

## **Morphometrical Variations of Malaysian *Hipposideros* Species**

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### **ABSTRACT**

A study on the morphometrical variations among four Malaysian *Hipposideros* species was conducted using voucher specimens deposited in Universiti Malaysia Sarawak (UNIMAS) Zoological Museum and the Department of Wildlife and National Park (DWNP) Kuala Lumpur. Twenty two individuals from four species of *Hipposideros ater*, *H. bicolor*, *H. cineraceus* and *H. dyacorum* were morphologically measured, in which a total of 27 linear parameters of body, skull and dentals of each were appropriately recorded. The statistical data were later subjected to discriminant function analysis (DFA) variate analysis (CVA) using SPSS version 15.0 and unweighted pair-group method average (UPGMA) cluster analysis using minitab version 14.4. The highest character loadings observed in Function 1, Function 2 and Function 3 were the forearm length (FA), the third digit second phalanx length (D3P2L) and the palatal length (PL) with standardised canonical discriminant function coefficient values of 21.910, 5.770 and 5.095, respectively. These three characters were identified as the best diagnostic features for discriminating these closely related species of *Hipposideros*. Hence, this morphometric approach could be a promising tool as an alternative to the molecular DNA analysis for identification of Chiroptera species.

Keywords: *Hipposideros*, morphometric, discriminant function analysis cluster analysis, species identification.