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Detection of illicit drugs on surface waters of interconnected urban, agricultural and natural wetlands water networks

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Abstract
The Mediterranean wetlands are unique in biological diversity and they offer multiple benefits constituting a great water reserve for the planet and to produce biomass and nu-trients for the trophic chain. However, the increasing human impact and the socio-economic development of the last decades have provoked important losses in these eco-systems. This work has been developed in the Natural Park of La Albufera (Valencia, Spain), which includes a coastal lagoon, marshlands, dunes and pinewoods, surrounded by rice fields in its not urbanized part. In spite of this great ecological value, it suffers impacts derived from the high human and industrial occupation, and of the hydrological contributions from the connected irrigation systems.
This study has been focused on the development of a combined methodology based on environmental forensics principles to identify illicit drugs and its spatial sources and implications. Results show that rather than the pattern of population distribution the tra-ditional irrigation system connected to sewage treatment plants location is the way to in-troduce the illicit substances in the waters of the Natural Park.

Keywords: Emerging contaminants, environmental forensics, water quality; urbaniza-tion; Mediterranean marshlands.

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