BIOACTIVE LIPIDS IN MILK AND SOME DAIRY PRODUCTS

By

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B.Sc. Agric. Sci. (Food and Dairy Industries), Menoufya University, 2011

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ABSTRACT

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The aim of this work was to monitor some of the bioactive lipids content in Egyptian buffalo and goat milk as affected by species, seasonal variations and some technological dairy steps. The studied-bioactive lipids are butyric acid, conjugated linoleic acid, odd and branched chain fatty acids, phospholipids, and *trans* fatty acids. Gross chemical composition and conjugated dienes and trienes acids of milk samples were also previously evaluated. Regarding to the fatty acids profiles as well as total polar lipids and phospholipids classes of the types of milk samples as well as buffalo milk fatty products and their by-products were estimated by modern techniques such as GC-MS and ^{31}P-NMR apparatus.

The results indicated that milk samples in winter season contained higher values of gross composition for both buffalo and goat milk than summer season, where the green fodder is in winter.

Regarding to the results of studied-bioactive lipids, it is noticed that goat milk is rich in conjugated linoleic acid and phospholipids classes especially sphingomyelin as compared with buffalo milk. At the same time, buffalo milk had higher contents of butyric acid and odd-branched chain fatty acids (OBCFAs) than goat milk.

Moreover, the technological steps had a clear effective influence on the distribution of all bioactive lipids in milk products, especially CLA and phospholipids. Therefore, phospholipids are the most abundant in aqueous phase such as butter milk and skim milk when compared to cream and butter.

Regarding to the fractionation of butter oil, it is noticed that liquid fraction at 15°C (L_{15}) had a higher content of CLA as well conjugated diene and triene fatty acids, while solid fraction at 25°C (S_{25}) contained a higher content of total OBCFAs when compared to all other fractions.

Key words: Buffalo milk, goat milk, bioactive lipids, conjugated linoleic acid, odd and branched chain fatty acids, polar lipids, phospholipids and *trans* fatty acids.

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