عنوان مقاله:

Electrochemical sensing of dopamine in the presence of ascorbic acid using carbon paste electrode modified with molybdenum Schiff base complex/1-butyl-3-methylimidazolium tetrafluoroborate

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خلاصه مقاله:

In this paper, the carbon paste electrode (CPE) is modified using an ionic liquid (1-Butyl-3-methylimidazolium tetrafluoroborate, [BMIM]BF4) and the cis-dioxo-bis[3-methoxy-2,2-dimethylpropanediamine] molybdenum(VI) complex (cis-[Mo(O)2L]). In order to study of the electrochemical behavior of ascorbic acid (AA) and dopamine (DA) at the surface of the prepared CPEs, the differential pulse and cyclic voltammetric methods (DPV and CV) were used. The percent of the [BMIM]BF4 in the matrix of the modified CPE is optimized, and then the effect of the pH of the buffered solution on the electrode response and the resolution between the anodic peaks of AA and DA is studied by CV and DPV. These results reveal that by application of the modified CPE a peak resolution about 325mV is obtained for AA and DA and the linear range for AA and DA in buffered solutions of pH 5.0 is acquired in the range from 5.0×10−7 to 1.0×10−3 M. The respective limits of detection (S/N = 3) were 1×10−7 M and 2×10−7 M for DA and AA, respectively. Surface regeneration and the very easy preparation of the modified CPE together with the very good peak resolution and sub-micromolar detection limits designate the prepared CPE in this work appropriate for .simultaneous voltammetric determination of DA and AA

کلمات کلیدی:

Molybdenum Schiff base complex, [BMIM]BF4, dopamine, ascorbic acid, Voltammetry