

## **A pencil graphite electrode modified by monovalent copper: a promising tool for the biosensing of purines**

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A pencil graphite electrode (PeGE) is a simple, cheap and non-toxic prototype of electrochemical sensor. It can have multiple uses, such as determining the oxidation behavior of biologically active substances that play a key role in the metabolic processes of living organisms [1]. In this work PeGE is used for the analysis of purine derivatives. For these purposes the adsorptive stripping technique in combination with linear sweep voltammetry (LSV) and elimination voltammetry (EVLS) was used. To increase the sensitivity of purine detection our analysis was carried out in the presence of copper ions Cu (II) which are able, through their reduced form, to generate slightly soluble complexes with purines [2, 3]. The Cu (I)-purine complexes are adsorptive species on PeGE surfaces. The formation and stability of these complexes influenced by experimental conditions (pH, Cu(II) concentration) and the substituents on purine skeleton were investigated. It was found that even a very small Cu-modification in the surface structure of PeGE significantly affects oxidative signals of purines. On the basis of comparative experiments PeGE was selected as potentially the most appropriate electrode for purine sensors.

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