Electrochemical Determination of Gemifloxacin Mesylate in Commercial Tablets and Biological Fluids By Differential Pulse Polarography

Salma A. Al-Tamimi*, Amal M. Al-Mohaimeed, Nawal A. Alarfaj, Fatma A. Aly

¹ Department of Chemistry, College of Science, King Saud University, P. O. Box 22452, Riyadh 11495, Saudi Arabia

² Department of Pharmaceutical Analytical Chemistry, Faculty of Pharmacy, Mansoura University, Mansoura 35516, Egypt

*E-mail: satamimi@ksu.edu.sa

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An ultrasensitive electrochemical probe was suggested for the estimation and quantification of gemifloxacin mesylate (GFX) in its pharmaceutical products and biological media. Differential pulse (DPP), Cyclic voltammetry (CV) and Alternative current AC_t were exploited to investigate the electrochemical nature of GFX. Over the pH range of 2.6-10, the investigated drug demonstrated significant cathodic peaks. The best polarographic response was achieved in acetate buffer (pH 5), scan rate 15 mV s⁻¹ and pulse amplitude -90 mV. The outcome linearity was $1.59 \times 10^{-6} - 2.70 \times 10^{-5}$ mol L⁻¹ (0.77 – 13.1 µg mL⁻¹). The limits of detection and quantification were determined as 2.89×10^{-7} and 8.76×10^{-7} mol L⁻¹, respectively. The proposed electrochemical approach was validated and successfully used to quantify the selected drug in different media. The outcome results were compared with others obtained from reference method and displayed good accuracy and precision agreement.

Keywords: Gemifloxacin mesylate; Differential pulse polarography; Commercial products; Biosamples

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