

## عنوان مقاله:

Fabrication of a carbon paste electrode modified with multi-walled carbon nanotube with some polyaromatic hydrocarbons for stripping voltammetric determination of TNT explosive in the environmental samples

## محل انتشار:

سومین همایش ملی کاربردهای شیمی در فناوریهای نوین (سال: 1392)

تعداد صفحات اصل مقاله: 6

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## خلاصه مقاله:

In this study, a new modified carbon paste electrode (CPE) based on multi-walled carbon nanotubes and fluoranthene (a polyaromatic hydrocarbon) is described. To fabricate new kind of modified carbon paste electrode sensitive to 2,4,6-trinitrotoluene (TNT), the interaction between some polyaromatic hydrocarbons and TNT characterized by UV-visible spectroscopy. UV-visible spectra of TNT and fluoranthene theoretically prove fluoranthene is a better receptor to TNT. Electrochemical experiments indicated that fluoranthene-MWCNT modified carbon paste electrode remarkably enhances the sensitivity of the voltammetric method and provides measurements of this explosive to the trace level. The effective parameters in the sensor response were examined. Under optimized operational conditions, a linear response range from 50–1000 ng mL<sup>-1</sup> was obtained. The detection limit for TNT determination was 2 ng mL<sup>-1</sup>. For 7 successive determinations of 100.0 ng mL<sup>-1</sup> of TNT, relative standard deviation of 5.2% was obtained. The procedure was applied for the determination of TNT in water spiked samples; recoveries were higher than 94% in all cases.

## کلمات کلیدی:

Multi-wall carbon nanotubes (MWCNT), Environmental monitoring, 2,4,6-Trinitrotoluene (TNT), Voltammetry, Fluoranthene

## لینک ثابت مقاله در پایگاه سیویلیکا:

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