Camelina cake in laying hens diet to enrich eggs with omega-3 fatty acids

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The aim of the trial was to evaluate the inclusion of 7.5% of camelina cake in the diet of laying hens on performance, egg quality characteristics, fatty acids composition and lipid oxidative stability. Thirty-two 26-weeks old Hy-Line Brown laying hens coming from the same flock were divided in two homogeneous groups and allocated in enriched cages (8 replicates per treatment) at the Experimental Station (Centro Zootecnico Didattico Sperimentale) of the University of Milan in Lodi. After an adaptation week, the trial lasted 8 weeks. Diets were formulated to meet requirements suggested for the genetic line and were isoproteic and isoenergetic. Performance were recorded weekly and two eggs per replicate were sampled on day 0, 28 and 56 of the trial. On the same samples, two yolks per replicate were pooled for fatty acid composition. Samples of two eggs per replicate were also collected at the end of the trial to evaluate egg quality characteristics and oxidative stability during egg shelf life (day 9, 21 and 28 from laying); for this aim, pooled yolk were analyzed for TBARS content. Data were analyzed by MIXED procedure by SAS. No differences were observed for hens’ body weights and eggs production during the trial, whereas feed intake and feed efficiency, expressed as feed intake over egg weight yield, were lower at week 6 and overall the experiment, respectively. No differences were detected for egg quality characteristics between treatments. Dietary camelina reduced by 3.5% saturated fatty acids and increased by 49% α-linolenic acid in egg yolk. No differences between treatments were evidenced for quality of eggs and TBARS yolk content during eggs shelf life. Inclusion of 7.5% of camelina cake in laying hens’ diets could reduce production costs and increase nutritional properties of eggs.

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Dietary administration of olive mill wastewater extract to improve broiler performance and oxidative status in chicken meat

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Olive oil extraction generates high amounts of by-products considered as potential pollutants. By-products are treated as industrial wastes or combustible material, heavy-metal absorb- ers and biofuel feedstock. One important alternative, considering the relatively high content in polyphenols, is the use of by-products from the olive oil industry as sources of nutrients for animals. An olive mill wastewater polyphenols extract (OPE), obtained from aqueous waste through the use of a filtration system with progressive permeability membranes, was used as a supplement in a grower diet fed to broilers from 22 to 49 days of age.