

ABSTRACT

Effects of the roughage/concentrate ratio on the expression of angiogenic growth factors in adipose tissue of fattening Wagyu steers

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In this experiment, we studied the effects of the dietary roughage/concentrate ratio on the expression of the angiogenic growth factor (VEGF and FGF-2) and the adipogenic transcription factor (C/EBP β , C/EBP α , and PPAR γ) gene in the adipose tissues of Wagyu steers. Steers were fed a high-roughage diet (R group, 35% roughage and 65% concentrate on a TDN basis) or a high-concentrate diet (C group, 10% roughage and 90% concentrate) during the entire fattening period (from 10 to 30 months of age) with the same amount of TDN intake between groups. In mesenteric and intermuscular adipocytes, the expression of the angiogenic growth factors was higher in the R group than in the C group. In contrast, the expression of adipogenic transcription factors in the subcutaneous and intramuscular adipocytes was higher in the C group than in the R group. These results indicate that the dietary roughage/concentrate ratio affects the fat depot-specific differences in the angiogenic and adipogenic gene expression pattern.

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