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Fatty acid profile in the loin of pigs fed diets containing grape pomace

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This study was conducted with the aim of evaluating the fatty acid profile in the loin of pigs fed diets containing grape pomace, associated or not with a blend of canola and flax oils. Experiment 1: Three diets were compared: Control diet based on corn and soybean meal and two diets containing 5 or 10% of dehydrated grape pomace (DGP); Experiment 2: All diets contained 1.5% canola oil and 1.5% flax seed oil and the treatments consisted of a control diet based on corn and soybean meal and two diets with (DGP) or ensiled grape pomace (EGP) at inclusion levels of 7.5 (0-21 days) and 15.0% (22-42 days). Thirty six pigs (18 barrows and 18 gilts) were used in each experiment, with average initial weight of 83.23 ± 6.03 and 92.83 ± 7.47 kg in experiments 1 and 2, respectively. The experimental design was randomized complete blocks design, considering initial weight within sex as the block. After 42 days of experiment, the pigs were slaughtered and loin samples were collected for fatty acid profile analyze. Data was submitted to analysis of variance, including treatment, sex, and the interaction treatment vs. sex as sources of variation. There was no interaction treatment vs. sex in any of the experiments. In experiment 1, 10% inclusion of DGP reduced (P<0.016) the C20:4n6 compared to the control and 5%, while 5 and 10% of DGP reduced (P<0.005) the omega-6:omega-3 ratio. However, the decrease in the omega-6:omega-3 ratio was of low magnitude, from 17.85 in the control to 15.72 and 15.20 in the 5 and 10% DGP diets, respectively. The sum of monounsaturated fatty acids (MUFA) showed a tendency (P<0.08) to raise with 10% DGP inclusion, compared to 5%. All the other fatty acids were not affected (P>0.05) by treatments. In experiment 2, C20:2n6 was greater (P<0.007) and the C18:2n6, the sum of omega-6, and PUFA/SFA ratio showed a tendency to be greater (P<0.07 to 0.10) in the treatment with DGP than in the other treatments. Regarding the differences between gilts and barrows, in both experiments most of MUFA as well the sum of MUFA were greater (P<0.05) in barrows, while most of PUFA, the sum of omega-6, sum of PUFA, PUFA/SFA ratio, and omega-6:omega-3 ratio were greater (P<0.05) in gilts, but the differences are of low magnitude. Five or 10% inclusion of DGP in the diet of finishing pigs reduced the ômega-6:ômega-3 fatty acids and tended to increase MUFA in the loin. However, when associated with a blend of canola and flax oil, the inclusion of DGP tended to increase omega-6 fatty acids, while the EGP did not show any effect. Overall, the effect of DGP on fatty acid profile of loin was of low magnitude, being of low practical importance regarding the meat quality. Gilts showed greater proportion of PUFA, while the barrows presented higher proportion of MUFA and lower omega-6:omega-3 ratio.

Keywords: fatty acid, grape pomace, pork quality