

# CEEC-TRAC4

# BOOK OF ABSTRACTS

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**4<sup>th</sup> Central and Eastern European Conference  
on Thermal Analysis and Calorimetry  
28-31 August 2017  
Chişinău, Moldova**



**4<sup>th</sup> Central and Eastern European Conference on  
Thermal Analysis and Calorimetry**

**CEEC-TAC4**

*28-31 August 2017 – Chişinău, Republic of Moldova*

organized by the:

**Central and Eastern European Committee for  
Thermal Analysis and Calorimetry  
(CEEC-TAC),**

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through the **Institute of Chemistry of the Academy of Sciences of Moldova,**  
and with the great support of:

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## Investigation of antibacterial activities and thermal behaviour of the microfibers containing platinum(II) complexes with pyridine derivatives

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Nosocomial infections which generally transmitted by organisms that are resistant to antibiotics (i.e., penicilline, ampicilline, meticilline) found in hospitals, are important reasons for morbidity, mortality and economic loss. Staphylococcus aureus, and is especially methicillin resistant S.Aureus (MRSA) is one of the most important nosocomial infections and is also a major cause of pneumonia and bloodstream diseases [1]. For an effective struggle against these diseases mixed pyridine derivatives of metal halogen complexes, which show antibacterial activity, and textiles functionalized with these complexes have gained importance both with respect to cost effectiveness and drug activity. In this study, [PtCl<sub>2</sub>L<sub>2</sub>] complexes (L: 3,5-dimethylpyridine, 4-(4-nitrobenzyl)pyridine, 2-amino-5-nitropyridine) were prepared and also characterized by FT-IR, <sup>1</sup>H-NMR, <sup>13</sup>C-NMR techniques. Further, cellulose based polymer microfibers containing the complexes were prepared via electrospray technique. Thermal behavior of the complexes was investigated by DTA/TG combined system and their kinetic parameters were calculated by using Flynn-Wall-Ozawa (FWO) and Kissenger-Akahira-Sunose (KAS) methods. Activation energies (*E<sub>a</sub>*) of the complexes were calculated to be 57,73- 196,54 kJ/mol for FWO and 44,81-203,43 kJ/mol for KAS. Antibacterial activities of the complexes were also investigated. One of the most important factors of nosocomial infections was the gram negative Extended Spectrum Beta Lactate (ESBL) Escherichia coli (ATCC 35218), used in the study.

This study was supported by Mehmet Akif Ersoy University Scientific Research Projects Commission (Project Number: 232-YL-14)

[1] Emori, T. G., Culver, D. H., Horan, T. C., Jarvis, W. R., White, J. W., Olson, D. R., Banerjee, S., Edwards, J. R., Martone, W. J. and Gaynes, R. P. American journal of infection control, 19(1) (1991) 19.