

Effects of dietary rice bran on the cholesterol contents of chicken egg

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Abstract

High cholesterol content in chicken egg has become a public concern and thus means of reducing the cholesterol contents of chicken eggs are of importance. Rice bran (RB) and RB oil have been found to reduce the cholesterol contents in many laboratory animals and humans. Objective of this study was to evaluate whether increasing levels of dietary RB in layer diets could be used as a means of reducing cholesterol levels of chicken eggs. The experiment was a completely randomized design in 2*4 factorial arrangements. Thirty six weeks old brown Keggorn layer chicken (n=120) were allocated in to 40 pens and fed one of the eight layer rations for 29 days after 14 days of gradual acclimatization period for respective feeds. The treatment factors were two dietary RB forms (dry and normal) and four dietary RB levels (10, 20, 30 and 40%). Live weight, feed intake, egg production, shell weight, fresh yolk weight, dry yolk weight and albumin weight were not affected by either dietary RB level or form or their interaction. The egg weight of the layers fed normal RB (61.01 g) was significantly ($p<0.05$) higher than the birds given dry RB (59.5g). Shell ash percentage and shape index were affected by dietary RB level*form interaction ($p<0.05$). The lowest yolk cholesterol content was reported by the birds given 40% RB in normal form (174 mg/yolk) which was 21.5% lower than that of the birds fed 10% RB in normal form (222.7 mg/yolk). The yolk cholesterol level was highest (271.9 mg/yolk) when 10% RB was give in dry form. When dried RB was used, the lowest cholesterol level was reported at 30% RB; which was a 28.61 % reduction compared to 10% RB in dry form. Meanwhile when normal RB was used cholesterol level was lowest at 40% RB. Cholesterol contents expressed as mg/g fresh yolk or mg/g dry yolks were also showed a similar trend. There was a significant RB*form interaction with reference to the serum cholesterol level. It was concluded that increasing dietary RB level either in dry or normal form significantly reduced the cholesterol contents of chicken egg.

Keywords: Rice Bran, Cholesterol, Chicken Egg