

Effects of food wastes on yellow mealworm *Tenebriomolitor* larval nutritional profiles and growth performances

ABSTRACT

In this study, nutritional profiles and growth performances of yellow mealworm, *Tenebriomolitor* larvae (TML) were assessed cultivated using common food wastes i.e. watermelon rinds, broilers' eggshells and banana peels. Nutritional profiles and growth performance of TML were evaluated after 28-day feeding trial. Post-feeding proximate analysis showed significant increment of nutritional contents compared to the control groups; whereby TML demonstrated highest level of crude protein ($43.38\% \pm 2.71$), moisture ($9.74\% \pm 0.23$) and ash ($4.40\% \pm 0.22$) in the group treated with watermelon wastes. On the other hand, TML showed highest level of crude fibre ($8.73\% \pm 0.05$) when treated with broilers' eggshells; and higher level of crude fat ($40.13\% \pm 4.66$) with banana wastes. Nitrogen-free extract (NFE) contents were also noticed higher in the group treated with banana wastes ($4.46\% \pm 5.30$). In terms of growth performance, TML administrated with watermelon wastes demonstrated superior in specific growth rate ($2.50\% \pm 0.43$) and feed conversion efficiency ($0.10\% \pm 0.01$). Interestingly, TML grown with banana wastes showed highest survival rate (97.5%) among all. In short, TML cultivation using watermelon and banana wastes showed a promising result on nutritional fortification and growth enhancement.

Keyword: Food waste; Proximate analysis; Specific growth rate; Survival rate; *Tenebriomolitor*