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Research Details :

Research Title	:	*Analysis of domperidone in pharmaceutical formulations and wastewater by differential pulse voltammetry at a glassy-carbon electrode* *Analysis of domperidone in pharmaceutical formulations and wastewater by differential pulse voltammetry at a glassy-carbon electrode*
Descriptipn	:	The redox characteristics of the drug domperidone at a glassy-carbon electrode (GCE) in aqueous media were critically investigated by differential-pulse voltammetry (DPV) and cyclic voltammetry (CV). In Britton Robinson (BR) buffer of pH 2.6-10.3, an irreversible and diffusion-controlled oxidation wave was developed. The dependence of the CV response of the developed anodic peak on the sweep rate (v) and on depolizer concentration was typical of an electrode-coupled chemical reaction mechanism (EC) in which an irreversible first-order reaction is interposed between the charges. The values of the electron-transfer coefficient (alpha) involved in the rate-determining step calculated from the linear plots of E-p,(a) against ln (v) in the pH range investigated were in the range 0.64 +/- 0.05 confirming the irreversible nature of the oxidation peak. In BR buffer of pH 7.6-8.4, a well defined oxidation wave was developed and the plot of peak current height of the DPV against domperidone concentration at this peak potential was linear in the range 5.20 x 10(-6) to 2.40 x 10(-5) mol L-1 with lower limits of detection (LOD) and quantitation (LOQ) of 6.1 x 10(-7) and 9.1 x 10(-7) mol L-1, respectively. A relative standard deviation of 2.39% (n = 5) was obtained for 8.5 x 10(-6) mol L-1 of the drug. These DPV procedures were successfully used for analysis of domperidone in the pure form (98.2 +/- 3.1%), dosage form (98.35 +/- 2.9%), and in tap (97.0 +/- 3.6%) and wastewater (95.0 +/- 2.9%) samples. The method was validated by comparison with standard titrimetric and HPLC methods. Acceptable error of less than 3.3% was also achieved.
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