

**FIFTEENTH ANNUAL CONFERENCE**

# **YUCOMAT 2013**

Hunguest Hotel Sun Resort Herceg Novi, Montenegro,  
September 2-6, 2013  
<http://www.mrs-serbia.org.rs>

## **Programme and The Book of Abstracts**

Organised by:  
**Materials Research Society of Serbia**

under the auspices of  
**Federation of European Material Societies**  
and  
**Materials Research Society**

## TABLE OF CONTENTS

<b>WELCOME SPEECH BY THE PRESIDENT OF MRS-SERBIA</b>	i
<b>GENERAL INFORMATION</b>	iii
<b>CONFERENCE PROGRAMME</b>	v-xlv
<b>ORAL PRESENTATIONS:</b>	
<b>Plenary Session I</b> (PL.S.I.1.-6.)	1
<b>Symposium A:</b> ADVANCED METHODS IN SYNTHESIS AND PROCESSING OF MATERIALS	
Session I (O.S.A.1.- 12.)	7
<b>Symposium B:</b> ADVANCED MATERIALS FOR HIGH TECHNOLOGY APPLICATIONS	
Session I (O.S.B.1.-14.)	15
<b>Plenary Session II</b> (PL.S.II.1.-6.)	26
<b>Symposium C:</b> NANOSTRUCTURED MATERIALS	
Session I (O.S.C.1.-12.)	31
<b>Symposium E:</b> BIOMATERIALS	
Session I (O.S.E.1.-12.)	40
<b>Plenary Session III</b> (PL.S.III.1.-6.)	49
<b>Plenary Session IV</b> (PL.S.IV.1.-6.)	54
<b>Plenary Session V</b> (PL.S.V.1.-6.)	59
<b>POSTER PRESENTATIONS:</b>	
Session I (Symposium A) (P.S.A.1.-42.)	65
Session II (Symposium B) (P.S.B.1.-42.)	92
Session III (Symposiums C and E) (P.S.C.1.-19.)	121
	(P.S.E.1.-25.) 132
<b>AUTHORS INDEX</b>	151
<b>ACKNOWLEDGEMENTS</b>	167

**Title:** THE FIFTEENTH ANNUAL CONFERENCE  
**YUCOMAT 2013**  
Programme and The Book of Abstracts

**Publisher:** Materials Research Society of Serbia  
Knez Mihailova 35/IV, 11000 Belgrade, Serbia  
Phone: +381 11 2185-437; Fax: + 381 11 2185-263  
<http://www.mrs-serbia.org.rs>

**Editors:** Prof. Dr. Dragan P. Uskoković and Prof. Dr. Velimir Radmilović

**Technical editor:** Aleksandra Stojičić

**Cover page:** Aleksandra Stojičić and Milica Levkuć

**Copyright** © 2013 Materials Research Society of Serbia

**Acknowledgments:**



**Printed in:** Biro Konto  
Sutorina bb, Igalo ĐHerceg Novi, Montenegro  
Phones: +382-31-670123, 670025, E-mail: [bkonto@t-com.me](mailto:bkonto@t-com.me)  
Circulation: 220 copies. The end of printing: August 2013

P.S.E.5.

### ANTIMICROBIAL ACTIVITY OF SOME NEW PLATINUM(IV) COMPLEXES

I. Radojević<sup>1</sup>, J. Vujić<sup>2</sup>, O. Stefanović<sup>1</sup>, M. Cvijović<sup>2</sup>, Lj. Čomić<sup>1</sup>, S. Trifunović<sup>3</sup>

<sup>1</sup>Department of Biology and Ecology, Faculty of Science, University of Kragujevac, Kragujevac, Serbia, <sup>2</sup>Faculty of Agronomy, University of Kragujevac, Čačak, Serbia, <sup>3</sup>Department of Chemistry, Faculty of Science, University of Kragujevac, Kragujevac, Serbia

Four new platinum(IV) complexes of general formula  $\text{PtCl}_4(\text{R}_2\text{-S,S-eddp})\text{Cl}$  have been synthesized and characterized by microanalysis, infrared and  $^1\text{H}$  and  $^{13}\text{C}$  NMR spectroscopy. Antimicrobial activity of four platinum(IV) complexes is investigated against 28 species of microorganisms. Testing is performed by microdilution method and minimum inhibitory concentrations (MIC) and minimum microbicidal concentration (MMC) have been determined. The tested platinum(IV) complexes showed different degrees of antimicrobial activity in relation to the tested species. The intensity of antimicrobial action varied depending on the group of microorganisms. In general, platinum(IV) complexes demonstrated selective to moderate antimicrobial activity. Also, platinum(IV) complexes demonstrated more potent inhibitory effects on the growth of G+ bacteria than to other tested microorganisms. The significant activity demonstrated platinum(IV) complex containing butyl ester ligand against G+ bacteria. Among them the best results were observed against *Sarcina lutea*, *Staphylococcus aureus* and *Bacillus* sp (clinical isolates and standard strains). MICs values were in range from <1.953 to 3.096  $\mu\text{g/mL}$ , and MMCs values were from 3.906 to 31.25  $\mu\text{g/mL}$ . The tested compounds did not affect the growth of clinical isolates and standard strains of G- bacteria or their activities were very low (MICs 1000 and >1000  $\mu\text{g/mL}$ ). Antifungal activity of tested complexes was low. MICs values were in range from 31.25 to >1000  $\mu\text{g/mL}$ , and MMCs values were from 62.5 to >1000  $\mu\text{g/mL}$ .

Reference:

1. J.M. Vujić, G.N. Kaluđerović, B.B. Zmejkovski, M. Milovanović, V. Volarević, N. Arsenijević, T. P. Stanojković, S. R. Trifunović, *Inorg. Chim. Acta*, 2012, 390, 123-128.