عنوان مقاله:

Dispersive liquid-liquid microextraction using silver nanoparticles as electrostatic probes for preconcentartion and quantitative analysis of terazosin

محل انتشار:

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خلاصه مقاله:

An efficient dispersive liquid-liquid microextraction using tetraalkylammonium bromide coated silver nanoparticles (DLLME-AgNPs) prepared in chloroform has been successfully applied as electrostatic affinity probes to the microextraction and preconcentration of terazosin prior to spectrofluorimetry analysis. This technique is based on a ternary system of solvents, where appropriate amount of microextraction containing tetraalkylammonium bromide coated silver nanoparticles (AgNPs), and disperser solvents are directly injected into an aqueous solution containing terazosin. A cloudy mixture is formed, and terazosin in the aqueous matrix is extracted into the fine droplets of microextraction solvent containing AgNPs. The settled phase is collected and transferred into a micro-cell of fluorimeter for the determination of terazosin at excitation/emission wavelengths of ۳۳۰/۳۷۶ nm. The obtained results demonstrated that electrostatic attraction forces caused by AgNPs were much stronger than the hydrophobic attraction forces. Various factors influencing microextraction efficiency were studied and optimized. Under the optimum conditions, the method provided a relatively broad linear dynamic range of ۰.۲۵ to ۱۰۰ mg mL–۱, a detection limit of ۰.۰۷۵ mg mL–۱ and a relative standard deviation of ۱.۹%. Finally, the method was successfully applied to terazosin determination in actual pharmaceutical formulations and human urine sample.

کلمات کلیدی:

Silver nanoparticles, Terazosin, Spectrofluorimetry, Dispersive liquid-liquid microextraction Pharmaceutical, Urine

لینک ثابت مقاله در پایگاه سیویلیکا: