

Estudo eletroquímico e quantificação de 5-APB, uma nova droga recreacional

Electrochemical study and quantification of 5-APB, a new recreational drug

W. R. de Araujo^(1,*), Raphael B. Prata⁽¹⁾, Silvia H.P. Serrano⁽¹⁾ Lucio Angnes⁽¹⁾
and T. R. L.C Paixão⁽¹⁾

¹ Universidade de São Paulo, Av. Prof. Lineu Prestes, 748 – São Paulo - SP – Brasil

Abstract: 5-(2-aminopropyl)benzofuran (5-APB) is a benzofuran analogue of 3,4-methylenedioxyamphetamine (MDA) and informally called "Benzofury". This psychoactive substance has been commercialized as a designer drug since 2010 [1]. To the best of our knowledge, no electrochemical study and analytical method have been reported for 5-APB previously. In this study, we used screen printed carbon electrodes to oxidize the 5-APB. The electrochemical profile exhibit an irreversible pH dependent oxidation peak close to 1 V involving transfer of one electron, Fig. 1. After the first scan, a new electrochemical process appears around 0.2 V suggesting an ECE mechanism. The quantification method was carried out using a Differential Pulse Voltammetry technique in 0.1 mol L⁻¹ phosphate buffer solution (pH 2.0). Under the optimal analytical conditions, it was possible to detect a concentration lower than 2 µmol L⁻¹.

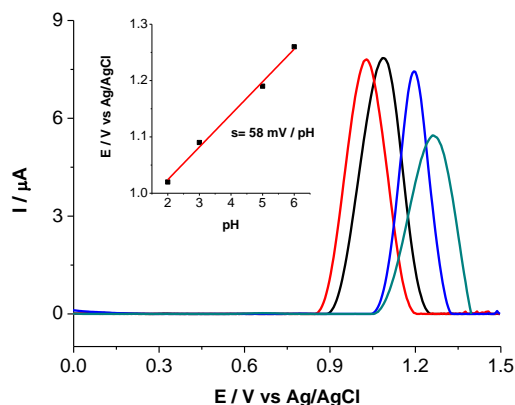


Fig. 1 – Differential Pulse Voltammograms recorded with a screen-printed carbon electrode (DropSens) in the presence of 40 µmol L⁻¹ 5-APB in different pH values. Electrolytes used: (red line) phosphate buffer solution (pH = 2.0), (black line) phosphate buffer solution (pH = 3.0), (blue line) acetate buffer solution (pH = 5.0), and (green line) phosphate buffer solution (pH = 6.0); all buffer solutions are 0.1 mol L⁻¹. Parameters: step potential of 20 mV, amplitude of 120 mV and interval time of 0.2s.

Acknowledgments:

CNPq, FAPESP (grant number: 2016/16477-9) and CAPES for financial support.

References:

- [1] W. L. Chan, D. M. Wood, S. Hudson, P. Dargan; J. Med. Toxicol. (2013) 9:278–281.
- [2] EMCDDA–Europol 2010 Annual Report on the implementation of Council Decision 2005/387/JHA-<http://www.emcdda.europa.eu/publications/implementation-reports/2010> - accessed in January, 2017.