

OCCURRENCE OF PHARMACEUTICALS IN ENVIRONMENTAL SAMPLES: A MULTI-ANALYTE APPROACH

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Pharmaceuticals and their residues in the environment have been recently recognized as one of the emerging research areas in the environmental chemistry and toxicology and caused them to be viewed as a new class of priority substances. It has been reported that they are introduced continuously in the environment via household use, effluents from Sewage Treatment Plants (STPs) and animal excreta. Up to date, the potential human, animal and ecological risk associated with the occurrence of these compounds in the environment is not well documented. There is an increased attention due to the fact that they are designed to have specific effects at low doses and to be resistant to metabolic degradation. There is also the potential to create antibiotic resistance. Moreover, the science of mixture toxicity is complex and to date quite unknown (Bound *et al.*, 2006; Hernando *et al.*, 2006).

Despite the increased research and regulatory interest in the occurrence of pharmaceuticals and their degradation products in STPs effluents and freshwater ecosystems (Hernando *et al.*, 2006), the occurrence, the distribution between the different environmental compartments (i.e. water, sediments, suspended solids and aqueous organisms), the trophic transfer and their potential toxicity is to date far less documented (Emblidge and DeLorenze, 2006).

In this sense, this study will present a detection method for the determination of a large group of pharmaceuticals (i.e. antibiotics, beta-agonists, painkillers, tranquilizers, non-steroidal anti-inflammatory drugs) used both in human and veterinary practice in environmental samples using Liquid Chromatography coupled to multiple Mass Spectrometry.

References

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