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## Electrochemical sensor based on multi-walled carbon nanotubes – boehmite nanoparticle composite modified electrode

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A sensitive electrochemical sensor was developed for the analysis of dobutamine (Dob) using a glassy carbon electrode modified with multi-walled carbon nanotubes – boehmite nanoparticle composite (BNP-MWNTs/GCE). Scanning electron microscopy (SEM) was used for the characterization of synthesized BNPs and the morphology of BNP-MWNTs on the surface of GCE. Under the optimized experimental conditions, the BNP-MWNTs/GCE exhibited higher peak current than bare GCE due to synergetic effect of BNPs and MWCNTs on the electrochemical oxidation of Dob. The effect of various experimental parameters such as pH, scan rate, accumulation time on the voltammetric response of Dob was studied and optimized. A wide linear range from 0.005 to 1.0 μM with a low detection limit of 8.9 nM was found for voltammetric quantification of Dob. The prepared sensor exhibited the acceptable repeatability, high reproducibility along with good stability which makes it appropriate candidate for determination of Dob in pharmaceutical preparations.

### Biography

Masoumeh Ghalkhani received her MS degree in 2005 and PhD degree in 2010 from Sharif University of Technology (SUT) with specialization in the preparation and application of chemically modified electrodes. At present, she is an Assistant Professor of Chemistry at Shahid Rajaee Teacher Training University, Tehran, Iran. Her current research interests include electroanalytical chemistry, bio-electrochemistry, and sensors and mainly focused on fabrication and application of modified electrodes and biosensors.

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