

عنوان مقاله:

Removal of organic dye compounds in water and wastewater samples based on covalent organic frameworks - titanium dioxide before analysis by UV-VIS spectroscopy

محل انتشار:

فصلنامه روش های تجزیه در شیمی محیط زیست، دوره 4، شماره 1 (سال: 1400)

تعداد صفحات اصل مقاله: 10

نویسندگان:

Aida Student Research Committee, Kerman University of M
Mehdi Ranjbar - *Pharmaceutics Research Center, Institute of Neuropharmacology, Kerman University of Medical Sciences, Kerman, Iran*

خلاصه مقاله:

A simple and rapid microwave-assisted combustion method was developed to synthesize homogenous carbon nanostructures (HCNS). This research presents a new and novel nanocomposite structures for removal of methylene red (۲-(۴-Dimethylaminophenylazo) benzoic acid), methylene orange (۴-[۴-(Dimethylamino) phenylazo]benzenesulfonic acid sodium salt) and methylene blue (۳,۷-bis(Dimethylamino)phenazathionium chloride) with semi degradation-adsorption solid phase extraction (SDA-SPE) procedure before determination by UV-VIS spectroscopy. A covalent organic frameworks (COFs) with high purity were synthesized and characterized by X-ray diffraction (XRD) and scanning electron microscopy (SEM). The results indicated that the self-assembled carbon nanostructures (COFs) synthesized with the cost-effective method which was used as a novel adsorbent for adsorption of dyes after semi-degradation of methylene red, orange and blue (۱-۵ mg L⁻¹) as an organic dye by titanium dioxide (TiO₂) nanoparticales in presence of UV radiation. Based on results, the COFs/TiO₂ has good agreement with the Langmuir adsorption isotherm model with favorite coefficient of determination (R²= ۰.۹۹۸۹). The recovery of dye removal based on semi-degradation/adsorption of COFs/TiO₂ and adsorption of COFs were obtained ۹۸.۷% and ۴۸.۳%, respectively (RSD less than ۵%). The method was validated by spiking dye to real samples

کلمات کلیدی:

Carbon nanostructures, Carbon organic frameworks, Dye removal, Semi degradation-adsorption solid phase extraction, Titanium dioxide, UV radiation

لینک ثابت مقاله در پایگاه سیویلیکا:

<https://civilica.com/doc/1841489>

