Effect of feeding *Euphorbia heterophylla* seeds on egg production, egg quality, lipid composition and sensory evaluation of eggs

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ABSTRACT

*Euphorbia heterophylla* (poison milk) diet has a significant beneficial effect on the nutritional quality of animal products with the enrichment in polyunsaturated fatty acids omega 3. The present study was conducted to investigate the effect of feeding *Euphorbia heterophylla* seeds on egg production, egg quality, lipid composition and sensory evaluation of eggs. For this purpose, twenty four ISA Warren laying hens (1.45 kg initial body weight) were kept in cages and fed a control diet (RC) or an experimental diet (R15) containing (80% RC + 15% of *Euphorbia heterophylla* seeds and 5% vitamin and mineral supplement) for 28 days. There was no diet effect (P>0.05) on egg characteristics (weights of eggs, shells, yolk, albumen, shell thickness, yolk colour score, dry matter, lipid proportions and egg preferences). All the n-3 PUFA contents were increased (P<0.001) by the experimental diet (proportions of ALA, EPA, DPA and DHA were respectively multiplied by 31, 10, 4 and 3). Feeding the experimental diet led to an increase (P<0.001) in the PUFA/SFA ratio and to a robust decrease (P<0.001) in the C18:2 n-6/C18:3 n-3 and Σn-6/Σn-3 ratios. A significant reduction of 18% in egg yolk cholesterol level (P<0.05) from laying hens fed the experimental diet was observed at the end of the experiment. Inclusion of *Euphorbia heterophylla* seeds in the diets of laying hens is a valid method of improving the nutritional value of the eggs. However, the level of incorporation of *Euphorbia heterophylla* seeds seems higher and not optimal. The consumption of this type of egg will allow an improvement of the prevention of cardiovascular disease, leading cause of death in low- and middle-income.