

CARCASS TRAITS, MEAT QUALITY, ANTIOXIDANT STATUS AND ANTIOXIDANT GENE EXPRESSION IN MUSCLE AND LIVER OF HU LAMBS FED PERILLA SEED

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Introduction

The increase of n-3 polyunsaturated fatty acid in livestock meat products can effectively improve meat fatty acid composition. However, unsaturated fatty acids are more easily oxidized, which can lead to deterioration of meat products. Perilla seed (PFS) rich in α -linolenic acid and phenolic antioxidants is a promising option to modify fatty acid composition of animal-derived food product through use as a feed supplement. Therefore, this study evaluated these potential effects of PFS supplementation on Hu lamb products.

Materials and Methods

Sixty Hu lambs (3 month old) were randomly divided into four experimental groups receiving diets containing 0%, 5%, 10% or 15% perilla seed (CD, 5%PFSD, 10%PFSD and 15%PFSD, respectively). During the 84 days experimental period, these groups were fed the assigned diets *ad libitum*. At the end of experiment, animals were transported to slaughter house.

Results and Discussion

In the present study, the lambs grew at similar rates and thus had similar carcass weights at the end of the feeding period, probably because of the similarity in dry matter intake in isocaloric and isonitrogenous diets. In addition, supplementation of lamb diets with PFS had no effect on drip loss, cooking loss or shear force. However, the intramuscular lipids gradually increased with increasing levels of PFS supplementation. Although ingestion of food enriched with PUFA can increase oxidative stress in tissues, it can also increase antioxidant defences and reduce free radical oxidation damage. Therefore, the inhibition of lipid oxidation in tissues with higher n-3 PUFA content probably be related to the antioxidant activity of phenolic compounds in PFS and an increase of expression of the antioxidant enzymes.