

DETERMINATION OF THE ANTIOXIDANT ACTIVITY IN YOGURT

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Abstract

The highest risk from oxidative metabolism by-products is the formation free radicals. The damage to the organism caused by free radicals is immense and is a major threat for the welfare of the whole organism and is known to cause a variety of potentially fatal diseases.

The objective of this research is to determine the antioxidative capacity of fermented milk product (yogurt) with different types of microbiological strains. The method was spectrophotometric, used to determine antioxidant activity and the ability to neutralize the free 2,2-diphenyl-1-picrylhydrazyl radical.

Sterilized milk with 3.2% milk fat was fermented with different microbiological cultures including symbiotic starter culture of *Lactobacillus delbrueckii* ssp. *bulgaricus* and *Streptococcus thermophilus*, and monocultures *Lactobacillus acidophilus*, *L. casei* and *Bifidobacterium bifidus*.

All microbiological cultures showed a strong influence in increasing antioxidant activity of fermented product compared with the same value in unfermented milk. The highest antioxidant activity shows that milk fermented by *Lactobacillus acidophilus*, has measured 54.86% neutralization of free radical. The lowest value indicates milk fermented with symbiosis *Lactobacillus delbrueckii* ssp. *bulgaricus* and *Streptococcus thermophilus*, measured 45.17%.

From this research can be concluded that the fermentation of milk is not a simple procedure, and does much more than simply extending shelf life of milk. It is a complex reaction which results in releasing different products such as peptides, free amino acids, enzymes and many different compounds which demonstrate an antioxidative capacity, and have role in maintaining the redox balance in the living organism.

Key words: Oxidative metabolism, Free radicals, Antioxidant activity, Fermented milk, Microbiological cultures.