

REGATA

REDE GALEGA DE TECNOLOXÍAS AMBIENTAIS

Research Stays 2017

The influence of uncertainty and location in the fate of organic micropollutants in soil

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Objectives

The aim of this research was to develop a probabilistic model to determine the fate of pharmaceutical and personal care compounds in soil after irrigation with reclaimed water and biosolids application.

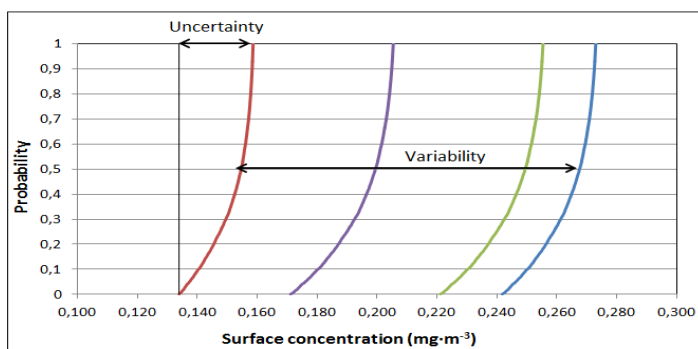
Methodology

A 2D Monte Carlo simulation was used to separately propagate the uncertainty and variability input distributions through the fate model. From the perspective of risk characterization, variability determines the fraction of population at risk, while uncertainty determines the reliability of the assessment.

- **Uncertainty:** associated with the physicochemical properties of the compounds.
- **Variability:** related to the different agrometeorological data and soil specific parameters in agricultural fields distributed throughout Spain.
- Anionic, neutral and cationic compounds were evaluated.

Results

The results obtained for 4 different fruit tree plantations are shown in the next figure.



Although the variation of the physicochemical properties of the compounds with soil characteristics is still not fully understood, the variation of the surface concentration in soil depends more on the location than on this uncertainty. Agrometeorological data, soil characteristics and crop type are the main parameters related to each site.

Highlights

Location is of special relevance to assess the impact derived of reusing reclaimed water and /or biosolids from a WWTP in agriculture.

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