

Distribution of individual *trans* fatty acids (*t*FA) and conjugated fatty acids (CLA) in dairy and pseudo-dairy products

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Introduction: The distribution of *t*FA and CLA in foods depends on their origin and processing (biohydrogenation in ruminants or industrial hydrogenation). *t*FA have different detrimental effects on human health. To compare the distribution of individual *t*FA and CLA in relation to their origin various foods were analyzed.

Methods: Fatty acid methyl esters (FAME) were determined using different methods [GC; 60 m & 200 m *cis(c)* & *trans* C18:1 (*t*C18:1); CLA: Ag⁺-HPLC].

Results: Dairy products: In milk and pure dairy products, the major *t*18:1 isomer was vaccenic acid (*t*11; Ø70% of Σ *t*C18:1) and the major CLA was *c*9,*t*11 C18:2 (Ø 75% of Σ CLA). Milk fat *t*11 and CLA contents of grazing cows were higher compared to indoor cows (2.1 vs 0.7%; 1.4 vs 0.5% of Σ FAME). The CLA pattern changed (increased *t*11,*c*13 CLA; decreased *t*7,*c*9 CLA). The *t*11 and total CLA content reached highest levels in sheep and goat products (Ø 2.3% *t*FA, 1.8% CLA of Σ FAME).

Pseudo-dairy products: On the market, there is a wide range of manufactured products with a declared milk portion especially for children. The fat content of these products was high (about 30%). Exemplarily, we found sweets and bakery products with a declared milk portion (milk roll, wafer with milk cream, yoghurt cream, etc.). We did not find *t*11 as major *t*C18:1 but elaidic acid (*t*9) and *t*10 (both 58% vs *t*11 9% of Σ *t*C18:1). The *t*C18:1 pattern was similar to hydrogenated margarines. Interestingly, the CLA pattern differed considerably from dairy products, especially the high content of conjugated *trans/trans* double bonds (e.g., 71% vs 7% of Σ CLA).

Discussion: To date, the physiological sequelae of the consumption of individual *trans* isomers and the detected *t/t* CLA isomers is unknown. The term `milk` for some products analyzed is misleading, because analyzed isomers of *t*FA and CLA are not existing in pure milk.