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CHROMATOGRAPHIC METHOD FOR THE ANALYSIS OF SOME PHARMACEUTICAL COMPOUNDS FROM RIVER WATER

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Abstract

The pharmaceutical compounds are emerging pollutants for which the international scientific community has paid special attention in recent years, because these substances can have adverse effects on living organisms in the aquatic environment. In this paper we developed a chromatographic method for the quantification of trace class of analgesic and anti-inflammatory drugs in river water. The present method is a simple and economical way to perform a preliminary screening of eight widely used pharmaceuticals in water. To isolate the analytes from river aqueous matrix we used solid-phase extraction testing three specific types of adsorbents (LiChrolut EN, OASIS HLB and Supelclean ENVI-18). The extract obtained was analyzed by reversed-phase high performance liquid chromatography coupled with multi waved detector. To reach the sensitivity required in this field, and to be able of determining the low pharmaceuticals concentration levels commonly present in water, a pre-concentration of 1,000 times has been applied. The detection limits in water samples ranged between 0.04 µg/L and 0.6 µg/L and the best recoveries were obtained for LiChrolute EN adsorbent (72% and 107%). In the next step of project we need to confirm the identity of the compounds detected in the samples by powerful LC MS technique.

Key words: liquid chromatographic method, pharmaceutical compounds, river water, solid phase extraction

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