

Identification of ethnomedicinally important *Kaempferia* L. (Zingiberaceae) species based on morphological traits and suitable DNA region

ABSTRACT

Nuclear ribosomal internal transcribed spacer (ITS) sequences and morphological characteristics were used to identify medicinally important *Kaempferia* species cultivated in Peninsular Malaysia. Six species were evaluated for parameters such as nucleotide diversity (0.458) and estimated values of transition/transversion bias (0.89) using sequence data. Maximum parsimony (MP) analysis inferred divergence pattern in the *Kaempferia* genus. The resulting phylogenetic tree was compared to one formed using morphological traits. Morphological and molecular data both show 3 distinctive groupings within selected *Kaempferia* species. ITS 4 and 5 sequences are proposed as DNA barcodes for identification of *Kaempferia* species. In terms of morphological traits, plant habit, rhizome colour and leaf variation can be used for preliminary identification of this genus.

Keyword: DNA barcode; ITS4; ITS5; Maximum parsimony; Dendrogram