عنوان مقاله:

Fabrication of a Selective and Sensitive Electrochemical Sensor Modified with Magnetic Molecularly Imprinted Polymer for Amoxicillin

محل انتشار:

مجله تحقیقات شیمی تجزیه و تجزیه زیستی, دوره 5, شماره 2 (سال: 1397)

تعداد صفحات اصل مقاله: 10

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خلاصه مقاله:

A modified electrochemical sensor for the determination of amoxicillin (AMX) was reported in this paper. The magnetic molecularly imprinted polymer (MMIP) were suspended in AMX solution and then collected on the surface of a magnetic carbon paste electrode (CPE) via a permanent magnet, situated within the carbon paste electrode and then the voltammetry signals were recorded. It was confirmed that MMIP/CPE showed greater recognition ability than the magnetic non-molecularly imprinted (MNIP)/CPE. The influence of operational parameters including pH, MMIP amount, extraction time and accumulation time was elucidated. The performance of the fabricated sensor was evaluated and the results indicated that the sensor exhibited high sensitivity in AMX detection, with a linear range from ۰.۰۰۱۰ to ۰.۱۱ μM and a limit of detection of ۰.۲۶ nM. The MMIP/CPE is simple to fabricate and easy to use and was successfully applied to the determination of AMX in pharmaceutical samples with recoveries between ۹۸.۸ and ۱۰۳.۲ %, without the need of a sample pre-treatment steps.

کلمات کلیدی:

Modified electrodes, Molecularly imprinted polymers, Electrochemical sensors, Magnetic nanoparticles, Amoxicillin