



## ASPA 25th Congress Book of Abstract

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## **Dietary hemp seed cake in slow-growing broilers: effects on productive traits, antioxidant status and intestinal histomorphology**

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The competitiveness of local livestock systems depends on the identification of alternative feeds to high-cost imported ingredients. Among the identification of local alternative feeds, hemp (*Cannabis sativa* L.) shows interesting potential. Considering the growing popularity of hemp cultivation, a large number of by-products are currently available, of which hemp seed cake (HSC), obtained by cold pressing methods, may be investigated as a feed ingredient due to its nutritional properties. Thus, HSC could partially replace conventional feeds in poultry diet being a protein (>30%) and fatty acid source (PUFAs, especially C18:2 n-6). Therefore, to evaluate the effect of dietary HSC on growth,

meat traits and oxidation, and intestinal morphometry, a total of 180 male slow-growing broiler chickens (Hubbard) were divided into three groups and fed three grower-finisher isonitrogenous (19.7% crude protein DM) and isoenergetic (ME: 14.5 MJ/kg DM) diets from 14 days of age until slaughter (49 days). Diets varied according to HSC inclusion level: a control diet without HSC (HSC0) and two test diets containing 5% and 10% of HSC (HSC5 and HSC10, respectively). There were a total of 18 floor pens, six replicate pens (2.5 × 1.5 m) per treatment with ten broiler chickens in each pen with stocking density according to EU legislation. Morphometric indices of duodenum were measured at the end of the feeding trial (49 days). Dietary HSC had no adverse effect on growth performance, resulting similar (final BW ~2200 kg and FCR 2.25;  $p > 0.05$ ) and meat traits (carcass and breast yield: 74 and 20%, respectively) among groups. Feeding HSC at both inclusion levels influenced positively ( $p < 0.05$ ) breast and thigh meat muscles fatty acid composition, in terms of n-3 PUFAs series. Moreover, meat from HSC-fed broilers resulted less ( $p < 0.05$ ) susceptible to lipid oxidation compared to control diet. Dietary HSC inclusion at 10% resulted in higher ( $p < 0.05$ ) duodenal villus height, crypt depth and villus height to crypt depth ratio as well as villus surface area. Based on the obtained findings, dietary HSC positively supported productive traits of slow-growing broilers preserving meat from oxidation and also improving intestinal morphometry. Thus, the study assessed that hemp seed cake can be successfully included in the broiler diet, resulting in a valuable ingredient as replacement for conventional feed sources.