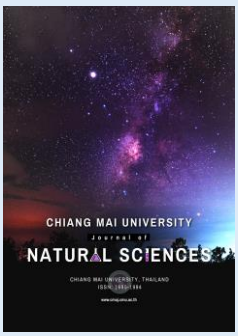

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Research article

Increased Levels of De-oiled Perilla Seed Meal in Broiler Diets to Enhance n-3 Fatty Acid Proportions and Improve Efficiency Levels

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Abstract De-oiled perilla seed (*Perilla frutescens* L.), referred to as perilla meal, is rich in α-linolenic acid (C18:3 n-3). The purpose of this study was to investigate the efficiency of increasing levels of perilla meal in broiler diets to modify the fatty acid composition and other properties of meat quality. Two-hundred broilers were divided into five groups and fed diets with 0, 2, 4, 6, and 8% perilla meal. The breast and thigh meat of the broilers, slaughtered at 42 days of age, were subjected to in-depth physicochemical and sensory analyses. The results showed that perilla meal efficiently modified the fatty acid compositions of the lipids of both muscles. Saturated fatty acids declined, especially C14:0 and C16:0, whereas monounsaturated (MUFA) and polyunsaturated fatty acids (PUFA) increased significantly in both muscle groups. The C14:1, C16:1, and C18:3 n-3 levels were found to be significantly different between treatment groups, in which the highest values were noticed in the perilla meal groups. Small increases in n-6 fatty acids resulted in commensurate decreases in n-6:n-3 ratios. Increased C18:3 n-3 proportions, as well as extended oxidative stability, were observed particularly in the 2% perilla meal inclusion. Perilla meal also increased protein content and water holding capacity (WHC), and decreased fat content and shear force; whereas the sensory evaluations were unchanged in both portions of meat.

Keywords: Broiler meat, Meat quality, n-3 fatty acid, Perilla meal

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