1. Triglyceride and fatty acid composition of ruminants milk, human milk, and infant formulae

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In this study, triglyceride and fatty acid composition of Holstein cow milk, Jersey cow milk, yak milk, goat milk, human milk and 8 infant with Electrospray Ionization Mass Spectrometry (UPLC-ESI-MS) and Gaformulae samples were determined by Ultra Performance Liquid Chromatography combined s chromatography (GC), respectively. In general, the triglyceride and fatty acid composition of milk samples of different origin were specific. Compared with infant formulae, human milk contained more triglycerides composed of unsaturated fatty acids, for example 18:0/18:1/18:2, 15:0/18:1/18:1, and 17:0/18:2/18:2. The triglyceride C52:2 in human milk consisted of more 16:0/18:1/18:1 than in infant formulae. In addition, the proportion of triglyceride 18:1/18:1/18:1 in infant formulae differed greatly among brands, ranging from 0% to 38.56%. Triglyceride 4:0/18:0/18:1 was present in bovine milk (> 1%) but not detected in goat milk. The triglycerides 12:0/12:0/12:0, 6:0/14:0/18:0, 12:0/14:0/14:0, 10:0/14:0/18;0, and 14:0/18:0/18:0 were present in goat milk (> 1%), which were not detected in bovine milk samples. The triglycerides 16:0/16:0/24:0, 16:0/18:0/22:0, 16:0/16:0/23:0, and 16:0/18:0/21:0 contained long chain FAs in yak milk. In addition, the ratio of ω-3 PUFA to ω-6 PUFA in yak milk was about 1 to 2, which is a characteristic of the fatty acid profile of yak milk. This study could provide a theoretical foundation for optimizing the fat composition of dairy products.

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