

# CONJUGATED LINOLEIC ACIDS ALTER MILK FATTY ACID COMPOSITION AND INHIBIT MILK FAT SECRETION IN DAIRY COWS.

Binh Nguyen Van, Soo-Won Lee, Yvan Chouinard

## TÓM TẮT:

Conjugated linoleic acids (CLA) have positive health effects in experimental animal models. Our objective was to determine the effect of CLA supplementation on milk fatty acid composition of dairy cows. A commercial source of CLA was infused abomasally to by-pass rumen fermentation. The supplement contained 61.2% CLA; the major CLA isomers were cis/trans 8, 10, cis/trans 9, 11, cis/trans 10, 12 and cis/trans 11, 13. Four Holstein cows were used in a 4 x 4 Latin square design. Treatment was 5-d infusion of 0, 50, 100, and 150 g/d of CLA supplement. Infusion increased CLA content of milk fat from 6.8mg/g fat (zero dose) to 63.6 mg/g fat (highest dose). All of the major CLA isomers in the supplement were transferred to milk fat in a dose dependent manner. Apparent efficiency of transfer to milk fat was 22.5, 22.5, 10.2 and 26.3% for cis/trans 8, 10, cis/trans 9, 11, cis/trans 10, 12 and cis/trans 11, 13, respectively. CLA infusion had no effect on milk protein and little effect on milk yield (21.5, 20.4, 20.9, and 18.3 kg/d for 0, 50, 100, and 150 g/d CLA supplement, respectively). However, CLA infusion dramatically reduced in milk fat. On average, the content and yield of milk fat were reduced by 52 and 55%, respectively. The role of specific CLA isomers and mechanism(s) for the reduction in milk fat have not been established, although the pattern of milk fatty acids demonstrated effects were most pronounced on de novo fatty acid synthesis and the desaturation process. Overall, dietary supplement of CLA increased CLA content of milk fat, altered milk fatty acid composition and markedly reduced the content and yield of milk fat.