Immobilized Ammoniated Ruthenium Oxychloride on Functionalized Carbon Nanotubes as a Modifier for Simultaneous Determination of Biocompounds

Farideh Hosseini-Narouei¹, Meissam Noroozifar^{1,*}, Mozhgan Khorasani-Motlagh²

¹Analytical Research Laboratory, Department of Chemistry, University of Sistan and Baluchestan, Zahedan, P.O. Box 98167-674, Iran

²Inorganic Research Laboratory, Department of Chemistry, University of Sistan and Baluchestan, Zahedan, Iran

*E-mail: mnoroozifar@chem.usb.ac.ir

doi: 10.20964/110402579

Received: 07 November 2015 / Accepted: 25 January 2016 / Published: 1 March 2016

Modified glassy carbon electrode with immobilized ammoniated ruthenium oxychloride on multi-walled carbon nanotube has been used for the simultaneous determination of ascorbic acid (AA), dopamine (DA), uric acid (UA) and tryptophan (Trp). The modified electrode can well separate quaternary mixture containing AA, DA, UA and Trp from each other at 0.09, 0.323, 0.511 and 0.728 V. The measurements were performed using cyclic and liner sweeping voltammetry in a phosphate buffer solution in pH 4.0. Under optimum conditions, this modified electrode showed a linear response up to 176.8, 300.0, 310.0 and 326.0 μM with detection limits 1.5, 0.64, 0.57 and 0.61 μM for AA, DA, UA and Trp, respectively. The analytical performance of the modified electrode has been evaluated in human serum and urine samples.

Keywords: Ammoniated ruthenium oxychloride, multi-walled carbon nanotube, simultaneous determination, serum, urine.

[FULL TEXT](#)

© 2016 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/>).