

EVALUATING INTRASPECIFIC POPULATION STRUCTURE OF TUHAU (*ETLINGERA COCCINEA*) IN SABAH FOR CONSERVATION AND MANAGEMENT PURPOSES

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ABSTRACT

Tuhau (*Etingera coccinea*), a wild ginger species from the Zingiberaceae family, holds cultural significance for the indigenous communities in Sabah, especially the Kadazan-Dusun people. Anecdotal evidence from various areas in Sabah indicates a decrease in the wild Tuhau population due to high demand for consumption and trade, raising concerns about the potential loss of genetic diversity. Therefore, understanding the genetic diversity of the species is necessary for its conservation and sustainable use. This study aims to evaluate the intraspecific diversity of Tuhau using morphological and genetic approaches for conservation and management purposes. A total of 56 Tuhau samples were collected from 12 localities within forest reserves and conservation areas across Sabah. The morphological analysis identified three distinct stem colours (red, green, and greenish red) and two rhizome colours (red and white). Phylogenetic analyses using the internal transcribed spacer-5.8S rRNA gene (ITS1-5.8S-ITS2) marker differentiated Tuhau accessions from species of Zingiberaceae family. Accessions from the southwestern regions of Sabah, particularly Penampang, Keningau, Nabawan, and Sipitang, were genetically distinct from those in other regions and could be regarded as a distinct management unit. Additionally, twenty microsatellite primers have been developed and are being tested to further investigate genetic variability and identify associations between genotypes and morphological traits. The findings from this study will support the development of sustainable management and ex-situ conservation practices by identifying genetically distinct sub-populations of Tuhau.