This is a comprehensive study of fatty acid profiles in milk from bovine, caprine, ovine, asine, and equine species. Milks from these species are universally common as constituents in a variety of different food and dairy products all over the world. We have obtained structural information on fatty acids, and discussed their correlation to possible health effects. The extracted fat from all species were derivatized to fatty acid methyl esters for analysis by HRGC-MS.

Significant differences in the lipid content and fatty acid composition between ruminants and non-ruminants were observed. Ovine milk showed the highest lipid content of all the animals tested, both ruminants and non-ruminants. Among the ruminants, bovine milk was richer in saturated fatty acids (69.7%) than ovine- and caprine milk (57.5 and 59.9%, respectively). Ovine milk contained the highest amounts of monounsaturated FAs (39.1%) and also odd- and branched-chain fatty acids (5.5%). Milk from the monogastric animals, mares and donkeys, were highest in polyunsaturated fatty acids with a content of 19.3 and 14.2%, respectively. The assumed health negative trans fatty acids were analyzed to be highest in the ruminant milk (0.7–1.0%). Milk from these species contained also the highest amount of the health beneficial CLA (0.4–0.7%).