

## عنوان مقاله:

Electrochemical study of FNT behavior in the presence of DNA

## محل انتشار:

اولین کنگره و نمایشگاه بین المللی علوم و تکنولوژی های نوین (سال: 1397)

تعداد صفحات اصل مقاله: 6

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## خلاصه مقاله:

Fenitrothion(FNT) is one of the common organophosphorus pesticides that is widely employed for insect control in agriculture. Here, a simple, inexpensive and highly sensitive electrochemical method for the detection of FNT was developed by using zirconium oxide (ZRO<sub>2</sub>) and carbon nanotubes (CNT) as modifier for prepared as an efficient sensor for electrochemical detection of FNT. Cyclic voltammetry (CV) was used to study the effect of scan rate. The electrochemical behavior of Zro<sub>2</sub>/CNT/CPE was studied by CV and square wave voltammetry (SWV) at the working electrode. The structure and electrochemical properties of ZRO<sub>2</sub>/CNT/CPE was investigated in potassium ferricyanide 1mM solution. The influence of scan rate on the peak current of FNT on ZRO<sub>2</sub>/CNT/CPE was studied in the range of 10 to 200 mv/s. In optimal working conditions, the peak current of FNT at this modified electrode exhibited a good linear relationship ( $R^2 = 0.9883$ ) with FNT concentration in the range of  $1 \times 10^{-6}$  to  $6 \times 10^{-4}$  M. In this paper, determination of FNT using ZRO<sub>2</sub>/CNT/CPE is explained. CNT and ZRO<sub>2</sub> display high electro catalytic activity to FNT which provides sensitivity and selectivity of the modified carbon paste electrode. The fabricated electrochemical sensor displayed a linear and sensitive response to FNT. The obtained linear range was within the concentration range of  $1 \times 10^{-6}$  to  $6 \times 10^{-4}$  M. The detection limit was found in the presence of DNA to be  $5.6 \times 10^{-7}$ . So this fabricated .electrochemical sensor was successfully used for determination of FNT

## کلمات کلیدی:

biosensor, carbon nanotube, cyclic voltammetry, fenitrothion, pesticide

## لینک ثابت مقاله در پایگاه سیویلیکا:

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