Keywords: 2-Aminoanthraquinone; DC tast polarography; Differential pulse polarography; Direct current voltammetry; Differential pulse voltammetry; Adsorptive stripping voltammetry

2-Aminoanthraquinone (2-AA) is a genotoxic intermediate in the industrial synthesis of anthraquinone dyes. In this work, electroanalytical methods based on two-electron reduction of anthraquinone at mercury electrodes were developed for determination of micro-to nanomolar concentrations of this analyte in mixed aqueous-methanol media. Calibration plots obtained for differential pulse voltammetry and direct current voltammetry at a hanging mercury drop electrode exhibited a sigmoidal shape within the analyte's concentration range of (1–500) × 10 \(^{-7}\) mol L\(^{-1}\), presumably because of strong adsorption of the analyte at the electrode surface. Linearity of the calibration plots was achieved for higher concentrations of 2-AA at a conventional dropping mercury electrode using DC tast polarography and differential pulse polarography, with limit of quantitation of 4 × 10 \(^{-6}\) mol L\(^{-1}\) in Britton-Robinson buffer (pH 6)-methanol mixture (1:1). Adsorption of 2-AA on the electrode surface enabled its determination at nanomolar concentrations (limit of quantitation 2.8 × 10 \(^{-9}\) mol L\(^{-1}\)) using cathodic adsorptive stripping voltammetry in Britton-Robinson buffer (pH 2)-methanol mixture (99:1).

* Corresponding author. E-mail: kpeckova@natur.cuni.cz; Fax: +420 224 913 538