

# 2<sup>nd</sup> National Food Conference

with International Participation  
March 20<sup>th</sup>-21<sup>st</sup>, 2015

## PROGRAM AND ABSTRACTS



**NEW BULGARIAN UNIVERSITY**

Sofia, Bulgaria

# 2<sup>nd</sup> National Food Conference

with International Participation

Sofia, March 20<sup>th</sup>-21<sup>st</sup>, 2015

New Bulgarian University

## Program

Celebration of the 110<sup>th</sup> Anniversary  
of *Lactobacillus bulgaricus* Discovery by  
Dr. Stamen Grigorov



<http://www.nbu.bg/index.php?l=4482>

<http://ebox.nbu.bg/2foodconference>

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**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*

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**2<sup>ND</sup> 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 hydroxyl 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 H<sub>2</sub>O<sub>2</sub>, and 0.2 mM FeSO<sub>4</sub>.

**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.