Suppaporn Lonanurak 2009: Supplementation of Crude Extract Product from *Camellia sinensis* L. Marc in Laying Hen Diet. Master of Science (Animal Nutrition and Feed Technology), Major Field: Animal Nutrition and Feed Technology, Department of Animal Science. Thesis Advisor: Associate Professor Nuanchan Paraksa, Dr.Agr. 69 pages.

The objective of this study was to determine the effects of crude extract product from *Camellia sinensis* L. marc supplementation on egg performance, egg quality, the free radical and cholesterol in serum and egg yolk. Two hundreds and seventy two Hisex Brown layers aged 35 weeks were randomly divided into 6 groups. Each group consisted of 4 replications with 32 layers in group 1 (2 layers/cage) and 240 layers in group 2 to 6 (3 layers/cage). Group 1 and 2 fed a control diet (commercial layer diet without crude extract from *Camellia sinensis* L. marc). Diet 3 to 6 received control diet supplemented with 100, 200, 300 and 400 ppm of crude extract product from *Camellia sinensis* L. marc that provided 21.36, 42.72, 64.08 and 85.44 ppm catechin The egg production performance was collected in four periods with twenty eight days per each and the eggs from the last three days of each period were measured the egg quality.

The results of the experiment throughout four periods demonstrated that average daily feed intake, egg weight, egg mass, hen day egg production, hen house egg production, feed consumption per dozen egg produced and feed consumption per kilogram egg produced were not significantly different ($P>0.05$) amoung group. However, it was found that the egg quality in term of albumen height and haugh unit of eggs were significantly higher in group fed the diets supplemented with crude extract product from *Camellia sinensis* L. marc comparing with the control group ($P<0.01$). Furthermore, supplemented with 100-200 ppm of crude extract product from *Camellia sinensis* L. marc significantly decreased cholesterol in serum and yolk ($P<0.05$). Moreover, the supplementation of crude extract product from *Camellia sinensis* L. marc from 200 to 400 ppm in the diet significantly decreased TBARs in serum and also in egg yolk ($P<0.01$). Furthermore, the supplementation of crude extract product from *Camellia sinensis* L. marc from 200 and 400 ppm in the diet significantly improved the albumen height ($P<0.05$) as well as the haugh unit ($P<0.05$) of the stored eggs under room temperature until 28 days. In conclusion, supplementation with 100 - 200 ppm of crude extract product from *Camellia sinensis* L. marc (21.36 and 42.72 ppm catechin) in diet can provide the same egg production performance and egg quality of layer raised in high density condition as the normal density raising.

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