

# 22nd International Symposium on Biophysics



## PROGRAMME & BOOK OF ABSTRACTS



*(dedicated to Prof. R. K. Andjus)*

Sv. Stefan & Belgrade  
09-13th October 2004

**22nd INTERNATIONAL  
BIOPHYSICS SYMPOSIUM**

*(dedicated to Prof. Radoslav K. Andjus, 1926-2003)*

**Programme**

**&**

**BOOK OF ABSTRACTS**

**Sveti Stefan / Belgrade  
Serbia & Montenegro  
9th - 14th October 2004**

Organized by

**YUGOSLAV BIOPHYSICAL SOCIETY  
YUGOSLAV SOCIETY FOR NEUROSCIENCES**

*IN COOPERATION WITH*

**SCHOOL OF BIOLOGY  
&  
CENTER FOR MULTIDISCIPLINARY STUDIES  
OF THE UNIVERSITY OF BELGRADE  
and  
INSTITUTE OF MARINE BIOLOGY KOTOR**

Under the auspices of

**SERBIAN ACADEMY OF SCIENCES AND ARTS  
&  
MONTENEGRIN ACADEMY OF SCIENCES AND ARTS**

And the support of

**INTERNATIONAL BRAIN RESEARCH ORGANIZATION  
MINISTRY OF SCIENCE AND ENVIRONMENTAL PROTECTION  
OF REPUBLIC OF SERBIA**

and

**NATIONAL INSTITUTE OF CHILD HEALTH & HUMAN  
DEVELOPMENT, BETHESDA, USA**

MEMBERS OF THE ORGANIZING, WORKSHOPS AND SCIENTIFIC  
COMMITTEES

FOR DETAILS SEE [HTTP://WWW.CMS.BG.AC.YU](http://www.cms.bg.ac.yu)

Prof. Pavle R. Andjus, e-mail: [pandjus@bf.bio.bg.ac.yu](mailto:pandjus@bf.bio.bg.ac.yu)  
Institute for Physiology & Biochemistry; School of Biology;  
University of Belgrade  
Studentski trg 12-16; POB 52, 11001 Belgrade, SCG  
tel/fax: +381-11-3032 356, fax: +381-11-638-500

Prof. Vladimir Kostić  
School of Medicine, University of Belgrade, Department of Neurology,  
Dr Subotića 8, 11030 Belgrade, SCG

Dr. Stanko Stojilković  
Section on Cellular Signaling, Endocrinology and Reproduction Research  
Branch, Nat. Inst. of Child Health and Human Dev., NIH, Bethesda, MD  
20892-4510, USA

Prof. Mirjana Stojiljković  
Institute for Biological Research "Siniša Stanković", Department of  
Neurobiology, 29 Novembra 142, 11000 Belgrade, SCG

Dr. Željko Vučinić,  
Centre for Multidisciplinary Studies, University of Belgrade, Kneza  
Višeslava 1, 11030 Belgrade, SCG

Dr. Zoran Kljajić  
Institute for Marine Biology, Dobrota bb, 82000 Kotor, SCG

**MULTIPLE FORMS OF SUPEROXIDE DISMUTASE IN APOPLAST AND WHOLE-NEEDLE EXTRACT OF OMORIKA (*Picea omorika* (PANČ.) purkinye)**

*Bogdanović J.<sup>1</sup>, Prodanović R.<sup>2</sup>, Milosavić N.<sup>3</sup>, Prodanović O.<sup>1</sup>, Radotić K.<sup>1</sup>*

<sup>1</sup>Centre for Multidisciplinary Studies, University of Belgrade, Despota Stefana 142, 11000 Belgrade, SCG

<sup>2</sup>Faculty of Biochemistry, University of Belgrade, Studentski trg 12-16, Belgrade, SCG

<sup>3</sup>Institute of Chemistry, Technology and Metallurgy, Department of Chemistry, Njegoševa 12, Belgrade, SCG

Activity and isoenzyme composition of superoxide dismutase (EC 1.15.1.1) in apoplast and whole-needle extract of *P. omorika* was studied. Total SOD activity of the soluble fraction of the needle extract exceeded markedly that of the apoplastic SOD. Several acidic (pI 3-6) and two slow-migrating basic (pI 7.5-8) SOD isoforms have been found in the whole extract. The extracellular SOD had an extremely acidic (pI 3) isoform. Using specific inhibitors, Cu/Zn- and Mn- superoxide dismutase forms were identified in the total extract, while in the apoplast only Mn- SOD was observed. Fe-isoform was not present in a detectable level. Presented results are important, since superoxide dismutase is involved in plant response to the increased level of organic and oxygen free radicals and related H<sub>2</sub>O<sub>2</sub> increase. It is also employed as parameter in biomonitoring of the environment. This work is the first study of superoxide dismutase in omorika species.