

عنوان مقاله:

Ultrasonic-assisted solid phase nanoextraction as a technique for extraction of Methadone and Tramadol from urine samples prior to gas chromatography-mass spectrometry

محل انتشار:

سومین همایش ملی انرژی، محیط زیست، کشاورزی و توسعه پایدار (سال: 1395)

تعداد صفحات اصل مقاله: 5

نویسندگان:

Halaleh Rasoulipناه - *Department of Chemistry, Science and Research Branch, Islamic Azad University, P. O. Box: ۱۴۵۱۵-۷۷۵, Tehran, Iran*

.Sirwan Mohammadiazar - *Department of Chemistry, Sanandaj Branch, Islamic Azad University, Sanandaj, Iran*

Parviz Aberoomand Azar - *Department of Chemistry, Science and Research Branch, Islamic Azad University, P. O. Box: ۱۴۵۱۵-۷۷۵, Tehran, Iran*

خلاصه مقاله:

In this work, a new approach of solid phase nanoextraction is presented as an alternative technique for extraction and preconcentration of methadone and tramadol (opiate drugs) from urine samples using ultrasonic waves. This novel approach, called ultrasonic-assisted solid phase nanoextraction, is based on a strong affinity between drugs and modified silver nanodendrites. The whole experimental procedure for extraction takes less than 20 min. Final analysis of opiate drugs is performed by using gas chromatography–mass spectrometric detection. Different parameters affecting the extraction efficiency, such as the sample volume, extraction solvent type, extraction solvent volume and amount of the adsorbent are investigated and optimized. The striking features of this technique correlate with the small volume of water sample (200–1000 μ l), adsorbent (about 0.0005 g) and organic solvent (less than 50 μ l) for analysis of drugs. The results show that our technique is quick, relatively inexpensive and environmentally friendly for extracting opiate drugs from water samples.

کلمات کلیدی:

Ultrasonic-assisted; solid phase nanoextraction; methadone; tramadol; Silver nanodendrite

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