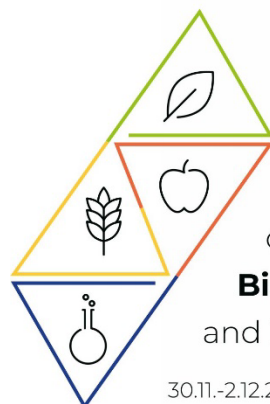


# BOOK OF ABSTRACTS

## 10<sup>th</sup> International Congress of Food Technologists, Biotechnologists and Nutritionists



10<sup>th</sup> International CONGRESS  
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**Biotechnologists**  
and **Nutritionists**

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**The preparation of N-doped carbon quantum dots from citric acid and *Citrus clementina* peel – The application in iron(III) detection in herbs and spices**

*Silvija Šafranko<sup>1</sup>, Šimun Mandić<sup>2</sup>, Stela Jokić<sup>1\*</sup>*

<sup>1</sup> Faculty of Food Technology Osijek, Josip Juraj Strossmayer University in Osijek, Croatia

<sup>2</sup> Center of Excellence for Advanced Materials and Sensing Devices, Institute of Physics,  
Zagreb, Croatia

Poster presentation, presenting author Stela Jokić; [stela.jokic@ptfos.hr](mailto:stela.jokic@ptfos.hr)

Carbon quantum dots (CQD) are relatively new class of photoluminescent carbon nanomaterials composed of discrete and quasi-spherical carbon nanoparticles, which due to their outstanding chemical and optical properties, excellent biocompatibility and overall great sensing performance, have attracted the enormous amount of interest in the scientific community. The possibility of facile surface modifications and heteroatom doping for the properties and performance enhancement, CQD have found versatile applications in a wide range of analyses: in biomedicine and pharmacy, water monitoring and food quality control, environmental and pesticide analysis. This study represents a novel investigation of N-doped CQD derived from citric acid and citrus peel for the selective response of Fe<sup>3+</sup> ions in both model and real sample systems. The hydrothermal synthesis of the samples was carried out at temperature of 180° C during 9 hours. The amino acid leucine (Leu, L) has been used as nitrogen dopant in the CQD synthetic procedure, and the CQD@hybrid was obtained as a result of mixing citric acid/citrus peel and Leu before initiating the synthesis. The physico-chemical characterization (AFM, PXRD, dispersibility in water, EDS) of the prepared CQD samples was performed, while optical characterization has shown that quantum yield for the CQD@Leu sample was calculated to be QY=36.43% and for the CQD@hybrid was QY=10.04%. Also, investigation of the excitation-dependent photoluminescence (PL) and influence of the

