

Focusing on fatty acids profile in milk from different species after *in vitro* digestion

Antonella Santillo¹, Lucia Figliola, Maria G. Ciliberti, Mariangela Caroprese, Rosaria Marino,
and Marzia Albenzio

¹Department of the Sciences of Agriculture, Food and Environment (SAFE), University of
Foggia, Via Napoli, 25, 71122 Foggia, Italy

Short title: **Fatty acids profile of milk from different species.**

*Correspondence: A. Santillo

Department of the Sciences of Agriculture, Food and Environment (SAFE), University of Foggia,
Via Napoli, 25, 71122 Foggia, Italy

Phone +39-0881 589326

E-mail: antonella.santillo@unifg.it

Summary

The paper aimed to study the fatty acids profile of raw milk and of the corresponding digested milk from different sources as human milk, formula milk and donkey, bovine, ovine and caprine milk. The study intended to assess whether the fatty acids profile of milk reflects the one available for intestinal absorption after digestion in order to gain information on the nutritional quality of different milk sources in infant nutrition.

Fatty acids profile in human milk, formula milk and in different animal species evidenced that short chain fatty acids (SCFA) were higher in bovine and caprine milk, intermediate in ovine and donkey and lower in human and formula milk. The group of medium chain fatty acids (MCFA) showed the highest values for bovine and caprine milk and the lowest for donkey and formula milk, whereas long chain fatty acids (LCFA) were the highest in donkey and formula milk and intermediate in human milk.

The percentage distribution of fatty acids liberated after *in vitro* digestion did not reflect the patterns found in the corresponding milk sources. In particular, medium-chain FFA (MC-FFA) showed the highest and the lowest values in donkey and in formula milk. The long chain FFA (LC-FFA) showed the highest value in human milk. The total FFA was the highest in human milk, the lowest in formula milk and intermediate in donkey, bovine, ovine, and caprine milk.