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RAPID ULTRASENSITIVE CHEMOMETRICS-FLUORESCENCE METHODOLOGY TO QUANTIFY FLUOROQUINOLONES ANTIBIOTICS RESIDUES IN SURFACE WATER

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A sensitive method for the determination of fluoroquinolones in surface waters at trace concentration level is presented. The proposed two-step methodology consists in a solid-phase extraction using C-18 membranes followed measurement of the emission molecular fluorescence spectra over extracted membrane without elution of the analytes. Membrane background signal was removed by the used of chemometrics calculations, in addition chemometrics was as well used for the direct and simultaneous determination of the studied compounds. The method was optimized for the analysis of three fluoroquinolones: enoxacin (ENO), norfloxacin (NOR) and ofloxacin (OFLO). The fluorescence of these compounds increase drastically when they are into the membrane, thus with this method low concentrations are possible to be determined, as the concentration in which these compounds appear in surface water. Limits of detection at the ng · L^{-1} level were estimated for ENO, NOR and OFLO.

Keywords: fluoroquinolones, emerging contaminants, surface water, chemometrics, fluorescence.

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