Fatty acid profile of organic and conventional halloumi cheese

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Lipids of milk fat, have distinctive effects on nutritional, textural and organoleptic properties of milk and dairy products, while unsaturated and, especially, polyunsaturated fatty acids (FA) have been reported to possibly confer some beneficial biological effects on human health. The objective of the present work was to study the FA profile of halloumi cheese produced using organic or conventional milk from Cyprus farms. The study was conducted over a period of two years. A total of 118 samples of organic and conventional halloumi cheese were collected at two-month intervals from products available in supermarkets and other retail outlets. The samples were analysed by gas chromatography–mass spectrometry for fatty acid profile. The effect of the farming system on halloumi cheese constituents was investigated by ANOVA analysis using the SPSS statistical package. The results showed that organic halloumi cheese had higher concentrations of the beneficial for human health FA compared with the conventional product. Thus, organic halloumi had 36% higher concentrations of total polyunsaturated fatty acids than the conventional one (7.1 vs. 5.2 % wt/wt of total FA, respectively; $p < 0.01$). Further analysis on specific health-related FA showed an increase of linoleic acid (4.7 vs. 3.5 % wt/wt of total FA; $p < 0.01$), α-linolenic acid (0.81 vs. 0.66 % wt/wt of total FA; $p < 0.01$) and conjugated linoleic acid (cis-9, trans-11 CLA, 1.14 vs. 0.81 g/kg of total FA; $p<0.001$) in organic as compared to conventional halloumi cheese. These differences are more likely attributed to the different feeding practices followed by organic and conventional farms in Cyprus.