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Effect of Time of Incorporation of Tuna Oil in Finishing Swine Diet on Pork Characteristics

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Abstract

The objective of this study was to determine the effect of time of incorporation of tuna oil in the diet of finishing swine on meat quality. Previous studies had shown that when tuna oil was fed to pigs throughout the growing-finishing period, meat characteristics changed significantly ($p < 0.05$) at lower slaughter weight (90 compared to 100 and 110 kg) but there were no sex differences ($p > 0.05$). In this study, four hundred and eighty crossbred (Large White × Landrace × Duroc) pigs averaging 60 kg were allotted to 12 treatment combinations (40 pigs per treatment combination) in a completely randomised design with a $2 \times 2 \times 3$ factorial arrangement of treatments. The treatments were: dietary tuna oil supplementation (0 and 2 %); sex (barrows and gilts); and slaughter weight (90, 100 and 110 kg). Eight pigs/treatment (four of each sex) were randomly selected and slaughtered as they reached the predetermined slaughter weight for that treatment. The meat quality was evaluated. M. longissimus dorsi was sampled for further meat quality assessment. Tuna oil-fed pigs had significantly ($p < 0.05$) lower luminosity (L*) and yellowness (b*) values and cholesterol content but higher water holding capacity than the control group. Within treatment, meat from barrows had similar L* and b* values, fat percentage, cholesterol content, shear force value and sensory scores to those of gilts. Higher slaughter weight (110 kg) resulted in unfavourable meat quality. Results from this study indicate that late incorporation of tuna oil in diets fed to gilts combined with low slaughter weight (90 kg) result in meat with lower cholesterol and more appealing to consumers.

Keywords: Finishing swine, meat traits, pork, tuna oil

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