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A simple method based on solid-phase extraction coupled with HPLC for determination of Ibuprofen and Diclofenac belong to group of Painkiller and anti-inflammatory drugs in wastewater samples from wastewater treatment plant in the south of Tehran



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In this study, a simple, efficient and reliable HPLC method was developed for determination of ibuprofen and diclofenac belong to group of Painkiller and anti-inflammatory drugs in wastewater influents and effluents from WWTP. The method involves pre-concentration and clean-up by solid phase extraction (SPE). Final analysis of the selected pharmaceutical compounds was carried out by high-performance liquid chromatography (HPLC) on a reversed-phase C18 column using by gradient elution with methanol, acetonitrile and a 0.05 M phosphate-buffer (pH=4.5) at a flow-rate of 1 ml min⁻¹ with diode array detector (DAD). The recoveries for all samples were more than 70%. The calibration curves obtained for studied drugs show reasonable linearity ($R^2 > 0.99$) and the Limits of quantification were 0.05 ng ml⁻¹ and 0.1 ng ml⁻¹ for ibuprofen and diclofenac, respectively. The described method was applied to the determination of the drugs in wastewater samples from WWTP in the south of Tehran.

Biography

Maryam Salimi has a lot of experience in method development and validation by miniaturization and simplification of sample-preparation procedures and analytical techniques such as, HPLC, GC instrumentation, spectroscopic and their corresponding methods that have been applied in the analysis of pharmaceuticals and water samples. she worked (2000-2006) as analytical chemist in QC laboratory of pharmaceuticals and worked (2006-2018) as researcher and analytical chemist in organic laboratory of water and wastewater company

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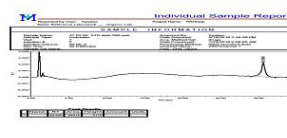


Figure 1: Chromatogram of Diclofenac

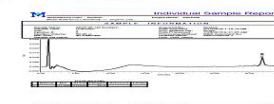


Figure 2: Chromatogram of Ibuprofen



Figure 3: Chromatogram of wastewater sample

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