

Abstract

Assessment antioxidant capacity of different foods enable comparison their biological activity. In studies antioxidant capacity of the milk and infant formulas, it was necessary to use two different analytical methods. To assess the antioxidant capacity of the hydrophilic phase ORAC_{FL} method was used, while the evaluation of the antioxidant capacity lipophilic phase, a modified method of DPPH.

Studies have shown that the antioxidant capacity of milk is variable and statistically significant depend on feeding system. Each time milk from traditional feeding system of cattle showed higher antioxidant capacity than milk from cows on TMR system. At the same time the highest antioxidant capacity was characterized by the milk of the spring and summer. Related to seasonality of milk production, changes in the content and antioxidant activity related in particular milk fat. The surge in antioxidant capacity of the lipid phase in grazing feeding period was a consequence of a higher content of antioxidants (CLA, β -carotene, α -tocopherol OBCFA), despite a significant increase in the unsaturated FA.

Infant formulas characterized comparable antioxidant capacity due to similar chemical composition. However, during 12 months of storage there was a significant decrease in antioxidant capacity: 2-fold in hydrophilic phase and almost 3-fold for the lipid phase. This was due to the high content of unsaturated FA, with the shortage of lipophilic antioxidants. At the same time it was showed an increase in the content of primary (Peroxide Value) and secondary (Anisidine Value, Totox) oxidation products of unsaturated FA. The results showed that the effect of long-term storage was intensification autooxidation process and decreasing antioxidant capacity infant formulas.

Results shows that the best source of active antioxidants, especially lipophilic, is milk from cows fed on pasture. Each time the lipid phase antioxidant capacity was higher in milk than infant formulas, even before storage period.