Mass Balance of Selected Pharmaceuticals in an Austrian River Catchment Area: Estimatio

[CEST2019_00130] Mass balance of selected pharmaceuticals in an Austrian river catchment area: estimation of the different source contributions

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The study refers to the assessment of the annual mass loadings of two pharmaceuticals (PhCs), sulfamethoxazole (SMX) and carbamazepine (CBZ), released in the river of an Austrian catchment area by wastewater treatment plant (WWTP) effluent, combined sewage overflows (CSOs), surface runoff, tile drainage and deep water (referring to the sludge- or manure-amended soil).

WWTP effluent and excess sludge loadings, based on PhC national human consumption, literature excretion rates, were modeled by Activity SimpleTreat. CSO loading was modelled by MoRE. PhC load in manure was estimated on the basis of the animal annual production and literature data of concentration. Surface runoff, tile drainage and deep water loadings were modelled integrating a literature “leachate” approach with the expected PhC phenomena of accumulation, degradation and erosion occurring in the soil.

The study develops a mass balance of the different pharmaceutical loading contributions to the receiving water body by means of STAN model and highlights the uncertainties associated to

the ed values in the estimation. It emerges that manure amount applied on the soil is fu l in defining the priority contributions among the different sources (WWTP effluent, CSOs, surface runoff, tile drainage and deep water).

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Oral presentation in Emerging pollutants

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