

## **Effects Of Different Amounts of Okara on Physicochemical Properties and Sensory Acceptability of Okara-Based Spread**

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### **Structured Abstract**

**Background:** Soybean processing generates significant food waste, with okara, a nutrient-rich byproduct, often discarded or used as animal feed. For every kilogram of soybeans processed, approximately 1.2 kg of okara is produced. This study investigates the effects of different amounts of okara on the quality and acceptability of okara-based spreads. The research evaluates how varying levels of okara influence the spread's physical, chemical, and sensory properties. Sensory evaluations will focus on attributes such as colour, taste, texture, and overall acceptance. The study highlights okara's potential as a high-nutrient, eco-friendly ingredient, reducing food waste while promoting sustainable food systems. It seeks to transform okara from a discarded byproduct into a valued ingredient, benefiting both consumers and the environment.

**Methods:** The okara-based spread was prepared with varying okara levels to assess its physicochemical properties, including pH, water activity, melting point, peroxide value, mineral content (calcium, iron, magnesium, zinc, sodium, copper), and sugar composition (fructose, sucrose, glucose). Proximate analyses measured protein, fat, moisture, ash, and carbohydrates. Sensory evaluation assessed colour, taste, sweetness, aroma, texture, and acceptability. Statistical analysis (ANOVA) was used to identify significant differences among the samples.

**Results:** Increasing okara in the spread affects its physical and chemical properties. The pH remains stable, while water activity decreases slightly with higher okara content. Melting point and temperature response increase, except for the 25% OB sample, which has the highest melting point due to its fluid structure. The peroxide value (PV) increases with more okara. Mineral content increases in calcium, but decreases in iron, magnesium, sodium, and copper. Zinc remains unchanged. Ash content rises with more okara. 100% OB provides optimal physicochemical properties, especially in stability and mineral composition. Sensory acceptance decreases as okara content increases, with overall acceptability favourable up to 50% OB. Beyond this, sensory attributes decline.

**Conclusion:** In conclusion, the findings of this study indicate that increasing okara in the spread affects its physicochemical properties and sensory acceptance. While 100% okara enhances stability and mineral composition, sensory acceptance remains favourable up to 50% okara, offering potential for developing spreads with balanced properties and consumer appeal.

**Keywords:** Okara Spread, Physico-Chemical Properties, Sensory Acceptance, Lipid Oxidation, Mineral Composition

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