An amperometric FIA system with carrier recycling: an environmentally friendly approach for atenolol determination in pharmaceutical formulations

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Electronic Supplementary Information

\textbf{Fig. S1.} Cyclic voltammograms recorded at CPE surface. (—) Absence and (—) presence of 1.0 mmol L\(^{-1}\) ATN. Supporting electrolyte: BR buffer, pH = 9. Scan rate (v) = 100 mV s\(^{-1}\).
Fig. S2. Effect of pH on $E_p$ and $i_p$ for ATN electrooxidation. $E_p$ and $i_p$ obtained from DPV voltammograms recorded in BR buffer at different pH values in presence of 1.0 mmol L$^{-1}$ ATN. Voltammetric conditions: pulse amplitude: 50 mV; pulse width: 25 ms; $\nu = 10$ mV s$^{-1}$. 
Fig. S3. Global chemical reaction for ATN electrooxidation.
**Fig S4.** Transient amperometric signals for ten replicate injections of different volumes of 0.54 mmol L⁻¹ ATN. Carrier solution: BR buffer, pH = 10. Flow rate: 5 mL min⁻¹. Analytical path: 47 cm. $E_{\text{det}} = +0.9$ V/50 ms. $E_{\text{reg}} = +0.5$ V/50 ms.
Fig. S5. Transient amperometric signals for ten replicate injections of 100 µL of 0.54 mmol L\(^{-1}\) ATN at different flow rates. Carrier solution: BR buffer, pH = 10. Analytical path: 47 cm. \(E_{\text{det}} = +0.9\) V/50 ms. \(E_{\text{reg}} = +0.5\) V/50 ms.
Fig. S6. Amperometric signals for triplicate injections of different ATN concentrations (1 to 5). (1) 100; (2) 250; (3) 500; (4) 750; (5) 1000 µmol L\(^{-1}\). A to E: triplicate injections of pharmaceutical formulation samples. \(E_{\text{det}} = +0.9\) V/50 ms; \(E_{\text{reg}} = +0.5\) V/50 ms; sample loop volume = 100 µL; flow rate = 7 mL min\(^{-1}\). Carrier solution: BR buffer, pH = 10. Analytical path: 47 cm.
Fig. S7. Amperometric signals for triplicate injections of different ATN concentrations (1 to 5). (1) 100; (2) 250; (3) 500; (4) 750; (5) 1000 µmol L⁻¹. A to E: triplicate injections of pharmaceutical formulation samples spiked with 10 and 20 mg ATN per tablet. \( E_{\text{det}} = +0.9 \) V/50 ms; \( E_{\text{reg}} = +0.5 \) V/50 ms; sample loop volume = 100 µL; flow rate = 7 mL min⁻¹. Carrier solution: BR buffer, pH = 10. Analytical path: 47 cm.