

THE EFFECT OF DIETARY SUBSTRATES ON THE GROWTH OF THE YELLOW MEALWORM (TENEBRIO MOLITOR L.)

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The escalating global human population demands strategies to reduce environmental pollution. Insects, valued in some Asian cultures as an alternative to conventional meat, offer rapid growth, low environmental impact, and high protein content, making them a promising protein source [1]. These advantages have fueled interest in large-scale insect farming, increasing the need for sustainable dietary substrates that reduce reliance on conventional feeds in mass rearing systems. The yellow mealworm (*Tenebrio molitor L.*) is a promising species for food and feed production; however, its growth performance is strongly influenced by diet composition. Therefore, identifying suitable food-derived waste substrates remains an important research objective.

This study evaluated the effects of different food-and-beverage-industry waste substrates on the growth of *T. molitor* larvae. The larvae were reared on diets composed of either 100% waste material or those containing 75% waste material supplemented with 25% wheat bran. Larvae were reared under controlled laboratory conditions, and their body weight was measured at regular intervals throughout development.

The results demonstrated that most food-and-beverage-industry waste substrates caused statistically significant differences in larval growth compared to the control. A more detailed overview of the substrate compositions and their effects on *Tenebrio molitor* larval growth will be presented during the conference.

[1] A. Orkusz, "Edible insects versus meat—Nutritional comparison: Knowledge of their composition is the key to good health," *Nutrients*, vol. 13, no. 4, p. 1207, 2021.