

FEEDING PREFERENCES OF NIPA-OBLIGATE CRAB *Labuanium politum* (DE MAN, 1887) IN CAPTIVITY; HERBIVOROUS SHIFT TO OPPORTUNISTIC OMNIVORES

SITI AKMAR KHADIJAH AB RAHIM, NUR AMIRAH MOHAMAD ALWIE* AND AKMA IDDIN MASINI

Faculty of Resource Science and Technology, Universiti Malaysia Sarawak, 94300, Sarawak, Malaysia.

*Corresponding author: nuramirahmohamadlwie@yahoo.com.my
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Abstract: *Labuanium politum* is a sesarmid crab that inhabit at nipa palm (*Nypa fruticans*) forest and known as herbivorous animal. The feeding ecology of this crab are literally scarce. Therefore, this study was carried out to investigate the feeding behaviour of *L. politum* towards different type of nipa leaf condition and various food materials through a series of laboratory feeding-preference experiments; leaf preference and multiple-choice feeding experiment. Total of 16 crabs (male=8, female=8) were placed individually in glass aquarium. Leaf preferences of *L. politum* were determined on three choices of nipa leaf condition (fresh=green, senescent=yellow and decayed=brown) in which the choices were given for each crabs. Results showed that this crab significantly preferred green leaf over yellow and brown leaf. Meanwhile, for multiple-choice feeding experiment, the crabs were given other choices of food materials: mangrove slug, cricket, bee and green nipa leaf. Consequently, *L. politum* preferred animal materials over green leaf, thus provides evidence that even though in the natural habitats they are herbivorous, this crab can be shifted towards opportunistic omnivores with strong preferences for animal food. These results suggest that this crab play a greater role in nutrient cycling in the nipa forest.

Keywords: Sesarmid, food choices, experiment, nipa.

Abbreviations: *L. politum* = *Labuanium politum*
LCR = Leaf consumption rate

Introduction

The brachyuran crab of Family Sesarmidae has 32 genera and more than 250 species worldwide (Naruse & Ng, 2012; Brosing *et al.*, 2014). In Malaysia and Singapore, there are 41 species of sesarmid crabs being recorded (Tan & Ng, 1994). Majorly, mangrove sesarmid crabs consume significant amount of either mangrove leaf litter or detritus comprising decayed leaves (Micheli *et al.*, 1991; Fratini *et al.*, 2000). Sesarmid crab species prefer to select different mangrove leaf litter types and categories since their stomach contents analysis comprise 55-95% of leaf fragments (Thongtham *et al.*, 2008). This further affects the rates of mineralisation in the mangrove nutrient cycling (Ravichandran *et al.*, 2007).

Leaf eating sesarmids showed selective preference on leaf condition between green

(fresh), yellow (senescent) and brown (decayed) leaves (Ashton, 2002; Ravichandran *et al.*, 2006; Chen & Ye, 2008). Most sesarmids *Sesarma plicata*, *S. messa*, *S. smithii* and *S. catenata* were reported preferring decomposed leaves compared to senescent and fresh leaves (Micheli, 1993a; Micheli, 1993b; Chen & Ye, 2008; Bergamino & Richoux, 2015). It is known that different leaf condition varies in the content of its nutritional value such as tannin and carbon-nitrogen ratio (C:N), in which the tannin and C:N ratio decreases as the leaf degrade (Chen & Ye, 2008). However, leaf materials are known as an inadequate diet due to their low nitrogen content (Mchenga & Tsuchiya, 2010). Therefore, it is believed the herbivorous crabs must supplement their diet with other high nutritional food sources (Skov & Hartnoll, 2002).

This study focused on one of the tree-climbing sesarmid species, *Labuanium politum*.