Overall acceptability of fillets of rainbow trout fed diets with increasing levels of *Tenebrio molitor* larva meal

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Insect meals are promising candidates as protein source in aqua-feeds. This study evaluated the overall acceptability of grow-out rainbow trout fed increasing dietary levels of defatted *Tenebrio molitor* larvae meal (T) and precisely: 0% (T0), 5% (T5), 10% (T10), and 20% (T20). At the end of the trial (154 days), fish fillets were vacuum-cooked (water bath, 75°C, 20 minutes). A total of 85 untrained consumers were asked to evaluate the sample overall acceptability by the use of the 9-point hedonic scale.
Afterwards, the consumers were asked to motivate their judgment choosing one of the following organoleptic characteristics: odour, taste or texture. A mixed ANOVA model with overall acceptability as dependent variable, dietary treatment as fixed effect and consumer as random effect, was performed. Tukey's multiple comparison test was used to determine significant differences ($P < 0.05$) among experimental groups. The acceptability scores given by each consumer were then converted into ranked data by assigning rank order numbers to the evaluations. Ranking data were analysed with the non-parametric Friedman's test. Finally, the numeric hedonic scores were classified into two categories as follow: ≤5, representing negative ratings ("dislike extremely" to "neither like nor dislike") and >5 representing positive ratings (like slightly to like extremely). Once the data were categorized a correspondence analysis was performed involving the organoleptic characteristics chosen by consumers to motivate their judgement.
The results of the affective test showed that mode of T5 group showed the highest value (8 = like very much).
The average acceptability scores of the trout fed on T ranged from 5.88 (T20) to 6.93 (T5), which corresponds to "like slightly" and to "like moderately" according to the 9-point hedonic scale. On average, about the 75% of the consumers rated acceptable the meat of the four groups.
ANOVA performed on mean hedonic ratings showed that fillets from T5, and T10 groups were preferred in comparison with T20 group. No differences were reported for all fish groups fed insect meals against T0.
The Friedman's test confirmed the ANOVA results. In fact, T5 and T10 groups were preferred in comparison with T20 group. Therefore, even if all groups were well accepted by consumer, results highlighted that a partial replacement of fish meal with T improves the overall acceptability of the product as indicated by correspondence analysis.