Short Communication

An Electrochemical Method for the Determination of Trace Mercury (II) by Formation of Complexes With Indigo Carmine Food Dye and Its Analytical Application

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The interaction between mercury and indigo carmine (IC) was studied using differential pulse voltammetry (DPV) technique. In aqueous medium, a decrease of oxidation current of IC was observed due to the formation of a complex of IC with Hg (II). The reaction of complexation was monitored and some important parameters such as metal concentration, pH, temperature and time of reaction were investigated and optimized. Under the optimum conditions, the linear range of the calibration curve, obtaining by representing the IC oxidation current as function of the Hg (II) concentration (pH 10), was from 25 nM (5 ppb) to 200 nM (40 ppb) Hg (II) and the detection limit was 7.5 nM (1.5 ppb). The results show that this new method enable simple, a sensitive and rapid determination of mercury.

Keywords: Differential pulse voltammetry; carbon paste electrode; mercury; indigo carmine

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