) of the fortified cakes was significantly ( $p < 0.05$ ) higher than the vitamin A (1.62 mg/100 g) content of the unfortified cake. Although MOLP and RBF substitution raised most of the nutritional contents, the maximum consumer acceptability was recorded in the unfortified control, which was statistically similar to C2 (1.5% MOLP and 2% RBF) substitution in terms of shape, sweetness, flavor, mouth feel, and overall acceptability. The results indicated that cake supplemented with 1.5% MOLP and 2% RBF provided the enriched nutritional quality and potentially contributed to the improvement of food and nutritional security of the vulnerable populations. Furthermore, utilizing ripe bananas with peels in cake recipes will help to encourage the recovery of food waste for functional food preparation.