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Detection of dopamine using an electrochemical sensor based on nickel copper layered double hydroxide (NiCu-LDH)

This abstract describes a study on the detection of dopamine using an electrochemical sensor based on nickel copper layered double hydroxide (NiCu-LDH). Dopamine is a neurotransmitter that plays a critical role in the central nervous system, and its detection is important for diagnosing neurological disorders such as Parkinson's disease. In this study, NiCu-LDH was synthesized and used as a sensing material for dopamine detection. The electrochemical behavior of dopamine was investigated using cyclic voltammetry, and the detection performance of the NiCu-LDH-based sensor was evaluated. The results showed that the sensor exhibited a high sensitivity and selectivity for dopamine detection, with a linear range of 0.1-50 µM and a limit of detection of 0.01 µM. The sensor also showed good stability and reproducibility over multiple measurements. These findings suggest that NiCu-LDH-based electrochemical sensors could be promising candidates for the detection of dopamine in clinical applications.

Keywords: **Electrochemical, sensor, dopamine, detection, LDH.**

Biography:

Dr. Fatah Ben Moussa, has been working as an Assistant Professor in Computational Theoretical Chemistry and Molecular Surface Modeling for Nanotechnology Applications at the National University of Sciences, Technology, Engineering and Mathematics (UNSTIM) in Benin, where he works since 2018. He holds a Ph.D. degree in Theoretical Chemistry and Molecular Surface Modeling at the University of Abomey-Calavi since 2016. He obtained M.Sc. in Nanotechnology at the University of Namur in Belgium. He then joined the research group of Professor. Guy Sylvain Y. Atohoun in the Unit Theoretical Chemistry and Molecular Modeling (UCT2M) at University of Abomey-Calavi (UAC) in BENIN. At 2022, he has obtained a PostDoc research stay in the group of Professor. Prabhakar Chetti in Department of Chemistry at National Institute of Technology (NIT) Kurukshtra – INDIA. His field of expertise is computational Chemistry and Molecular Surface Modeling. He has published more than 25 research articles in impact factor journal.

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