P-06-28

Biological evaluation of dietary n-6:n-3 ratio and different processing methods and their role on meat quality of growing pigs (#607)

Seung Min Oh[1], Se Young Yoon[1], JungWoo Choi[1], Su Hyup Lee[2], Aera Jang[1], Seung Hyung Lee[3], **Jin Soo Kim**[1]

[1] Kangwon National University, chuncheon, South Korea; [2] Korea National College of Agriculture and Fisheries, Jeonju, South Korea; [3] Nonghyupsaryo, Seoul, South Korea

Introduction

In recent years, there has been an increased interest in manipulating the fatty acid composition of meat to produce healthier meat with a higher ratio of polyunsaturated to saturated fatty acids. The ratio of n-6:n-3 is particularly beneficial in pigs meat because they normally do not have an adequate amount of polyunsaturated fatty acids in their diets. Flaxseed (linseed) is a good source of polyunsaturated fatty acid. The aim of this study was to evaluate the main effects of n-6:n-3 ratio and the processing methods of linseed on growth performance and fatty acid composition of meat in growing pigs.

Methods

A trial was conducted to investigate the effects of dietary n-6:n-3 ratio and processing methods on growth performance, fatty acid concentrations of longissimus dorsi, relative expression of cytokines, blood profiles, and meat quality in laying hens. 180 growing pigs were randomly allotted to five treatments on the basis of body weight. The dietary treatments included a basal diet, two n-6:n-3 ratios (W4, 4:1; W2, 2:1), and 2 processing methods (O and X).

Results

Pigs fed the W4 and W2 diets had greater ($P<0.05$) final body weight. The W4 and W2 diets decreased the overall stearic acid in longissimus dorsi. There were reductions in the concentration of palmitoleic acid of longissimusdorsi in pigs fed W4 diet compared with the basal diet. The W4 and W2 diets decreased the concentration of α-Linolenic acid in longissimus dorsi of pigs ($P<0.05$). The overall concentration of short chain fatty acids and n-6:n-3 ratio of longissimusdorsi was greater in pigs fed the basal diet, however, the ratio of polyunsaturated fatty acids was the lowest in the pigs fed the basal diet. The medium unsaturated fatty acid content of longissimusdorsi was higher in pigs fed the basal diet compared with pigs fed W2 diet and X processing method. The relative expression of acetyl CoA carboxylase and fatty acid synthase were higher in pigs fed W2 diet compared with pigs fed the basal and W4 diets. Lower total cholesterol and higher lymphocyte percentage of plasma were observed in growing pigs fed W2 diet. The cooking loss ratio of meat was higher in pigs fed the W2 diet compared with the basal diet.

Conclusion

The present results indicate that the W2 and W4 had the potential to enhance the growth performance and meat quality of growing pigs.

Notes