Electrochemical Behavior and Voltammetric Determination of Albendazole Using Carbon Paste Electrode

Gaber. A.M. Mersal^{1,*}, Salman S. Alharthi¹ and Nouf. A.S. Al Maliki¹, Sayed. I.M. Zayed²

¹ Department of Chemistry, College of Science, Taif University, P.O. Box 11099, Taif 21944, Saudi Arabia

² Faculty of Industrial Education, Beni-Suef University, Beni-Suef, Egypt

*E-mail: gamersal@tu.edu.sa

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Cyclic voltammetry (CV) and differential pulse voltammetry (DPV) techniques were used to study the electrochemical activity of albendazole (ABZ) in carbon paste electrodes (CPE). Using Britton-Robinson (BR) buffer (pH 4.01) ABZ, only one oxidation peak ($E_p = 0.873$ V) was observed, suggesting that the irreversible oxidation mechanism and this process are regulated by adsorption. The various experimental parameters for oxidation of ABZ have been customized. The oxidation peak current is proportional to the concentrations of ABZ within the range from 0.0265 to 0.1855 $\mu\text{g/ml}$ under optimum conditions. The limits of detection and quantification obtained are 0.015 and 0.048 $\mu\text{g/mL}$. This approach was used in drug products and human urine samples for the voltammetric detection of ABZ.

Keywords: Albendazole (ABZ), DPV, CPE, pharmaceutical formulations, urine.

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