

New approach to mitigate breast myopathies in broiler chickens.

Resume :

In Quebec, the presence of several quality issues in broiler breasts has been confirmed by our research team in the poultry supply chain. In order to reduce the occurrence of these myopathies, the development of new nutritional strategies is becoming increasingly important. The aim of our study was to assess the impact of incorporating antioxidant molecules in broiler diet on zootechnical performance, and the occurrence of breast muscle myopathies. A total of 3240 male birds of the Ross 308 strain were divided into six experimental groups: a control group that received a standard diet without any supplementation (CTR). The experimental groups received the same standard diet supplemented with 500 mg/kg carnosine (A), 250 mg/kg polyphenol sources (B), 300 mg/kg polyphenol sources with spices (C), 200 mg/kg vitamin C (D) and 500 (IU/kg) vitamin E (E) respectively. Zootechnical performance was assessed on D11, D22 and D35. At the end of the experiment, breast muscle myopathies were assessed by visual examination of 250 breasts per group. Results showed that the incorporation of antioxidant molecules in broiler feed did not alter production parameters except a significant reduction in the feed conversion ratio of groups (A) was observed during the starter phase ($P < 0.05$). The incorporation of carnosine in broiler feed significantly reduced the occurrence of white stripping ($P < 0.05$). With regard to wooden breast, the control group showed the highest number of myopathic fillets and the lowest number of normal fillets ($P < 0.05$) compared with the other groups. In addition, a significant reduction in myopathies was recorded in groups A and D ($P < 0.05$). In conclusion, the use of carnosine as an antioxidant additive could be a promising solution for reducing the incidence of breast muscle myopathies and consequently minimizing economic losses in the poultry industry.