Tippayarat Dontri 2009: Supplementation of Red Mold Rice from an Egg Yolk Pigmented and Cholesterol Lowering *Monascus kaoliang* KB9 on Egg Performance and Quality in Laying Hens. Master of Science (Agriculture), Major Field: Animal Science, Department of Animal Science. Thesis Advisor: Associate Professor Supaporn Isariyodom, D.Agr.
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Red mold rice (RMR) is a fermented rice product on which pigments as well as monacolin have been produced by *Monascus kaoliang* KB9. Monacolin K, a secondary metabolite of *Monascus* species can inhibit cholesterol synthesis. The objective of this study was to investigate the effect of RMR supplementation on egg quality, laying performance, egg yolk and blood cholesterol, HDL, triglyceride, total protein and albumin in blood. In the first experiment, three hundred and sixty hens were divided into 6 groups, four levels of RMR (0.25, 0.50, 1.25 AND 2.50%) were supplemented in laying hen diets compared with negative control (NC) and positive control (PC, commercial pigment added) for 12 weeks period. Hens fed 2.50% RMR group showed high significant difference ($P<0.01$) in egg yolk color compared to the others. Serum cholesterol levels of all experimental groups were highly significantly lower than those of the NC and PC groups ($P<0.01$); moreover, egg yolk cholesterol given RMR 0.50, 1.25 and 2.50%, were significantly lower than those of the NC and PC groups ($P<0.05$). No significant differences were found on egg weight, haugh unit, daily feed intake, average feed consumption per 1 kilogram of egg, shell thickness and shell composition. However, hens fed 2.50% RMR supplementation group showed highest albumin content ($P<0.05$). Based on the first experiment results, we readjusted the level of RMR (0.15, 0.50, 0.85 and 1.20%) in the second experiment. It was shown that RMR supplementation affected in similar way with the first experiment. However, RMR supplementation groups in the second experiment not only decreased blood cholesterol but also decreased triglycerides in blood; moreover, hens fed RMR supplementation groups could increase total protein ($P<0.01$) and albumin ($P<0.05$) in blood.

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