

INVESTIGATING THE INFLUENCE OF ABIOTIC FACTORS ON THE PHYTOCHEMISTRY & BIOACTIVITY OF TUHAU (*ETLINGERA COCCINEA*) ACROSS SABAH

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ABSTRACT

Jeruk Tuhau, a traditional side dish made from *Etilingera coccinea*, was recently gazetted as a heritage object by the Malaysian Heritage Commissioner. This is due to a growing popularity among locals, driving high demand. However, this demand has led to a decline in wild populations primarily because of overharvesting from its natural habitat. Cultivation has been proposed as a solution to preserve this species to reduce the pressure on wild populations. Given the environmental changes associated with the domestication and cultivation process, variations in bioactivity are expected among those grown in different locations. This study aims to evaluate the variations of bioactivity of tuhau from various locations in Sabah. Currently, samples have been collected from seven wild localities. For cultivated samples, a matched-pair design was used, with samples from Tambunan, Penampang, Ranau, and Lahad Datu. Additionally, soil samples from a depth of 0–10 cm were also collected for laboratory analysis. Findings indicate a significant variation in the bioactivity levels among the wild tuhau population, with Tambunan showing the highest level of bioactivity. Wild tuhau consistently exhibits higher levels of bioactive compounds compared to cultivated ones. It is suspected that this difference is due to the influence of soil conditions on plant bioactivity. Understanding the interplay between abiotic factors and plant bioactivity will not only optimise cultivation practices for tuhau but also inform conservation strategies for the wild population. Future works will involve chemical profiling in both wild and cultivated, aiming to further elucidate the impact of domestication on bioactivity.