

Effects of different cooking preparations on the nutritional composition and antioxidant properties of *Etlingera coccinea* (Blume) S. Sakai & Nagam (Tuhau)

ABSTRACT

Tuhau (*Etlingera coccinea*) is a traditional plant widely consumed in Southeast Asia due to its unique flavor and potential health benefits. However, the influence of various cooking preparations on its nutritional composition and antioxidant activities remains understudied. This research aimed to investigate the effect of different cooking methods on Tuhau, providing valuable insights for optimizing its preparation for enhanced health benefits. Tuhau rhizomes were purchased, sliced, and divided into six groups representing different cooking preparations: control, pickled, stir-fried, deep-fried, boiled, and blanched. Proximate analysis was conducted to determine the nutritional composition, including ash, protein, fat, moisture, crude fiber, and carbohydrate content. The antioxidant activities of the cooked Tuhau samples were evaluated using DPPH and ABTS radical scavenging assays, while the total phenolic content (TPC) was determined using the Folin-ciocalteu method. Uncooked Tuhau samples were used as a control for comparison. The findings indicate that different cooking methods significantly influence the nutritional composition and antioxidant activities of Tuhau. Cooking processes, such as boiling and blanching, increased the moisture content, while stir-frying and deep-frying led to higher fat content. Moreover, deep-fried Tuhau exhibited the highest crude fiber content and TPC, which could contribute to its enhanced antioxidant activities. However, the weak correlation between antioxidant assays and total phenolic content suggests that other compounds may also contribute to the observed antioxidant properties of Tuhau. This study demonstrates that cooking preparations impact the nutritional composition and antioxidant activities of Tuhau. The findings provide valuable insights for optimizing the cooking methods of Tuhau to enhance its health benefits. Further research is warranted to explore other nutritional compositions and the use of Tuhau as a food ingredient in a variety of food products.