Micropollutants and ecotoxicity monitoring in a large dry retention / detention basin

Christel Sebastian[1] , Sylvie Barraud[2] ,Céline Becouze-Lareure[3] ,Carolina Gonzalez-Merchan[4], Christine Bazin[5], Yves Perrodin[6]

[1] University of Lyon, INSA Lyon, LGCIE, 34 avenue des Arts, 69621 Villeurbanne Cedex, France, christel.sebastian@insa-lyon.fr
[2] University of Lyon, INSA Lyon, LGCIE, 34 avenue des Arts, 69621 Villeurbanne Cedex, France, sylvie.barraud@insa-lyon.fr
[3] University of Lyon, INSA Lyon, LGCIE, 34 avenue des Arts, 69621 Villeurbanne Cedex, France, celine.becouze@insa-lyon.fr
[4] University of Lyon, INSA Lyon, LGCIE, 34 avenue des Arts, 69621 Villeurbanne Cedex, France, carolina.gonzalez-merchan@insa-lyon.fr
[5] Insavalor, division POLDEN, INSA Lyon, 20 avenue A. Einstein, 69621 Villeurbanne Cedex, France, christine.bazin@insavalor.fr
[6] University of Lyon, ENTPE, CNRS, UMR 5023 LEHNA, rue Maurice Andin, 69518 Vaulx-en-Velin, France, Yves.perrodin@entpe.fr

ABSTRACT

Pollution assessment has been at stake in urban drainage systems for a couple of decades. The *in-situ* monitoring of a large dry retention/detention basin at the outlet of an industrial catchment drained by a separate stormwater network is presented in this study. The aim of this research is to assess organic substances (pesticides, alkylphenols, PAHs, Bisphenol A) removal and ecotoxicity reduction in such a system. Sampling methodology and first results in stormwater run-off, at the outlet of the system and accumulated sediments are presented with their uncertainties. The organic compounds concentration and the distribution between dissolved and particulate phase in water will give more information on the potential for particle settling and produce input data for models validation on particulate fractions. As expected, the first experimental data indicate micropollutants are better trapped when bound to particles (e.g. PAHs contrary to pesticides). Ecotoxicity-tests were carried out and showed no clear ecotoxicity. Further investigations have to be conducted to justify a trend, especially on alkylphenols and Bisphenol A and ecotoxicity-tests have to be done because high variability is known from one event to another.

KEYWORDS

Ecotoxicity, efficiency, detention basin, micropollutant, monitoring