

## Accepted Manuscript

A facile route for the syntheses of Ni(OH)<sub>2</sub> and NiO nanostructures as potential candidates for non-enzymatic glucose sensor

Nabanita Pal, Sangam Banerjee, Asim Bhaumik

PII: S0021-9797(18)30036-5  
DOI: <https://doi.org/10.1016/j.jcis.2018.01.027>  
Reference: YJCIS 23185

To appear in: *Journal of Colloid and Interface Science*

Received Date: 24 November 2017  
Revised Date: 5 January 2018  
Accepted Date: 5 January 2018

Please cite this article as: N. Pal, S. Banerjee, A. Bhaumik, A facile route for the syntheses of Ni(OH)<sub>2</sub> and NiO nanostructures as potential candidates for non-enzymatic glucose sensor, *Journal of Colloid and Interface Science* (2018), doi: <https://doi.org/10.1016/j.jcis.2018.01.027>

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.



# A facile route for the syntheses of Ni(OH)<sub>2</sub> and NiO nanostructures as potential candidates for non-enzymatic glucose sensor

Nabanita Pal,<sup>a, b,\*</sup> Sangam Banerjee<sup>a</sup> and Asim Bhaumik<sup>c</sup>

<sup>a</sup>*Surface Physics and Materials Science Division, Saha Institute of Nuclear Physics, Block-AF,  
Sector-I, Bidhannagar, Kolkata-700064, India.*

<sup>b</sup>*Faculty of Science and Technology, The ICFAI Foundation for Higher Education, Donthanapally,  
Shankarapalli Road, Hyderabad – 501203, India.*

<sup>c</sup>*Department of Materials Science, Indian Association for the Cultivation of Science, Jadavpur,  
Kolkata-700 032, India.*

Corresponding e-mail: [naba.p27@gmail.com](mailto:naba.p27@gmail.com),

## ABSTRACT

In modern world, diabetes is one of the most leading diseases that cause human death and disability. Continuous effort to control and manage diabetes by acute monitoring of the blood glucose concentration requires the development of an efficient and reliable glucose sensing device. Although both enzymatic and enzyme-free methods of glucose detection are available in the market, non-enzymatic biosensors are more significant due to certain drawbacks in enzyme based sensors. In this article, a stable non-enzymatic sensing platform for D-glucose based on nickel hydroxide and nickel oxide nanomaterials has been described. Ni(OH)<sub>2</sub> and NiO were synthesized through a facile hydrothermal route followed by the heat treatment. Detailed morphological and structural characterizations were carried out using GIXRD, transmission and scanning electron microscopy (TEM and FESEM) which reveal that hexagonal  $\beta$ -Ni(OH)<sub>2</sub> and cubic NiO phases have been formed. TEM image of NiO has shown that the nanomaterials

Download English Version:

<https://daneshyari.com/en/article/6992103>

Download Persian Version:

<https://daneshyari.com/article/6992103>

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