Research Communication: Application of a linear regression model to study the origin of C17 branched-chain fatty acids in caprine milk fat

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ABSTRACT

This research communications addresses the hypothesis that a part of *iso* 17:0 and *anteiso* 17:0 in milk fat could come from endogenous extraruminal tissue synthesis. In order to confirm this idea a linear regression model was applied to calculate the proportions of *iso* 17:0 and *anteiso* 17:0 in milk fat that could come from elongation of their putative precursors *iso* 15:0 and *anteiso* 15:0, respectively. Sixteen dairy goats were allocated to two simultaneous experiments, in a crossover design with four animals per treatment and two experimental periods of 25 d. In both experiments, alfalfa hay was the sole forage and the forage to concentrate ratio (33:67) remained constant. Experimental diets differed on the concentrate composition, either rich in starch or neutral detergent fiber, and they were administered alone or in combination with 30 g/d of linseed oil. *Iso* 15:0, *anteiso* 15:0, *iso* 17:0 and *anteiso* 17:0, the most abundant BCFA in milk fat, were determined by gas chromatography using two different capillary columns. The regression model resolved that 49% of *iso* 17:0 and 60% of *anteiso* 17:0 in milk fat was formed extraruminally from *iso* 15:0 and *anteiso* 15:0 elongation. As no body weight change was observed in the goats, the obtained results would confirm the idea that a relevant proportion of long chain BCFA in milk fat are not from microbial origin.