2nd National Food Conference
with International Participation
March 20th-21st, 2015

PROGRAM AND ABSTRACTS

NEW BULGARIAN UNIVERSITY
Sofia, Bulgaria
2nd National Food Conference

with International Participation

Sofia, March 20th-21st, 2015

New Bulgarian University

Program

Celebration of the 110th Anniversary of *Lactobacillus bulgaricus* Discovery by
Dr. Stamen Grigorov


http://ebox.nbu.bg/2foodconference
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NEW BULGARIAN UNIVERSITY
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BULGARIAN SOCIETY FOR MICROBIOLOGY (BSM)

BULGARIAN FOOD SAFETY AGENCY

THE STEPHAN ANGELOFF INSTITUTE OF MICROBIOLOGY, BULGARIAN ACADEMY OF SCIENCES

Under the auspices of The Rector of New Bulgarian University and The Central Fund for Strategic Development
2nd National Food Conference
with International Participation
Sofia
March 20th-21st, 2015
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2ND NATIONAL FOOD CONFERENCE WITH INTERNATIONAL PARTICIPATION
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HYDROXIL RADICAL SCAVENGING ACTIVITY OF PRETERM MOTHERS MILKS IN THE FENTON SYSTEM

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Object of Research: Mother’s milk have antioxidative effects against Fenton system via HO• radical scavenging. Mother's milk from women after preterm delivery antioxidative properties are not examined in details. We examined hydroxil radical scavenging activity of preterm mother’s milks in the Fenton system.

Materials and Methods: We utilize electron paramagnetic resonance (EPR) spin-trapping spectroscopy to determine and compare activity of premature mother milk, skim milk and whey against Fenton system. The spin-trapping technique is based on the reaction of 'EPR silent' spin-trap with free radical which yields a more persistent EPR active nitroxide spin-adduct. DEPMPO, a sophisticated EPR spin-trap reagent, is applied in order to analyze reactive products of milk with HO• produced in Fenton reaction. Premature mother milk was collected 6 weeks after premature baby delivery, from five exclusively breast-feeding mothers. The milk was then mixed, aliquoted, stored at -80°C. Skim milk was prepared by centrifugation (10000 g, 5 min at 4 °C). Whey was prepared from skim milk by acidification to pH 4.6 with lactic acid, incubation for 30 min at room temperature, centrifugation (as above), and readjustment of pH of the supernatant with NaOH to 6.7. Fenton reaction was performed by combining 1 mM H₂O₂, and 0.2 mM FeSO₄.

Results: It can be observed that full breast milk as well as fractions scavenge hydroxyl radical, which results in the production of urate and ascorbyl radicals. The intensities of DEPMPO signals in all milk-containing systems was drastically lower compared to control (Fenton) system indicating that milk samples scavenge HO•.

Conclusions: There was no significant difference between the intensities of signals of urate radical adduct or ascorbyl radical between fractions – full milk, skim milk and whey. Main antioxidants (urate and ascorbate) in mature mother’s milk from women after preterm delivery are in whey.
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References