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Influence of nanoencapsulated essential oils on productive parameters of broilers

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Abstract

The studies were carried out using broiler chickens of the Cobb 500 breed in the vivarium of the National University of Trujillo, Peru; with the objective to determine the effects of nanoencapsulated essential oils of guanabana, lemon and eucalyptus on their performance. One hundred one-day old chickens were divided in five treatments, T0 (control): 70 g of Halquinol t^{-1} feed; T1: Guanabana 33.4 %, lemon 33.3 %, eucalyptus 33.3%; T2: Guanabana 50 %, lemon 25 %, eucalyptus 25%; T3: Lemon 50 %, guanabana 25 %, eucalyptus 25%; T4: Eucalyptus 50 %, guanabana 25 %, lemon 25%; with doses of 75 g t^{-1} feed. The animals were fed ad libitum, the nutritive density of the feed was in accordance with the recommendations of Cobb-Vantress. The Halquinol (T0) was fed from 1–35 days of age. The T1 chickens had the highest body weight at 42 days and average daily gain compared to the results of the other groups. While the chickens of the control group (T0) had the lowest body weight and lowest average daily gain as compared to all other treatments. Feed intake and feed conversion also differed between groups. Although the T1 chicks consumed more feed during the feeding period, the feed conversion ratio was the lowest. The highest breast output was noted in the experimental groups T1 and T4 and exceeded the control group by 2.6 % and 2.4 %, respectively. Also, a positive and significant effect of nanoencapsulated essential oils on the yield of eviscerated carcasses and the yield of breast, which is the most valuable part of broiler meat, has been established. It can be assumed that it is the combined effect of several essential oils that has a positive effect on overall productivity and meat performance.

Keywords: Broilers, essential oils, performance, poultry