
Effects of Tea Polyphenols on Performance, Egg Quality and Yolk Cholesterol Content of Laying Hens

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Abstract: The experiment was conducted to study the effects of tea polyphenols (TP) on performance, egg quality and cholesterol content in yolk of laying hens. Three hundred and eighty-four 56-week-old Roman brown laying hens were randomly assigned to four groups with six replicates per group and sixteen hens per replicate. The laying hens in group 1 (the control group) were fed a basal diet, and those in groups 2 to 4 were separately fed the basal diets with 100, 150 and 200mg/kg TP. The experiment lasted for 63 days, including 7 days for pretest. The results showed as follows: compared with the control group, adding 10mg/kg TP significantly increased the average egg weight ($P < 0.05$): adding 100, 150 or 200mg/kg TP did not change the average daily feed intake, laying rate, qualified rate of egg, feed/egg, mortality, yolk and albumen ratios, egg shell thickness, egg shape index, yolk color and Haugh unit ($P > 0.05$), but delayed the decline of Haugh unit during storage ($P < 0.05$). TP did not change the crude fat content in yolk ($P > 0.05$), but reduced the contents of cholesterol ($p < 0.01$) and MDA ($p < 0.05$) in yolk. These results indicate that TP can increase the average egg weight to some extent, delay the decline of egg Haugh unit during storage and prolong the shelf life of eggs, and decline the contents of the cholesterol and MDA in yolk, so it can be used to produce eggs with low cholesterol content, and 100mg/kg is the best supplemental amount of TP.

Key words: tea polyphenol, laying hen, performance, egg quality, cholesterol, MDA