



# Boron-Doped Diamond Electrode as an Environmental-Friendly Electrochemical Tool for the Detection and Monitoring of Mesotrione in Food Samples

D. Manojlović<sup>a\*</sup>, A. Mijajlović,<sup>a</sup> T. Mutić,<sup>b</sup> V.V. Avdin,<sup>c</sup> Elena Korina,<sup>c</sup> V. Stanković,<sup>c</sup> and D. Stanković<sup>a\*</sup>

<sup>a</sup> *University of Belgrade - Faculty of Chemistry, Studentski trg 12–16, 11000 Belgrade, Serbia*

<sup>b</sup> *Faculty of Pharmacy University of Belgrade – Department of Analytical Chemistry, Vojvode Stepe 450, 11221, Belgrade, Serbia*

<sup>c</sup> *Department for Ecology and Chemical Technology, South Ural State University, Lenin Prospect 76, 454080 Chelyabinsk, Russia*

[\\*dalibors@chem.bg.ac.rs](mailto:dalibors@chem.bg.ac.rs)

Various types of pesticides are used to improve agricultural productivity and maintain the freshness of agricultural products. However, due to increasing and uncontrolled application, pesticides and their derivatives represent a major threat to entire ecosystems. Therefore, development of new methods for their detection and monitoring is of primary matter. In present work, the unmodified boron-doped diamond (BDD) electrode was utilized for quick, simple, efficient, and sensitive electrochemical detection of mesotrione (MST), a hazardous herbicide used primarily in maize culture. This is the first efficient application of BDD electrode for MST detection. MST undergoes an oxidation process, on the surface of the BDD electrode, at a high potential value of +1.4 V. The detection limit of 75  $\mu\text{M}$  and remarkable selectivity among the common interfering molecules were achieved. Furthermore, a straightforward practical application of the method in real samples (corn-origin food products) analysis was demonstrated.

**Keywords:** boron doped diamond electrode; triketone herbicide; corn products; green sensing

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