

EFFECT OF MILKING TIME ON MILK FATTY ACID PROFILE OF COWS FED TROPICAL FORAGE-BASED DIETS SUPPLEMENTED WITH SOYBEAN OIL

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Due to health concerns, efforts have been made to alter the milk fatty acid (FA) composition of dairy cows. This study evaluated possible differences in milk FA profile between the morning and afternoon milking of cows fed diets based on Elephant grass (*Pennisetum purpureum*) supplemented with different soybean oil (SO) levels. The trial was conducted at Embrapa Dairy Cattle Research Center, Brazil. Twelve multiparous Holstein x Zebu cows in mid-lactation were assigned the following dietary treatments (DM basis):

- 1) Control: no SO;
- 2) SO1: diet with 1.5% of SO;
- 3) SO2: diet with 3.0% of SO and
- 4) SO3: diet with 4.5% of SO.

The design was a 4 x 4 Latin Square with 15-days treatment periods (10 for adaptation and 5 for data collection). Diets were fed once daily as a total mixed ration (TMR) and were composed of chopped Elephant grass and a concentrate mixture (50:50, DM basis). The Elephant grass was harvested daily at mid maturity and chopped immediately before TMR preparation. The concentrate was composed of corn, soybean meal, citrus pulp and a mineral-vitamin supplement. As SO was added, the corn was progressively reduced. On the first day of each collection period, the milk produced in each milking (6 a.m. and 3 p.m.) was collected and separated according to treatment to produce butter, which was analyzed for FA profile by gas chromatography (Cruz-Hernandez et al. JDS, v.90, p.3786-3801, 2007). Results were analyzed by PROC GLM (SAS, 2001) and included animal group, period, treatment, milking time and interaction treatment vs. milking as sources of variation. There was no interaction between treatment and milking for any milk FA ($P > 0.05$). Concentration (g/100g of total FA) of total saturated FA was higher ($P < 0.05$) in a.m. than in p.m. milking (55.9 vs. 53.3), while the concentrations of mono and polyunsaturated FA were higher ($P < 0.05$) in p.m. milking (35.0 vs. 36.8 and 6.24 vs. 6.63, respectively). For individual FA, concentrations of C4:0, C15:0 iso, C15:0 anteiso, C14:0 iso, C17:1, C18:1 cis-9 plus trans-15 and C18:2 cis-9, cis-12 were higher ($P < 0.05$) in p.m. milking (3.06 vs. 3.16; 0.26 vs. 0.28; 0.48 vs. 0.51; 0.21 vs. 0.22; 0.21 vs. 0.24; 21.04 vs. 22.97 and 2.30 vs. 2.46, respectively), while an opposite response was observed for C14:0 and C16:0 (9.37 vs. 8.87 and 25.79 vs. 23.94, $P < 0.05$, respectively). Overall, our results showed a more desirable milk FA profile in afternoon than in morning milking (Financial support: FAPEMIG and CNPq).