

Novel Strategy for Electroanalytical Detection of Antipsychotic Drugs Chlorpromazine and Thioridazine; Possibilities for Simultaneous Determination

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A simple and fast method for determination of two phenothiazine drugs, chlorpromazine (CPZ) and thioridazine (TDZ), at the boron-doped diamond electrode (BDDE) was proposed. Oxidation peaks on potentials higher than 1 V were used for quantitation of investigated phenothiazines due to better selectivity over common interfering compounds in urine. Differential pulse voltammetry was applied for trace determination of CPZ and TDZ, in Britton-Robinson buffer solution at optimal pH. Under optimized DPV conditions a linear analytical curve was obtained from 1.0×10^{-7} to 4.0×10^{-5} M with a detection limit of 0.3×10^{-7} M (for CPZ) and in the concentration range of 2×10^{-7} M to 4.0×10^{-5} M, with a detection limit of 1.2×10^{-7} M (for TDZ). The applicability of the method was proved by determination of CPZ and TDZ by proposed procedures in spiked urine samples. The electrochemical behavior of those two important tranquilizers in different solvents was described, exploring the possibility of simultaneous determination.

Keywords: voltammetric method, chlorpromazine, thioridazine, boron-doped diamond electrode, human urine

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