

Accepted Manuscript

Advanced sensing nanomaterials based carbon paste electrode for simultaneous electrochemical measurement of esomeprazole and diclofenac sodium in human serum and urine samples

Mohamed M. El-Wekil, Saad A. Alkahtani, Hassan Refat H. Ali, Ashraf M. Mahmoud



PII: S0167-7322(18)30778-5
DOI: doi:[10.1016/j.molliq.2018.04.120](https://doi.org/10.1016/j.molliq.2018.04.120)
Reference: MOLLIQ 9023
To appear in: *Journal of Molecular Liquids*
Received date: 11 February 2018
Revised date: 22 April 2018
Accepted date: 23 April 2018

Please cite this article as: Mohamed M. El-Wekil, Saad A. Alkahtani, Hassan Refat H. Ali, Ashraf M. Mahmoud , Advanced sensing nanomaterials based carbon paste electrode for simultaneous electrochemical measurement of esomeprazole and diclofenac sodium in human serum and urine samples. The address for the corresponding author was captured as affiliation for all authors. Please check if appropriate. Molliq(2017), doi:[10.1016/j.molliq.2018.04.120](https://doi.org/10.1016/j.molliq.2018.04.120)

This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and review of the resulting proof before it is published in its final form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.

Advanced sensing nanomaterials based carbon paste electrode for simultaneous electrochemical measurement of esomeprazole and diclofenac sodium in human serum and urine samples

Mohamed M. El-Wekil^{a*}, Saad A. Alkahtani^b, Hassan Refat H. Ali^a, Ashraf M. Mahmoud^{a,c}

^a Department of Pharmaceutical Analytical Chemistry, Faculty of Pharmacy, Assiut University, 71526 Assiut, Egypt

^b Department of Clinical Pharmacy, College of Pharmacy, Najran University, Najran 11001, Kingdom of Saudia Arabia

^c Department of Pharmaceutical Chemistry, College of Pharmacy, Najran University, Najran 11001, Kingdom of Saudia Arabia

* Corresponding author: mohamed.mohamoud@ymail.com, Tel. No. +201012292352

ABSTRACT

Herein, a novel electrochemical sensor for simultaneous analysis of esomeprazole (EZM) and diclofenac sodium (DICLS) in binary mixture was developed. This proposed sensor is carbon paste electrode (CPE) modified with reduced graphene oxide (rGO) and Co(OH)₂ nano-flakes (CHNF). This sensor was designed to tailor the extraordinary properties of rGO and CHNF to produce synergistic electro-catalysis with significantly improved electro-analytical response compared to an unmodified bare CPE. Several techniques were used to characterize the new developed electrochemical sensor. The electrochemical performance was improved by optimizing the effects of pH, scan rate, amounts of rGO/CHNF, frequency and other parameters. The new sensor was successfully applied for determination of the cited mixture, where the linearity was achieved in the range of 2.5-155×10⁻⁸ M and 1.5-105×10⁻⁸ M with detection limits of 8×10⁻⁹ M and 5×10⁻⁹ M for DICLS and EZM, respectively. The fabricated sensor was used for determination of the mixture in pharmaceutical preparations, human serum and urine.

Keywords: Esomeprazole; Diclofenac sodium; Reduced graphene oxide; Cobalt hydroxide nano-flakes; Human serum; Human urine.

Download English Version:

<https://daneshyari.com/en/article/7842451>

Download Persian Version:

<https://daneshyari.com/article/7842451>

[Daneshyari.com](https://daneshyari.com)