Poly (threonine) Modified Carbon Composite Electrode as Sensor for Amoxicillin Determination

Nagaraja Sreeharsha^{1,2,*}, Mallikarjun Telsang³, Girish Meravanige Basavarajappa⁴, Swati Pund⁵, Ranjith Kumar Karnati⁶

¹ Department of Pharmaceutical Sciences, College of Clinical Pharmacy, King Faisal University, Al-Ahsa 31982, Saudi Arabia;

² Department of Pharmaceutics, Vidya Siri College of Pharmacy, Off Sarjapura Road, Bangalore 560035, Karnataka, India

³ Department of Surgery, College of Medicine, King Faisal University, Al-Ahsa 31982, Saudi Arabia;

⁴ Department of Biomedical Sciences, College of Medicine, King Faisal University, Al-Ahsa 31982, Saudi Arabia;

⁵ Nanomedicine Laboratory, Department of Biosciences and Bioengineering, Indian Institute of Technology-Bombay, Mumbai 400076, India;

⁶ Department of Chemistry, College of Science, King Faisal University, Al-Ahsa 31982, Saudi Arabia

*E-mail: mvtelsang@kfu.edu.sa, sharsha@kfu.edu.sa

Received: 13 November 2021 / Accepted: 10 December 2021 / Published: 5 January 2022

The poly(threonine) carbon composite sensor was concentrated as a totally special sensor for the assurance Amoxicillin (AM). The behavior of AM at the electrode surface was researched utilizing electrochemical cyclic voltammetry (CV) and field emission scanning electron microscopy (FE-SEM). Electrochemical investigations uncovered that the projected sensor showed a significant benefit, involving high operative surface area, plentiful reactive spots and outstanding electro-catalytic action for the AM oxidation. In the ideal circumstances, the sensor showed a fine linear response towards the oxidation of AM in the concentration range from 0.10–16.0 μM . The assessed limit of detection and quantification were found to be 0.12 μM and 0.45 μM for AM, respectively. This sensor showed a good sensitivity, steadiness, selectivity, and reproducibility, proposed that the prepared sensor was a capable one for the concurrent assurance with dopamine (DA) and superb recuperation and without the impedances of existing together substances.

Keywords: Amoxicillin; Dopamine; polymerization; Electroanalysis.

[FULL TEXT](#)

© 2022 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/>).