



Adsorptive Voltammetric Determination of Nimesulide at Glassy Carbon Electrode

Gamal O. EL-SAYED ^{1*}, Shalaby A. YASIN ¹, Mohammed A. EL RIES ² & Azza A. EL-BADAWY ¹

¹ Chemistry Department, Faculty of Science, Benha University, Benha, Egypt

² National Organization for Drug Control and Research, P.O. 29, Cairo, Egypt

SUMMARY. A voltammetric method is described for the determination of nimesulide based on the reduction of the nitro group at glassy carbon electrode. The voltammetric behavior of the drug was investigated in Britton-Robinson buffer (pH 2.0-12.0) applying cyclic voltammetry technique. One cathodic and one anodic peaks were observed. The comparison of peak heights and potentials indicated that these peaks are quasi-reversible. The determination of nimesulide in pure form was performed using adsorptive linear sweep voltammetry. The cathodic peak current varied linearly in the range 4.0×10^{-7} - 5.0×10^{-5} M (0.116 - $14.65 \mu\text{g mL}^{-1}$). The limits of detection (LOD) and quantification (LOQ) were 3.2×10^{-8} and 1.06×10^{-7} mol L^{-1} , respectively. The proposed method was applied to pharmaceutical formulations with percent recoveries in the range 98.00-101.60%, and a relative standard deviation of 0.61-1.46%. The validity of the method was performed to the determination of nimesulide in human serum with acceptable results for biological samples. No sample pre-treatments or solvent extraction procedures were needed.

KEY WORDS: Cyclic voltammetry, Glassy carbon electrode, Linear sweep, Nimesulide, serum.

* Author to whom correspondence should be addressed. *E-mail:* gamaloelsayed@yahoo