

Adsorptive Stripping Voltammetric Determination of Morin in Tea Infusions and Chocolate Drinks on a Gold Electrode. Effect of Cetylpyridinium Bromide on the Sensitivity of the Method

Verónica Arancibia¹, Olimpo Gracia-Beltrán², John Hurtado³, Edgar Nagles^{2,*}

¹ Pontificia Universidad Católica de Chile, Chemistry Faculty, Vicuña Mackenna 4860. Santiago-7820436. Chile.

² Universidad de Ibagué, Facultad de Ciencias Naturales y Matemáticas, Carrera 22 Calle 67 B/Ambalá. Ibagué. Colombia. Departamento de Química, Universidad de Los Andes, Carrera 1 No. 18A-12, 111711, Bogotá, Colombia

*E-mail: edgar.nagles@unibague.edu.co

doi: 10.20964/2017.10.07

Received: 14 June 2017 / Accepted: 23 July 2017 / Published: 12 September 2017

The use of a gold electrode to determine Morin (MO) in the presence of two polyphenolic compounds as Quercetin (Q) and Rutin (RU) by cyclic and adsorptive stripping voltammetry is reported. The effects of various operational parameters such as pH, supporting electrolyte, adsorptive potential and time (E_{ads} , t_{ads}) were optimized. The optimum experimental conditions chosen were: pH 3.0 (phosphate buffer $0,001 \text{ mol L}^{-1}$), E_{ads} : -0.20 V and t_{ads} : 60s. Under these conditions MO was oxidized at $+0.49 \text{ V}$ and the linear calibration curves ranged from 0.5 and $5.6 \mu\text{mol L}^{-1}$. When cetylpyridinium bromide (CPB) was added to the electrochemical cell, a Morin/CPB aggregate was formed, increasing the peak current of MO for at least 30 % than in the absence of this cationic surfactant, and the detection limit changed from 0.40 to $0.083 \mu\text{mol L}^{-1}$ with 15.0 mol L^{-1} of CPB. The method was validated determining MO in two water samples spiked with MO, Q and RU and finally, was successfully applied to the determination of MO in tea infusions and chocolate drinks samples.

Keywords: Morin; Gold electrode; Adsorptive stripping voltammetry; Tea drink; Chocolate drink.

[FULL TEXT](#)

© 2017 The Authors. Published by ESG (www.electrochemsci.org). This article is an open access article distributed under the terms and conditions of the Creative Commons Attribution license (<http://creativecommons.org/licenses/by/4.0/>).