Analytical Methods

ARTICLE

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

Received 00th January 20xx,
Accepted 00th January 20xx

DOI: 10.1039/x0xx00000x

www.rsc.org/

M. A. Franco[a], D. A. G. Araújo[a,b], L. H. Oliveira[c], M. A. G. Trindade[c], R. M. Takeuchi[b], A. L. Santos[*a,b]

Electronic Supplementary Information

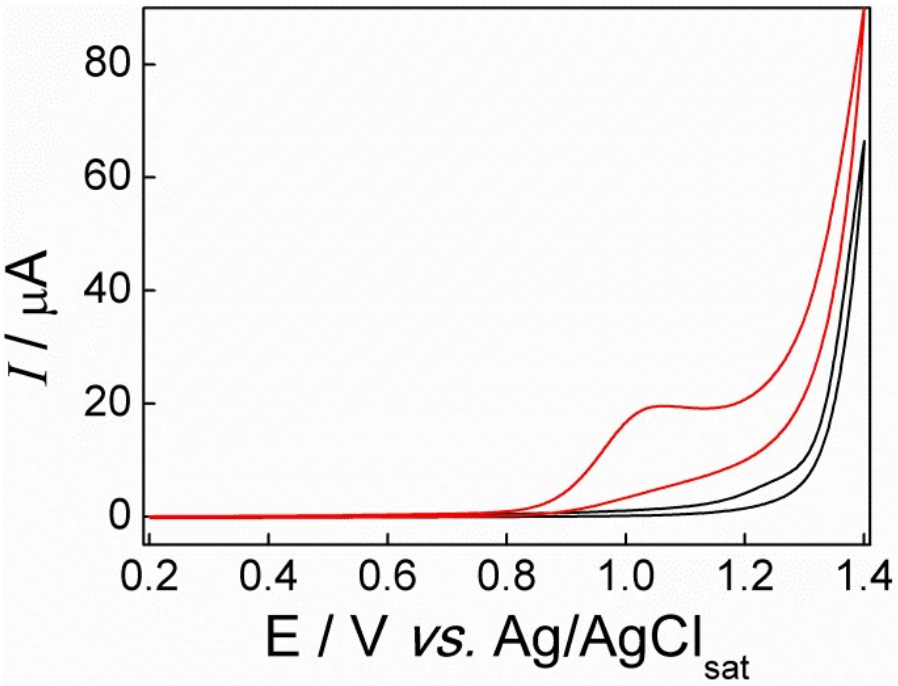

Fig. S1. Cyclic voltammograms recorded at CPE surface. (—) Absence and (—) presence of 1.0 mmol L^{-1} ATN. Supporting electrolyte: BR buffer, pH = 9. Scan rate (v) = 100 mV s^{-1}.

[a.] *Faculdade de Ciências Integradas do Pontal, Universidade Federal de Uberlândia, Rua 20, 1600, Tupã. Ituiutaba, MG, 38304-402, Brasil.Address here.*
[b.] *Instituto de Química, Universidade Federal de Uberlândia, Av. João Naves de Ávila, 2121, Santa Mônica. Uberlândia, MG, 38400-902, Brasil.*
[c.] *Faculty of Science and Technology, Federal University of Grande Dourados, Rodovia Dourados-Itahum, km 12. Caixa Postal 364. Dourados, MS 79804-970, Brazil.*
†.Corresponding author: alsantos@ufu.br. Phone number: +55-3432715251. Fax number: +55-34-32692389
Electronic Supplementary Information (ESI) available. See DOI: 10.1039/x0xx00000x

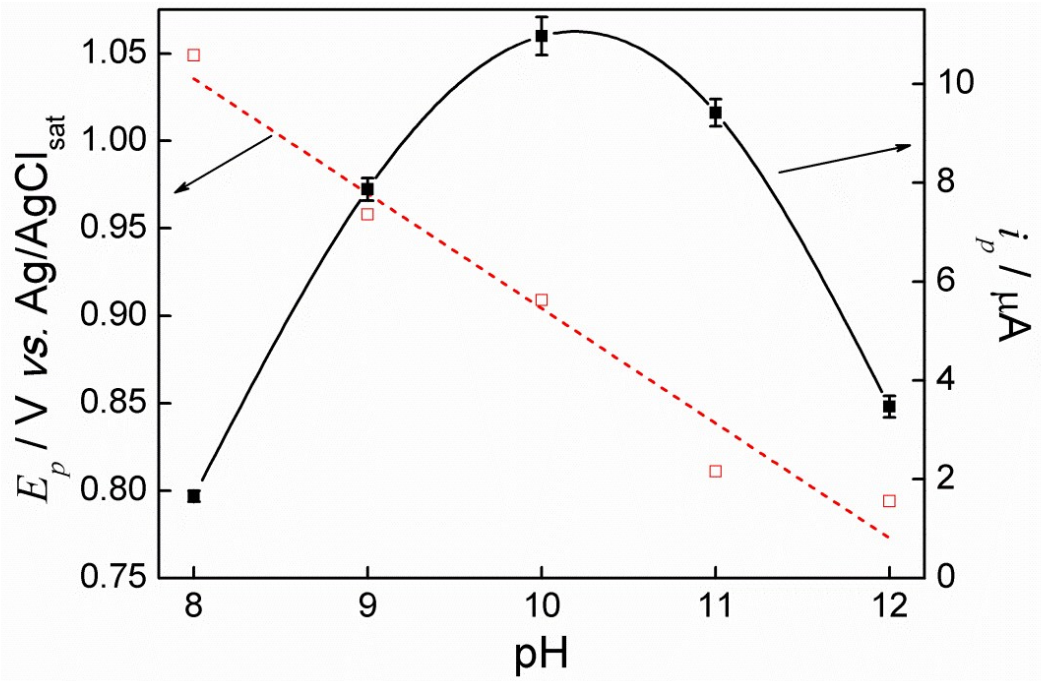

Fig. S2. Effect of pH on E_p and i_p for ATN electrooxidation. E_p and i_p obtained from DPV voltammograms recorded in BR buffer at different pH values in presence of 1.0 mmol L^{-1} ATN. Voltammetric conditions: Voltammetric conditions: pulse amplitude: 50 mV; pulse width: 25 ms; v = 10 mV s^{-1}.

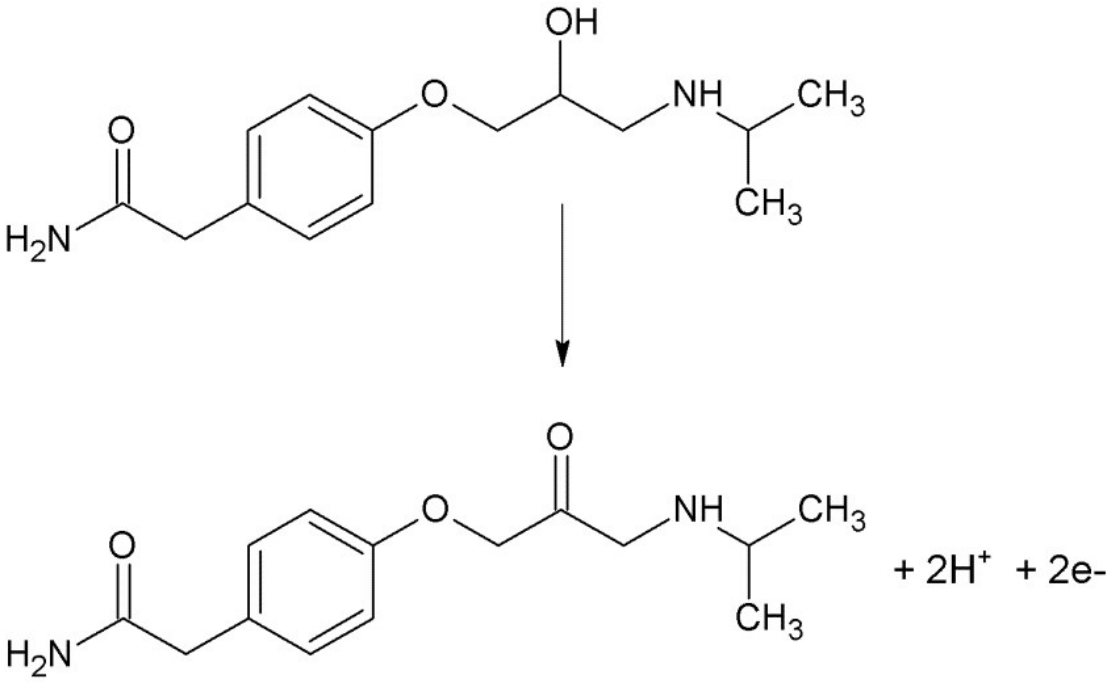

Fig. S3. Global chemical reaction for ATN electrooxidation.

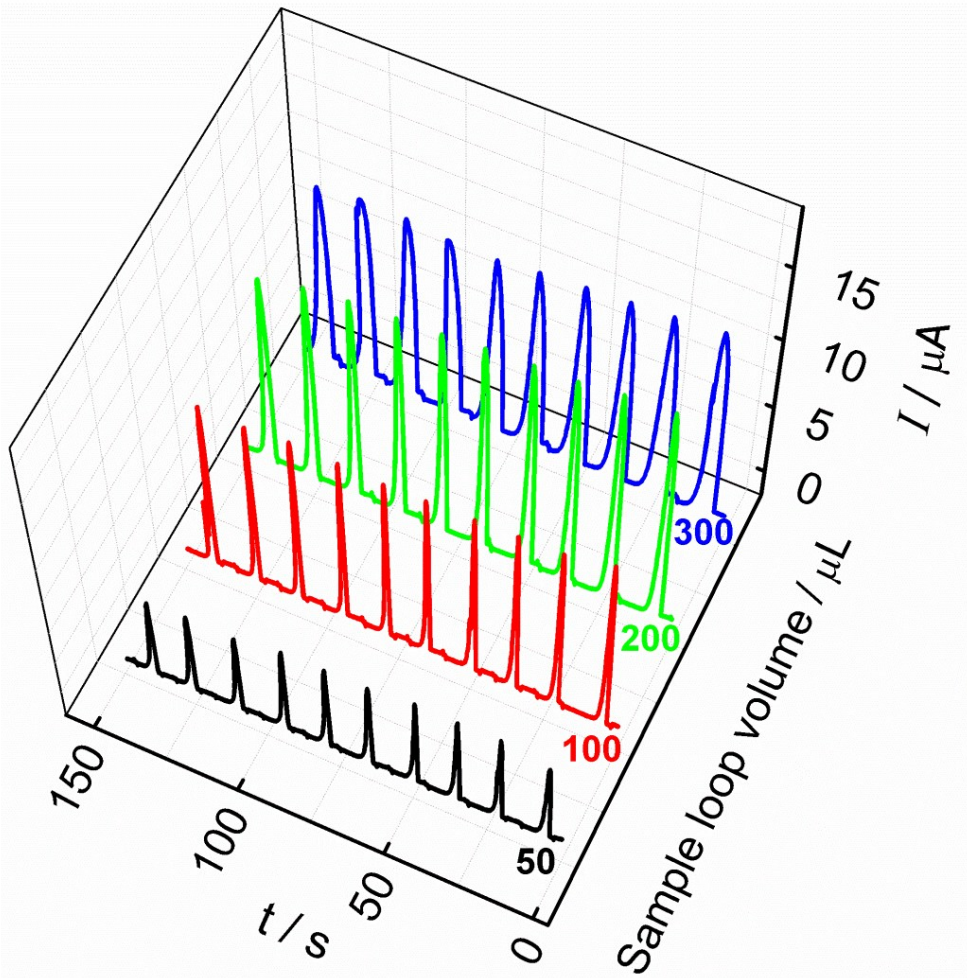

Fig S4. Transient amperometric signals for ten replicate injections of different volumes of 0.54 mmol L^{-1} ATN. Carrier solution: BR buffer, pH = 10. Flow rate: 5 mL min^{-1}. Analytical path: 47 cm. E_{det} = +0.9 V/ 50 ms. E_{reg} = +0.5 V/ 50 ms.

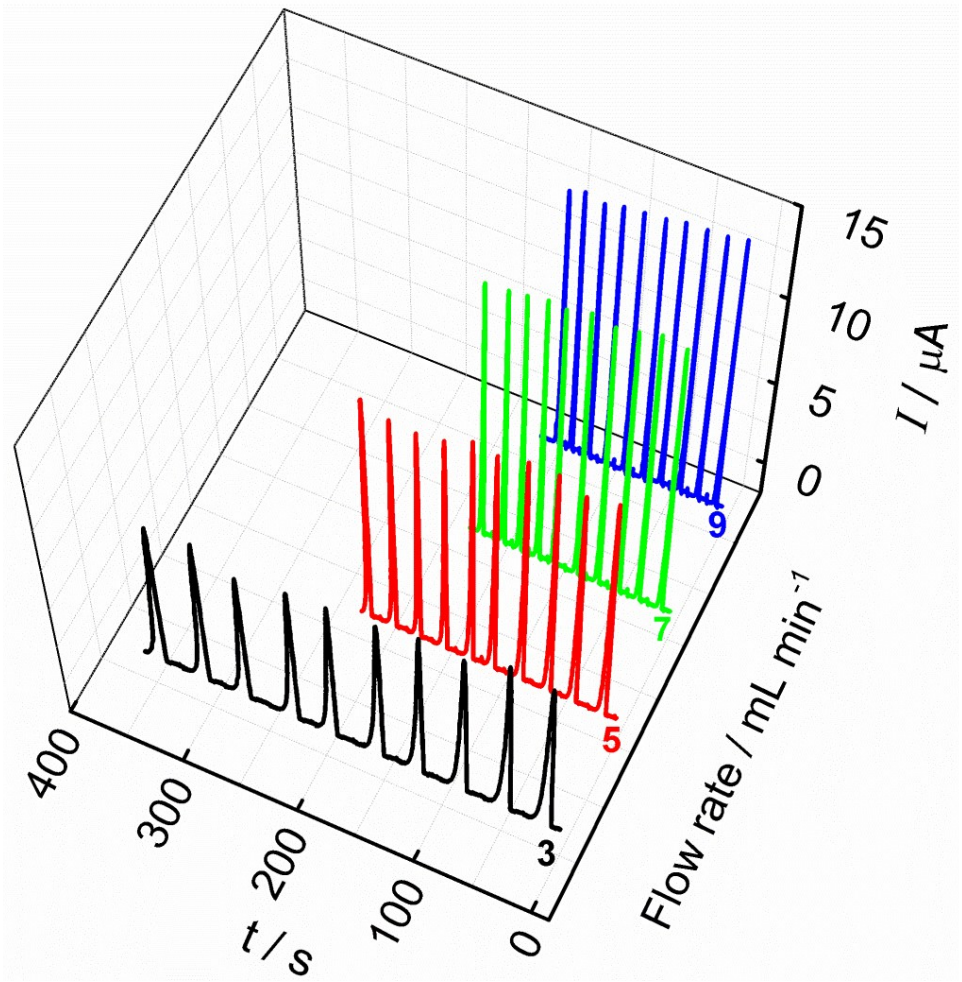

Fig. S5. Transient amperometric signals for ten replicate injections of 100 µL of 0.54 mmol L^{-1} ATN at different flow rates. Carrier solution: BR buffer, pH = 10. Analytical path: 47 cm. E_{det} = +0.9 V/ 50 ms. E_{reg} = +0.5 V/ 50 ms.

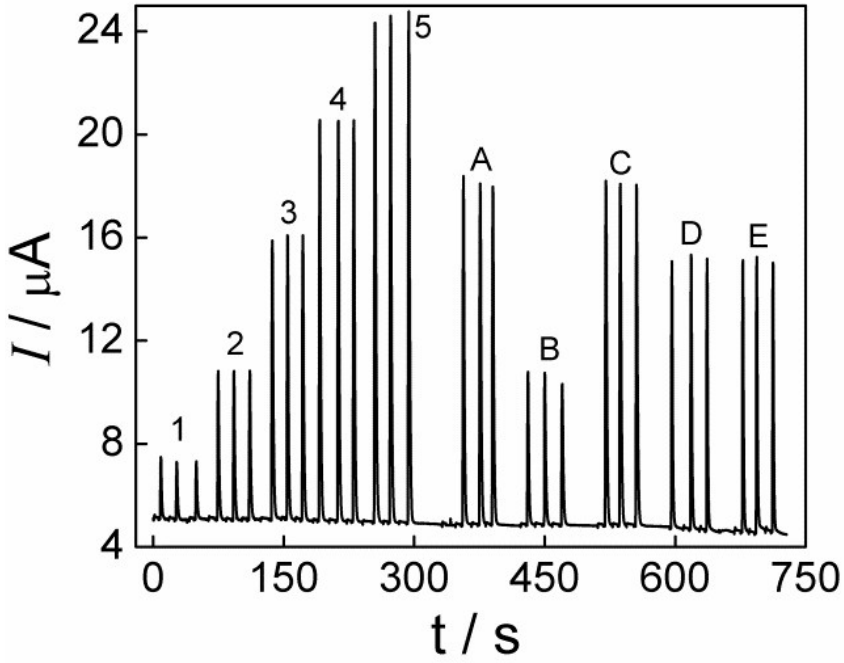

Fig. S6. Amperometric signals for triplicate injections of different ATN concentrations (1 to 5). (1) 100; (2) 250; (3) 500; (4) 750; (5) 1000 µmol L^{-1}. A to E: triplicate injections of pharmaceutical formulation samples. E_{det} = +0.9 V/50 ms; E_{reg} = +0.5 V/50 ms; sample loop volume = 100 µL; flow rate = 7 mL min^{-1}. Carrier solution: BR buffer, pH = 10. Analytical path: 47 cm.

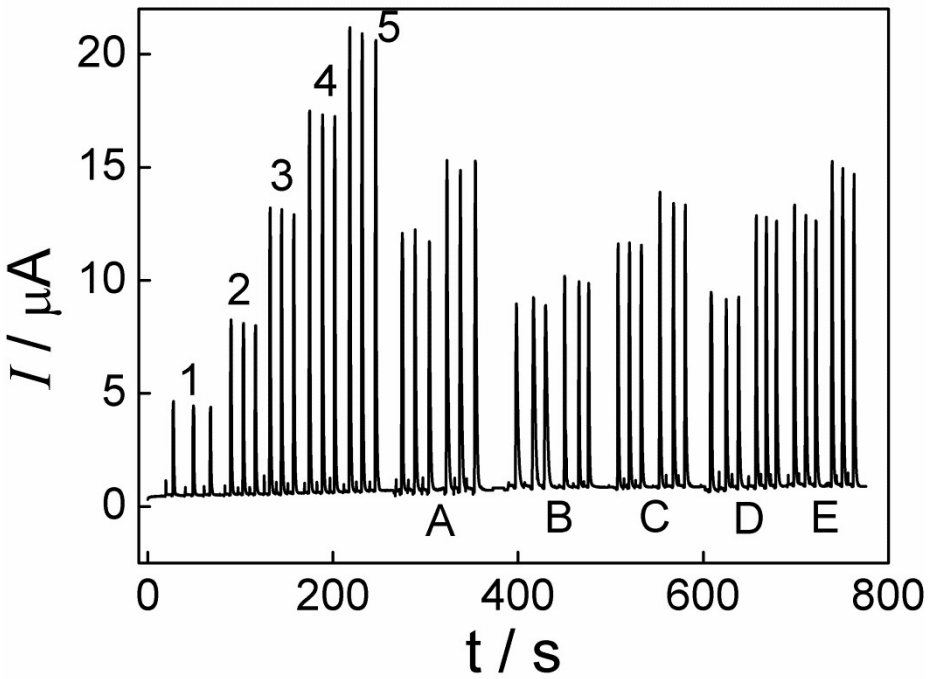

Fig. S7. Amperometric signals for triplicate injections of different ATN concentrations (1 to 5). (1) 100; (2) 250; (3) 500; (4) 750; (5) 1000 μmol L^{-1}. A to E: triplicate injections of pharmaceutical formulation samples spiked with 10 and 20 mg ATN per tablet. E_{det} = +0.9 V/50 ms; E_{reg} = +0.5 V/50 ms; sample loop volume = 100 μL; flow rate = 7 mL min^{-1}. Carrier solution: BR buffer, pH = 10. Analytical path: 47 cm.