

## CADMIUM ELECTROANALYTICAL DETECTION AT CARBON PASTE MODIFIED ELECTRODE BASED ON NATURAL CLAY

Ali Sanou<sup>1,2,3</sup>, Mariame Coulibaly<sup>3</sup>, Carmen Ioana Fort<sup>4</sup>, Graziella Liana Turdean<sup>4</sup>

<sup>1</sup>*Institut National Polytechnique Félix Houphouët - Boigny, Laboratoire des Procédés Industriels de Synthèses de l'Environnement et des Energies Nouvelles, BP 1313 Yamoussoukro, Ivory Coast*

<sup>2</sup>*Institut National Polytechnique Félix Houphouët - Boigny, Laboratoire de Thermodynamique; Traitement et Sciences des Surfaces et Interfaces; Ingénierie et Physicochimie des Procédés et de Mécanique des Matériaux (L2-TSIPM), BP 1093 Yamoussoukro, Ivory Coast*

<sup>3</sup>*Ecole Normale Supérieure, Laboratoire des Sciences Physiques Fondamentales et Appliquées, 08 BP 10 Abidjan, Ivory Coast*

<sup>4</sup>*"Babes-Bolyai" University, Faculty of Chemistry and Chemical Engineering, Department of Chemical Engineering, Laboratory of Electrochemical Research and Nonconventional Materials, Arany Janos 11, RO-400028 Cluj-Napoca, Romania  
email: ioana.fort@ubbcluj.ro*

Usually, porous materials [1,2], such as carbon or clays were employed in electrochemistry research for example in electrode acquirments, especially as modifiers. The important properties of clays, such as cation exchange capacity, great surface area, good catalytic support, mechanical stability and low cost, make them suitable as modifiers for electrodes, even if their electrical conductivity is low [3]. Carbon paste electrodes based on clay materials were described to be promising for the electroanalytical detection of heavy metals. While there are many reports on the usage of clay for the construction of clay-based electrodes, the application of natural raw clay has significant importance for the development of eco-friendly electrochemical electrodes. Thus, a carbon paste-modified electrode based on natural clay was prepared. The electrochemical behavior of the obtained modified electrodes and their ability to detect Cd<sup>+2</sup> has been investigated. The electroanalytical parameters of the investigated modified carbon paste electrode recommend it as a stable, sensitive and reproducible electrode for Cd<sup>+2</sup> detection. The performances of the new electrode were proved by the results obtained in natural drilling water.

[1] C.I. Fort, L.C. Cotet, A. Vulpoi, G.L. Turdean, V. Danciu, L. Baia, I.C. Popescu, *Sensors and Actuators B: Chemical* 220 (2015) 712-719.

[2] C.I. Fort, L.C. Cotet, V. Danciu, G.L. Turdean, I.C. Popescu, *Materials Chemistry and Physics* 138 (2013) 893-898.

[3] Y. Gómez, L. Fernández, C. Borrás, J. Mostany, B. Scharifker, *Talanta* 85 (2011) 1357