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Effect of different levels of *Tenebrio molitor* larva meal inclusion on chicken meat quality

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Abstract

The poultry industry will increase its production thanks to population growth. Due to this, there will be an increase in demand for supplies used in poultry diets, highlighting protein supplies such as fish meal and soybean meal (SM). The obtaining of these ingredients is affected by various problems, making it necessary to evaluate other elements to guarantee the protein nutrition of poultry. One of the alternatives to this problem is *Tenebrio molitor* larva meal (TMM). Therefore, the objective of the study was to evaluate the meat quality of chicken fed with a conventional diet that contained SM as the main protein

source, and meat from chickens fed with inclusions of 5 %, 10 % and 15 % of TMM in replacement of SM; through the evaluation of its sensory, physicochemical and nutritional characteristics. For the analyses, 8 broilers were randomly selected from each treatment (4): T0, 100 % soybean cake as the main protein ingredient (conventional diet); T1, inclusion of 5 % TMM; T2, inclusion of 10 % TMM and T3, inclusion of 15 % TMM. The inclusion of TMM in the diets did not influence the sensory characteristics of appearance and odor ($p > 0.05$); on the contrary, in the juiciness ($p = 0.00$), flavor ($p = 0.03$), softness ($p = 0.00$) and texture ($p = 0.01$) significant differences were obtained ($p < 0.05$) between treatments T0 and T1 with respect to T2 being similar to T3. In the case of physicochemical characteristics, in acidity, water activity, thawing and cooking loss, no significant differences ($p > 0.05$) were observed between treatments. The use of TMM in the diet of broiler chickens is possible, despite this, it is essential to focus on consumer opinion by including a higher percentage of inclusion of TMM, requiring more studies to determine its reliability as an ingredient in the feeding of chickens raised for human consumption.

Keywords: Breast muscle, broilers, insect, meat quality, *Tenebrio molitor*