Blood Lipids and Proportion of Fatty Acids, Especially CLA in Milk of Simmental Cows Fed with Unprotected Sunflower Oil

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The main objective of our research was to determine the effect of unrefined and unprotected sunflower oil on the fatty acid composition and blood lipid profile in Simmental cows. Ten Simmental cows in mid-lactation were appointed for changeover feeding trial over the 35-d period. Cows were allocated to (BD) basal diet 41% concentrate, 33% perennial ryegrass haylage, 26% corn silage in dry matter, or (SO) diet supplemented with 200 g of unprotected sunflower oil per cow daily. The total blood cholesterol concentration increased significantly in SO diet (5.58 mmol/L *vs*. 4.58 mmol/L) and triacilglycerol concentration did not change between the treatments. The SO diet significantly and rapidly elevated ratio of *cis*-9, *trans*-11 CLA (1.25% *vs*. 0.80%) and linoleic acid (3.56% *vs*. 2.75%) in milk, and simultaneously significantly decreased palmitic acid ratio (25.14% vs. 29.99%). High individual variations were detected in blood cholesterol concentration and milk CLA proportions, especially after the introduction of sunflower oil into the diet. Highly positive correlation between the linoleic acid and CLA proportions were determined (r = 0.80), and negative correlation between the total blood cholesterol concentration and milk fat content, during the SO treatment, was observed. In conclusion, relatively small quantity of unprotected high linoleic sunflower oil in the diet significantly modified the fatty acid composition of Simmental cows' milk, with individual differences in the response to the diet changes.