

## Amperometric detection of indapamide on glassy carbon electrode

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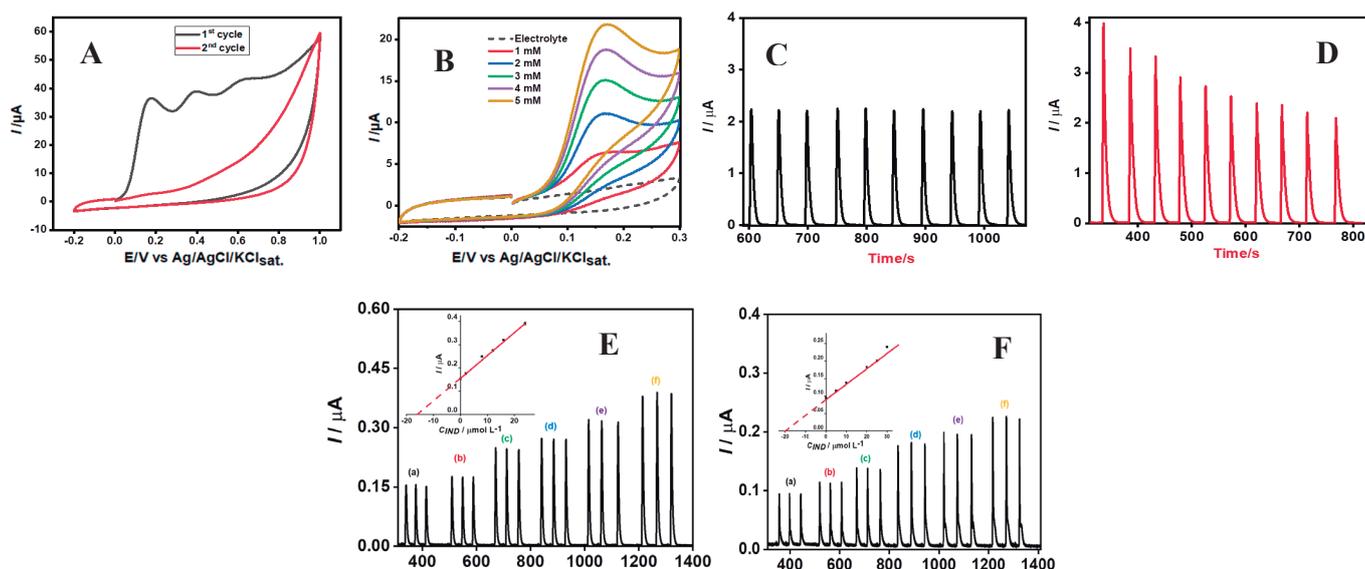
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### Highlights

Fast method for quantification of indapamide; Advantageously to the classical chromatographic methods.

### Abstract

In this work was developed a fast, precise and reliable voltammetric method for the quantification of indapamide, an orally active diuretic sulfonamide used for hypertensive treatment. This compound acts inhibiting sodium reabsorption and increasing the elimination of water. This characteristic was responsible for his banishment by the International Olympic Committee since 1999. The study begins by finding an adequate potential range to avoid poisoning the working glassy carbon electrode (GCE) in phosphate buffer (pH = 12.0). Utilizing flow injection analysis, linear responses between  $2.0 \times 10^{-6} \text{ mol L}^{-1}$  to  $2.5 \times 10^{-5} \text{ mol L}^{-1}$  of indapamide ( $R^2 = 0.995$ ), and detection limit (LOD)  $3.0 \times 10^{-7} \text{ mol L}^{-1}$  were obtained. This method was applied for the quantification of indapamide in tablets and in synthetic urine. The same flow system was used for the analysis of commercial drugs and the response obtained corresponded to 98% of the concentration indicated on the drug label. The velocity of analysis using flow methods compares advantageously to the classical chromatographic methods. For synthetic urine, linear responses were obtained in samples spiked in the region from  $5.0 \times 10^{-6} \text{ mol L}^{-1}$  to  $30 \times 10^{-6} \text{ mol L}^{-1}$  ( $R^2 = 0.991$ ) and LOD  $3.0 \times 10^{-7} \text{ mol L}^{-1}$ .



**Figure 1.** Voltammetric study of indapamide in aqueous medium (A) Sequence of two cyclic voltammograms in the potential window from -0.2 V to +1.0 V; (B) Series of voltammograms performed in the electrolyte (dashed line) and in presence of 1.0 to 5.0 mM of indapamide in the potential window situated between -0.2 V and +0.3 V. (C) Flow injection analysis experiments at 0.2 V and 0.5 V (D) for injections of indapamide 200  $\mu\text{M}$  using the single line FIA system at a flow rate of 4.0  $\text{mL min}^{-1}$ , volume injected of 125  $\mu\text{L}$ . (E) Records of a series of injections of Pharmaceutical samples of indapamide (F) Analysis of indapamide in synthetic urine sample.

### Acknowledgments

