

# Variation of the Pronotal Markings in *Rhynchophorus* (Coleoptera: Curculionidae) Species from Kuala Terengganu, Terengganu

SITI NURLYDIA SAZALI\*<sup>1</sup> & NABIHAH AFIFAH NASARUDIN<sup>1</sup>

<sup>1</sup>Faculty of Resource Science and Technology, Universiti Malaysia Sarawak, 94300 Kota Samarahan, Sarawak, Malaysia

\*Corresponding author: [ssnurdydia@unimas.my](mailto:ssnurdydia@unimas.my)

Received: 15 November 2021

Accepted: 24 December 2021

Published: 30 June 2022

## ABSTRACT

The notorious palm weevils from the genus *Rhynchophorus* (Coleoptera: Curculionidae) are known to be polymorphic and show high phenotypic plasticity. Due to these characteristics, this study attempts to document the typologies based on the pronotal markings observed from Kuala Terengganu population. Samples were collected using baited traps with pheromones and fruits as well as through handpicking method, where the sampling sites were located at two villages, namely, Kampung Tanjung Paya and Kampung Pulau Sekati. A total of 100 individuals were collected of which 19 typologies were successfully identified. Of all, the most prominent pattern observed was typology A, represented by 37 individuals. Findings from this study suggested that the variation was driven by various factors including resource limitation, habitat preference, diet preference and competition. However, a comprehensive study should be initiated to measure possible factor(s) which possibly induce the pronotal variation within *Rhynchophorus* at a local scale.

Keywords: Kuala Terengganu, morphology, palm weevil, *Rhynchophorus*, variation

Copyright: This is an open access article distributed under the terms of the CC-BY-NC-SA (Creative Commons Attribution-NonCommercial-ShareAlike 4.0 International License) which permits unrestricted use, distribution, and reproduction in any medium, for non-commercial purposes, provided the original work of the author(s) is properly cited.

## INTRODUCTION

The palm weevils from the genus *Rhynchophorus* (Herbst, 1795) were known to be one of the notorious pests to palm trees of Aracaceae. They were widely distributed throughout the Southeast Asia and Melanesia (Wattanapongsiri, 1966; Murphy & Briscoe, 1999; Hill & Abang, 2005; Rugman-Jones *et al.*, 2013). In Peninsular Malaysia, the red palm weevils *R. ferrugineus* were initially reported in Setiu, Terengganu in early 2007 and caused severe destruction to coconut plantations. Azmi *et al.* (2017) reported this species spread to other states of Perlis, Kedah, Penang and Kelantan in 2016. On the other hand, Sabah and Sarawak did not report any major pest issues pertaining to the presence of the red stripe weevils *R. vulneratus*, though their larvae were abundant in sago plantations. Instead, the pests provide the natives with economic returns as their larvae were cultivated and sold in markets to meet local demands for a protein source.

Morphological variation in beetles can be driven by many factors such as localities, habitat

types (surroundings), resource availability, larval density, abiotic factors, and even competition and predation (see Laparie *et al.*, 2010; El-Mergawy *et al.*, 2011; Tambe *et al.*, 2013; Rugman-Jones *et al.*, 2013; Hassan *et al.*, 2017; Sazali *et al.*, 2018; 2019). Such conditions thus lead to taxonomic ambiguities within *Rhynchophorus* species of which they exhibit high polymorphisms and phenotypic plasticity in different populations (Sazali *et al.*, 2018).

Rugman-Jones *et al.* (2013) discussed on the colour polymorphism in the red palm weevil, *R. ferrugineus*. They suggested that these specimens in fact represented at least two species, namely, *R. ferrugineus* and *R. vulneratus*. On the other hand, Hallett *et al.* (2004) considered the palm weevils as colour morphs of the same species and be synonymised under the name *R. ferrugineus* based on their synonymity. Subsequent studies were also conducted by Abad *et al.* (2014), Lannino *et al.* (2016) and Yong (2016), but none of these could assist in reconfirming the specific status of *Rhynchophorus* species complex, since respective studies were conducted at local