

Web of Science

Search

Search Results

My Tools ▾

Search History

Marked List

230 of 752

Lead sensors development and antimicrobial activities based on graphene oxide/carbon nanotube/poly(O-toluidine) nanocomposite

By: [Khan, AAP](#) (Khan, Aftab Aslam Parwaz)^[1,2]; [Khan, A](#) (Khan, Anish)^[1,2]; [Rahman, MM](#) (Rahman, Mohammed M.)^[1,2]; [Asiri, AM](#) (Asiri, Abdullah M.)^[1,2]; [Oves, M](#) (Oves, Mohammad)^[3]

[View ResearcherID and ORCID](#)

INTERNATIONAL JOURNAL OF BIOLOGICAL MACROMOLECULES

Volume: 89 Pages: 198-205

DOI: 10.1016/j.ijbiomac.2016.04.064

Published: AUG 2016

[View Journal Impact](#)

Abstract

Graphene oxide/carbon nanotube/poly (O-toluidine) (GO-CNT-POT) nanocomposite was prepared by a situ polymerization method and characterized by X-ray powder diffractometry (XRD) and scanning electron microscopy (SEM). The antibacterial activity of the obtained GO-CNT-POT nanocomposite was also evaluated against Gram positive bacteria *Bacillus subtilis*, Gram negative bacteria *Escherichia coli* and antibiotics (Amoxicillin) using the agar plate. The antibacterial study showed that the GO-CNT-POT was found to be most effective against both *B. subtilis* and *E. coli* respectively which was significant compared to the amoxicillin and the simultaneously GO-CNT-POT nanocomposite were fabricated onto glassy carbon electrode (GCE) using conducting coating binders by I-V technique, where the total analytical parameters were measured for the development of sensitive lead sensors (Pb²⁺). The GO-CNT-POT nanocomposite were deposited on flat-GCE (surface area: similar to 0.0316 cm²) to result in a sensor that has a fast response to selective Pb²⁺ ions in buffer system. Features including sensitivity, detection limit, reproducibility, linear dynamic range, selectivity, and electrochemical performances were investigated in details with the GO-CNT-POT nanocomposite fabricated GCE electrodes. The calibration plot is linear (r²: 0.9907) over the large concentration range (0.1 nM to 1.0 mM). The sensitivity and detection limit is calculated as 8.53164 μA cm⁻² μM⁻¹ and 89.0 pM (at a signal-to-noise-ratio, SNR of 3) respectively. (C) 2016 Elsevier B.V. All rights reserved.

Keywords

Author Keywords: GO-CNT-POT nanocomposite; Pb(2+)sensor; Fabrication; Antimicrobial activity

KeyWords Plus: GLASSY-CARBON ELECTRODES; MATERIALS SCIENCE; SUPERCAPACITIVE PERFORMANCE; NANOSTRUCTURE MATERIALS; OXIDE NANOCOMPOSITES; VISUAL DETECTION; IONS; NANOPARTICLES; COMPOSITES; WATER

Author Information

Reprint Address: Khan, AAP (reprint author)

King Abdulaziz Univ, Fac Sci, Ctr Excellence Adv Mat Res, POB 80203, Jeddah 21589, Saudi Arabia.

Organization-Enhanced Name(s)

King Abdulaziz University

Reprint Address: Khan, AAP (reprint author)

King Abdulaziz Univ, Fac Sci, Dept Chem, POB 80203, Jeddah 21589, Saudi Arabia.

Organization-Enhanced Name(s)

King Abdulaziz University

Citation Network

5 Times Cited

72 Cited References

[View Related Records](#)

 [Create Citation Alert](#)

(data from Web of Science Core Collection)

All Times Cited Counts

5 in All Databases

5 in Web of Science Core Collection

1 in BIOSIS Citation Index

0 in Chinese Science Citation Database

0 in Data Citation Index

0 in Russian Science Citation Index

0 in SciELO Citation Index

Usage Count

Last 180 Days: 12

Since 2013: 34

[Learn more](#)

Most Recent Citation

Taghdisi, Seyed Mohammad.
[Voltammetric determination of lead\(II\) by using exonuclease III and gold nanoparticles, and by exploiting the conformational change of the complementary strand of an aptamer](#).
MICROCHIMICA ACTA, AUG 2017.

[View All](#)

This record is from:

Web of Science Core Collection
- Science Citation Index Expanded

Suggest a correction

If you would like to improve the quality of the data in this record, please [suggest a correction](#).

Addresses:

- [1] King Abdulaziz Univ, Fac Sci, Ctr Excellence Adv Mat Res, POB 80203, Jeddah 21589, Saudi Arabia
Organization-Enhanced Name(s)
King Abdulaziz University
- [2] King Abdulaziz Univ, Fac Sci, Dept Chem, POB 80203, Jeddah 21589, Saudi Arabia
Organization-Enhanced Name(s)
King Abdulaziz University
- [3] King Abdulaziz Univ, Ctr Excellence Environm Studies, Jeddah 21589, Saudi Arabia
Organization-Enhanced Name(s)
King Abdulaziz University

E-mail Addresses: aapkhan@kau.edu.sa**Publisher**

ELSEVIER SCIENCE BV, PO BOX 211, 1000 AE AMSTERDAM, NETHERLANDS

Categories / Classification**Research Areas:** Biochemistry & Molecular Biology; Chemistry; Polymer Science**Web of Science Categories:** Biochemistry & Molecular Biology; Chemistry, Applied; Polymer Science**Document Information****Document Type:** Article**Language:** English**Accession Number:** WOS:000378951400023**PubMed ID:** 27112981**ISSN:** 0141-8130**eISSN:** 1879-0003**Other Information****IDS Number:** DQ1HF**Cited References in Web of Science Core Collection:** **72****Times Cited in Web of Science Core Collection:** **5**