

## **Valorization of agriculture by-product: Development of gluten-free biscuit made from blends of okara and jackfruit seed flour**

### **ABSTRACT**

The purpose of this study was to determine the effectiveness of incorporating okara and jackfruit seed into biscuit production. A control biscuit made with wheat flour was contrasted with five formulations, each with various proportions of okara flour and jackfruit seed flour. Compared to wheat flour, okara and jackfruit seed flour had significantly higher levels of ash, crude protein, and crude fiber ( $p < 0.05$ ). The proximate analysis of the biscuits revealed an increase in moisture (3.98–6.95 %), ash (1.42–3.12 %), crude protein (9.16–20.81 %), crude fat (26.84–29.86 %), and crude fibre (0.35–5.97 %) content. However, the carbohydrate content decreased from 57.81 % to 35.76 %. Control biscuits had higher weight loss, spread ratio, and hardness than their composite counterparts. As the proportion of okara flour in composite biscuits increased, weight loss, hardness, and spread ratio decreased significantly. The colour analysis revealed that the concentration of okara flour was associated with increased redness ( $a^*$ ) and yellowness ( $b^*$ ). Sensory evaluations revealed that the biscuit made with a 40:60 ratio of okara flour to jackfruit seed flour received the second highest overall acceptance after the control. In conclusion, our findings suggest the potential utilization of okara and jackfruit seed flour as substitutes for wheat flour in the development of nutritious biscuits.