

Jiradech Thummanoonluk 2009: Effect of Including Antioxidants in Fish Meal Processing on Performance and Egg Qualities in Laying Hens. Master of Science (Agriculture), Major Field: Animal Science, Department of Animal Science.
Thesis Advisor: Associate Professor Duangsmorn Sinchermsiri, M.Sc. 84 pages.

The effect of adding antioxidants in fish meal was conducted in two trials on laying hen performance and egg qualities. In trial one, the effect of three antioxidants, EthoxyquinTM (EQ), BaroxTM (BR) and Butylated hydroxytoluene (BHT) (at concentration 500 ppm each) included in three fish meal (trash fish, remained surimi and remained tuna) processing (at fish intake, after drying and packaging) was investigated and compared with controlled feeding without antioxidants on nourishment, Peroxide Value (PV) and Thiobarbituric Acid Value (TBA). All treatments were stored for four months before they were taken for analysis. Moisture content in all fish meal kept for four months was found to be increased but protein and fat composition were found to be decreased significantly ($P<0.05$). All fish meal which antioxidants were added, showed PV and TBA lower than controlled feeding without antioxidants significantly ($P<0.05$). Fish meal with adding antioxidants at after drying showed PV and TBA lower than the ones adding antioxidants at fish intake and packaging significantly ($P<0.05$). All three antioxidants provided good results on inhibition of oxidation in all fish meal [PV and TBA showed non-significantly ($P<0.05$)]. Trial two was carried out to study efficacy of laying hens performance: feed intake, feed conversion ratio, egg production and egg weight, and egg qualities: Haugh unit, yolk color, percentage of yolk, cholesterol accumulation in yolk, shell thickness and TBA. Two feedings of trash fish and remained tuna with two antioxidants, EQ and BHT, which were kept for four months were mixed using the same formula feed. The controlled feeding without antioxidants was carried out as previous feedings. All treatments were fed to laying hens, ISA-Brown strain, of 23-43 week-olds. The results showed that no significant differences in all analysed aspects on efficacy of laying hens performance ($P<0.05$) and egg qualities except TBA value. Thiobarbituric Acid Value in yolk of controlled feeding group was higher than fish meal groups with antioxidants significantly ($P<0.05$). Based on these studies, it could be concluded that adding antioxidants in fish meal processing would be useful to inhibit oxidation occurrence during fish meal storage. More over egg qualities as well as efficacy of performance of laying hens fed fish meal with antioxidants were higher than the ones fed with fish meal without antioxidants.

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