

**WHEAT DIETS SUPPLEMENTED WITH CALCIUM IODATE LEAD TO ALTERED GROWTH PERFORMANCE AND IODINE ACCUMULATION IN *TENEBRIO MOLITOR* LARVAE**

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Within the next decades, insects such as the *Tenebrio molitor* larvae (mealworms) could play a major role as alternative food source for the growing population. Their ability to transform low value processing by-products into protein- and fat-rich biomass is a great chance for sustainable food production systems. Key parameters for ideal growth performance need to be identified and optimized in industrial insect farming. Since there is strong evidence that insects tend to accumulate contaminants from their feed, one important factor of enhancing rearing conditions is the substrate presented to them.

In this study, we investigated the effect of different wheat based diets on weight gain, death rate and weight of pupae of mealworms over eight weeks. Additionally, mealworms were fed calcium iodate supplemented diets to explore their capability of enriching the essential trace element.

Mealworms grown on wheat bran and wheat semolina bran showed comparable growth performance regarding larvae and pupae weight as well as comparable death rate. The iodine supplemented diet led to lower medium individual larvae weight, however, the percentage of dead mealworms was clearly lower within the first four weeks. Already after four weeks, the mealworm iodine content has increased fourfold and reached almost the level reported for pork. Thus it was shown, that iodine contents in mealworms comparable to conventional meat sources can be obtained.

The better understanding of breeding conditions and usage of low quality diets from processing by-products as feed for insects can contribute to ensure the world food supply in a sustainable framework.