

11<sup>TH</sup> CONFERENCE FOR YOUNG SCIENTISTS IN CERAMICS



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Satellite event:  
**ESR COST IC1208 Workshop**

## **BOOK OF ABSTRACTS**

October 21-24, 2105  
Faculty of Technology  
Novi Sad, Serbia



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## **PROGRAMME and BOOK OF ABSTRACTS**

**October 21-24, 2015  
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electrochemical tests and antimicrobial tests. The effects of the SiC addition and Ag contents on the film characteristics were also analyzed.

SiC addition determined no changes in HAP stoichiometry and crystalline structure. Also, no significant changes in phase composition and corrosion resistance of the films were observed as a result of different Ag concentrations in HAP films. The antibacterial abilities of HAP coatings were significantly improved by Ag addition, as observed after 24 h or 7 days of culture. The hardness, elastic modulus and antibacterial properties of the HAP coatings increased with increasing power fed on Ag target. On overall, improved mechanical and antibacterial properties were found by adding SiC and Ag to the basic HAP structure.

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### **SYNTHESIS OF ALUMINA POWDERS AND THEIR INSECTICIDAL EFFECT AGAINST *ACANTHOSCELIDES OBTECTUS* SAY**

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Alumina powders were synthesized by citrate/nitrate autocombustion method with different citrate/nitrate molar ratios (0.5, 0.8 and 1.2). XRD analysis of the powders calcined at 1200 °C for 1 h showed only the presence of  $\alpha$ -Al<sub>2</sub>O<sub>3</sub> phase. Particle size of the powders determined by SEM analysis varied from nano- and submicron size of several  $\mu$ m. The powders were mixed with grains of bean to examine their insecticide effect against bean weevil (*Acanthoscelides obtectus* Say, 1831). Mortality of insects after seven days of exposure was the highest for the powder synthesized at 1.2 molar ratio, which contained the highest portion of submicron particles. This suggested that larger amount of citric acid could prevent higher degree of particles agglomeration. Mortality cause of insects is assumed to be related to the degree of powder coverage of the insects' exoskeleton. The same powder also provided the best efficiency in suppressing the emerge of F<sub>1</sub> generation and seed protection even at lower concentrations.