Effects of herbs dietary inclusion on growth performance and nutrient composition of Tenebrio molitor larvae

A. Moradei[1], T. Spranghers[3], D. Deruytter[4], M. Ottoboni[1], L. Pinotti[1,2]

[1] University of Milan, Veterinary medicine and animal sciences, Via dell'università 6, 26900 lodi, Italy, [2] CRC I-WE, Via festa del perdono 7, 20122 Milano, Italy, [3] VIVES university of applied sciences, Centre of expertise for agro- and biotechnology, Wilgenstraat 32, 8800 Roeselare, Belgium, [4] Inagro, Insect Research Centre, Ieperseweg 87, 8800 Rumbeke-Beitem, Belgium

Mealworm larvae (MW, Tenebrio molitor) are able to convert grain byproducts (i.e. bakery waste) into high-quality biomass, which can be processed into animal feed. Since moderate inclusion of several herbs may occur in some bakery waste material, this study examined the effects of herbs dietary inclusion on growth performance and nutrient composition of Tenebrio molitor larvae. The MW larvae were reared on wheat bran (control diet), or supplemented with four different herbs, namely, basil, oregano, rosemary and thyme supplemented in two concentrations (0.125% and 2% dry matter). All experiments were conducted under light condition, to counteract the meal moths, at 27°C with 60% relative humidity for five weeks. Growing performance parameter were recorded during the trial and nutritional composition was analysed on resulting larvae. The growth performance showed no differences between groups. Considering the DM content, no differences were observed among groups. In the case of protein content, greater inclusion of herbs resulted in lower protein levels. Regarding the fat level, only the inclusion of oregano led to lower content compared to the control group. Concluding the dietary inclusion in MW larvae of selected herbs up to 2% did not affect growth performance. However, some minor detrimental effects have been observed in the case of fat content in larvae receiving oregano. Further studies are needed for understanding the observed effects.