

Presence and spatial distribution of pharmaceuticals compounds in waters of protected wetlands (Marjal de Pego-Oliva, Spain)

Juan Antonio Pascual-Aguilar (1,2), Vicente Andreu (1), and Yolanda Picó (3)

(1) Centro de Investigaciones sobre Desertificación-CID (CSIC, UV, GV), Degradación y Conservación de Suelos, Moncada (Valencia), Spain, (2) Centro para el Conocimiento del Paisaje, Matet (Castellón), Spain, (3) Laboratorio de Nutrició i Bromatologia, Facultat de Farmàcia, Universitat de València, Burjassot (Valencia), Spain

Detection and spatial distribution of 15 pharmaceuticals in surface waters was investigated to determine hydrological connectivity between urban, agriculture and natural environments. Solid-Phase Extraction and Liquid Chromatography tandem Mass Spectrometry was applied to 32 water samples. To determine spatial incidence of contaminants, analytical results of target compounds were georeferenced and integrated into a Geographical Information Systems structure together with layers of land use-cover parcels, location of sewage water treatment plants (SWTPs) and river and irrigation networks. The methodology was applied to “La marjal de Pego-Oliva” natural park, a protected coastal wetlands located in Eastern Spain. All pharmaceuticals were found in concentrations ranging from values bellow limits of quantification to 112.19 ng/L. The geographical distribution of compounds shows hydrological connectivity between SWTPs, agricultural and natural environments.

Acknowledgments: This work was supported by the Spanish Ministry of Science and Innovation through the project CONSOLIDER-INGENIO 2010 (CSD2009) and by the Ministry and the European Regional Development Fund (ERDF) (projects CGL2011-29703-C02-00, CGL2011-29703-C02-01, CGL2011-29703-C02-02).