Waewaree Boonthium 2010: Supplementation of Crude Extract from Guava Leaves (*Psidium guajava* Linn.) in Laying Hen Diets on Egg Production Performance and Quality, Egg Yolk and Plasma Cholesterol Levels and Oxidative Stress. Master of Science (Agriculture), Major Field: Animal Science, Department of Animal Science.
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Supplementation of crude extract product from guava leaves (*Psidium guajava* Linn.) 0, 10, 20 and 30 mg/kg diet levels of layer under intensive rearing condition (4 birds/cage: area 240 cm^2/bird) compared with the control group (3 birds/cage: area 320 cm^2/bird) on egg production performance and quality, egg composition, plasma cholesterol and triglyceride, yolk cholesterol, total antioxidant capacity and lipid peroxidation. Three hundred and eighty layers aging 28 weeks were divided into five groups with four replicates. Each replicate consisted of 15 layers in control group (group 1) and 20 layers in group 2-5 for 16 weeks. The results showed that rearing in the intensive condition (240 cm^2/bird) had no significant effect on feed intake, feed consumption per kilogram of egg produced and body weight ($P>0.05$). However, egg production and egg weight as well as mortality rate were significantly affected ($P<0.05$). Supplementation of crude extract product from guava leaves could improve there deteriorated effects. The group fed 20 and 30 mg/kg diet of crude extract product from guava leaves could improve egg weight ($P<0.05$), But no significant differences were found on haugh unit, egg yolk color, shell thickness and egg composition ($P>0.05$). The group fed 20 and 30 mg/kg diet of crude extract product from guava leaves showed significant reduction of plasma cholesterol, triglyceride, egg yolk ($P<0.01$), heterophil-to-lymphocyte ratio (H:L) when compared to the control group. Total antioxidant capacity (TAC) in the plasma significantly increased relative to the elevated dietary levels of crude extract product from guava leaves. While, plasma malondialdehyde (MDA) a lipid peroxidation index express are thiobarbituric acid reactive substance (TBARs), value were significant by lower than the control groups (gr. 1 and 2)

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