USE OF ARTICHOKE EXTRACT IN BROILERS' FEED
DURING 1-21 DAYS

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Abstract

A study was conducted to evaluate the effects of an artichoke extract on broiler production performance traits from 0 to 21 days of age. A total of 56,000 day-old broiler chicks were randomly assigned to 8 houses and raised from 1 to 42 days of age. The CONTROL group received a corn-soya meal basal diet and the treatment diet was supplemented with 600 (EA-600) g/Ton of an artichoke extract. During the 42 day-old rearing period significant differences between diets were observed for feed conversion and live weight (p<0.05). Feed conversion of the broilers fed the CONTROL diet was significantly higher than that of broilers which were fed the EA-600 diet. The EA-600 group achieved the heaviest live weight from 14 to 42 days. The Artichoke Extract added to the feed from 1-21 days of age at a 600 g/Ton has a positive effect to improve the feed efficiency and live weight of 42 day-old broilers.

Introduction

Artichoke Extract (Cynara Scolymus L.) has been used since ancient times to mitigate hepatic overloads. While Saenz Rodriguez et al. (2002) reported an increase in the exogenous liver function as cholagogue and choleretic, other authors have reported that Cynara extract has proven to be beneficial when supplemented to the diet of mycotoxin-challenged birds (Stoev et al., 2004). The action of cynara as cellular oxidation inhibitor has also been reported (Jimenez-Escreig et al., 2003) and as liver booster (Maros et al., 1968). The function of the biliary salts in the fat emulsification of the intestinal lumen is well known to facilitate their absorption (Adzet et al., 1987) and that during the first days of life the birds present an poor digestive tract (Mahagna & Nir, 1996), as a result, they produce an insufficient amount of bile. Azcona et al. (2005) reported that a higher amount of AME was obtained from the diet (73cal/g from day 7 to 9) with the addition of an artichoke extract during the first 21 days of life, which could be explained by a greater lipid digestibility due to the increase in bile secretion. If we add the latter to the fact that during first 21 days of life the birds are most susceptible to mycotoxins (Mariani,1998),
the use of artichoke extract in the first weeks of life could increase the productive response of broilers. The purpose of this paper was to evaluate the effect of the addition of a commercial artichoke extract to the diet of broilers of 1 to 21 days of age over the broilers’ productive parameters.

**Materials and Methods**

56,000 male and female 1-day-old Cobb chicks were used, randomly distributed in 8 houses of the same farm of an integration in the Dominican Republic and raised up to 42 days old. A Completely Randomized Design was used for treatment assignment, water and feed were supplied *ad-libitum*.

From day 0 to day 21, 2 diets were supplied which only differed in terms of the inclusion of a commercial artichoke extract: 0 (CONTROL) and 600 g/tn of extract (AE-600). The diets had the same protein, amino acid, vitamin, macro and micro-mineral level. The composition of the diets of 1-7, 8-21, 22-35 and 36-42 respectively was the following: 2950, 3050, 3150 and 3200 RME (kcal/kg), 21.00; 19.00; 18.00 and 17.00 Crude Protein (%); 0.89; 0.84; 0.82 and 0.83 Total Methionine + Cystine (%); 1.20; 1.10; 1.05 and 1.00 Total Lysine (%); 0.79; 0.74; 0.72 and 0.69 Total Threonine (%); 0.20; 0.19; 0.19 and 0.18 Total Tryptophan (%); 1.00; 0.96; 0.90 and 0.90 Calcium (%); 0.50; 0.48; 0.45 and 0.45 Available Phosphorous (%). The commercial artichoke used was Bedgen 40 Premix, composed of: Dry Cynara Extract, 15 g; Choline Chloride (70%), 30 g; Calcium Carbonate, 100g, q.s. During the following stages (22 to 35 and 36 to 42) the same standard diet was supplied to all treatments.

Weight and intake of each bird were recorded on a weekly basis, and feed conversion per house was calculated. Mortality was recorded daily for the correction of consumption of each house and to conduct the analysis per partial and cumulative period. An analysis of variance was conducted, and the means were compared using the Bonferroni method. When the ANVA assumptions were not fulfilled, Kruskal-Wallis was used for the analysis. The mentioned procedures were used using the INFOSTAT software.

**Results and discussion**

Tables 1, 2 and 3 show the cumulative weekly results for Live Weight, Consumption, Conversion and Mortality (results in the same column using different letters: p<0.05), no letters: p>0.05)
No significant differences were observed between the diets for feed intake and mortality (p>0.05). The highest weight of the animals fed with 600 grams of AE per ton up to 21 days of age may be responsible for the better conversion of these animals at 21 days of age and upon end of rearing. These results are consistent with the report by Stoev et al. (2004), Melo & Harkes (2007) and Micheluzzi & Melo (2008), who found a productive improvement in the broilers fed with artichoke extract who were mycotoxin-challenged, for this, positive protection results have been reported (Stoev et al., 2002; 2004). Other authors (Azcona et al., 2005) report on the productive improvement using only 300 g/Ton instead of 600 g/Ton on more controlled production conditions.
Conclusions

The addition of Artichoke Extract in the birds’ diets from day 1 to 21 resulted in an improved live weight and nutritional efficiency both at 21 days as well as at the end of the rearing (42 days).

The difference in the results, adding 600 g/ton instead of 300 g/ton, a sufficient amount in other trials, could be explained by differences in the degree of challenge.

The use of Artichoke Extract in feed during the first 3 weeks of life in broilers constitutes an alternative for the productive improvement of the birds at the end of the rearing, at day 42, given the fact that the improvement achieved during the administration of Artichoke Extract was maintained until slaughter.

References.


Mariani, GVC. 1998. Efeito de aflatoxinas sobre o desempenho produtivo de frangos de corte em diferentes períodos de desenvolvimento corporal. Universidade Federal de Santa Maria.


