

## **Nafion Multiwalled Carbon Nano Tubes Composite Film Modified Glassy Carbon Sensor for the Voltammetric Estimation of Dianabol Steroid in Pharmaceuticals and Biological Fluids**

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**Abstract :** The redox behavior of dianabol steroid (DS) on Nafion Multiwalled Carbon nano -tubes (MWCNT) composite film modified glassy carbon electrode (GCE) in various buffer solutions was studied using cyclic voltammetry (CV) and differential pulse- adsorptive cathodic stripping voltammetry (DP-CSV) and successfully compared with the results at non modified bare GCE. The Nafion-MWCNT composite film modified GCE exhibited the best electrochemical response among the two electrodes for the electro reduction of DS that was inferred from the EIS, CV and DP-CSV. The modified sensor showed a sensitive, stable and linear response in the concentration range of 5 - 100 nM with a detection limit of 0.08 nM. The selectivity of the proposed sensor was assessed in the presence of high concentration of major interfering species. The analytical application of the sensor for the quantification of DS in pharmaceutical formulations and biological fluids (urine) was determined and the results demonstrated acceptable recovery and RSD of 5%. Statistical treatment of the results of the proposed method revealed no significant differences in the accuracy and precision. The relative standard deviations for five measurements of 50 and 300 ng mL<sup>-1</sup> of DS were 3.9 % and 1.0 %, respectively.

**Keywords :** dianabol steroid, determination, modified GCE, urine

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