



**Serbian Ceramic Society Conference  
ADVANCED CERAMICS AND APPLICATION IX  
New Frontiers in Multifunctional Material Science and Processing**

**Serbian Ceramic Society  
Institute of Technical Sciences of SASA  
Institute for Testing of Materials  
Institute of Chemistry Technology and Metallurgy  
Institute for Technology of Nuclear and Other Raw Mineral Materials**

**PROGRAM AND THE BOOK OF ABSTRACTS**

**Serbian Academy of Sciences and Arts, Knez Mihailova 35  
Serbia, Belgrade, 20-21. September 2021.**

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## ORL

### **Determination of corrosion products of Ag-Cu alloy by laser desorption ionization mass spectrometry**

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Silver alloys are generally used in the different fields of industry, including chemical processing, construction, heat exchangers, etc. Although Ag-Cu-Zn-Cd type of alloys, were widely exploited in the second half of the 20th century for their excellent properties, its use is forbidden in the EU due to the high toxicity of cadmium vapors. Ag-Cu-In type of alloy is a good alternative to Ag-Cu-Zn-Cd alloys, with great properties and can be used in various fields of industry. Most common methods for characterization of surface corrosion films of Ag-Cu alloys are: X-ray diffraction (XRD), scanning electron microscopy with energy dispersion spectroscopy (SEM-EDS), Raman spectroscopy and atomic force microscopy (AFM). Our current study focuses on the application of laser desorption ionization mass spectrometry (LDI MS) for determination of corrosion products of Ag-Cu alloy. The aim of this study was to confirm LDI MS as a fast, accurate and reliable method for determination of corrosion products on the surface of Ag-Cu-In alloy.

## ORL

### **Natural active compounds in the prevention of oxidative stress**

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Significant amount of natural active compounds are present in the fruit. Those compounds exhibit beneficial effect on the human health. Antioxidant properties are very important for health prevention. The aim of this study was to investigate natural active compounds from fruit wines and its activity on enzymes of antioxidant protection in vitro. Fruit wines were produced in controlled conditions during microvinifications. Phenolic profile of fruit wines were obtained by UPLC MS/MS, while enzymatic activity determined by spectrophotometric

methods. Fruit wines showed significant content of phenolic compounds among them it is possible to emphasize phenolic acids. Also fruit wines influenced on the activity of enzymes of antioxidant protection which could be used in the prevention of the oxidative stress.

## **ORL**

### **Electrophoretic deposition of plasma-activated hydroxyapatite powder densified by rapid sintering**

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In this work, the hydroxyapatite nanoparticles (HA) were subjected to Diffuse Coplanar Surface Barrier Discharge performed at atmospheric pressure to activate their surface. The effect of mentioned applied plasma treatment on the behaviour of HA particles dispersed in the 2-propanol solvent during electrophoretic deposition (EPD) was investigated. It was found that activated particles strongly affected the consolidation process due to the change of deposition rate, which led to meaningful improvement in densities of plasma-treated samples. Thermogravimetric analysis and differential scanning calorimetry were performed on plasma-treated and as-received powders and deposits. Green bodies were subsequently densified using the pressure-less rapid sintering method with sintering rates up to 100 °C/min with 10 min dwell on sintering temperatures ranging from 1100 °C to 1300 °C. Faster heating rates allowed to reach nearly dense (>95 %) ceramic bodies with reduced mean grain size at higher sintering temperatures and optimised phase composition.