

**AMERICAN ROMANIAN ACADEMY  
OF ARTS AND SCIENCES**



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**ABSTRACTS**

**of the 41<sup>st</sup> Congress, Palace Sinaia Romania, August 2-5, 2017**

*100 DREAMING YEARS ANNIVERSARY  
OF ROMANIAN SPIRITUALITY AND CULTURE*

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## POSTERS

### [21] Determination of Lead in Water Using Modified Electrodes Based on Phthalocyanine

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**Abstract:** There is currently a great concern in Europe (at the European Commission) and also in Romania about some “toxic” substances that are regularly detected in food coming from a number of food sources. Retrieval data studies revealed that the consumption of contaminated commodities is related to several acute chronic diseases in humans and animals. Lead from lead batteries, corrosion of lead (housing and other lead plumbing systems) from lead and iron pipes (example Flint river, USA), contamination of lead from the environment and leaching of lead from these sources into fresh water rivers and lakes (even into food commodities) can eventually become harmful to humans. A reliable, sustainable and convenient analytical method therefore becomes needed for the determination of lead ions in water. Lead concentrations in drinking water should be below the EPA action level of 0.015 mg/L parts per billion.

We therefore developed a simple, sensitive and selective electrochemical method for the determination of lead ions in water. The method is based on graphite, graphene or reduced graphene oxide modified electrodes with phthalocyanine for the detection of lead from different types of water samples (e.g., fresh water, underground water, geothermal waste water) using differential pulse anodic stripping voltammetry (DPASV). The results compared favorably with standard iso-certified methods. Research done will be presented.

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**Keywords:** lead, phthalocyanine, sensor, water