

عنوان مقاله:

Study on electrochemical behavior of methamphetamine with Nano silver modified aptasensor

محل انتشار:

پانزدهمین همایش سراسری سم شناسی ایران (سال: 1398)

تعداد صفحات اصل مقاله: 1

نویسندگان:

Rana Eftekhar Nahli - *Department of Pharmacology and Toxicology, Tabriz University of Medical Sciences, Tabriz, Iran*

Hassan Rezazadeh - *Department of Pharmacology and Toxicology, Tabriz University of Medical Sciences, Tabriz, Iran*

Saeideh Ebrahimiasl - *Industrial Nanotechnology Research Center, Tabriz Branch, Islamic Azad University, Tabriz, Iran*

خلاصه مقاله:

Nowadays, stimulant drug abuse include methamphetamine is widely increased and pose undeniable economic and social problems. Thereby, accurate and trace analysis of abused drugs may have significant effects through informational strategy on prevention and quit addiction by essential treatment procedures. In this study we investigated electrochemical behavior of methamphetamine by combination of aptasensor with silver nanoparticles via sandwich structure. nano optimized aptamer immobilized on the glassy carbon electrode by use of EDC-NHS. Sandwich structure caused that methamphetamine bind to aptamer in two -binding sites simultaneously. The combination of aptamer with silver nanoparticles increased the signal in cyclic voltammetry determination due to superior conductivity of Ag-NPs, so the sensitivity of the method increased. Methamphetamine demonstrated a single irreversible oxidation peak at a higher positive potential of +0.5 V in phosphate buffer solution at pH 7. The nature of the electrode reaction was found to be diffusion controlled. Because of the effective modification of the aptasensor and signal amplification, low nano molar (100 nM) detection limit for methamphetamine is achieved. Conclusion: we conclude that using of silver nanoparticles amplified electrochemical signal in cyclic voltammetry thus optimized efficiency of aptasensor.

کلمات کلیدی:

لینک ثابت مقاله در پایگاه سیویلیکا:

<https://civilica.com/doc/984954>

