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Data Article

Data on occurrence and fate of emerging contaminants in a urbanised area

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ABSTRACT

These data and analyses support the research article “Mass balance of emerging contaminants in the water cycle of an highly urbanized and industrialized area of Italy” by Castiglioni et al. (2018 in press) [1].

The occurrence of 80 emerging contaminants in waste and surface water was investigated in an highly urbanised area of Italy, the River Lambro basin. The data presented here include: (1) concentrations in untreated and treated wastewater of different wastewater treatment plants (WWTPs); (2) concentrations in surface water collected along the river Lambro, in the north and south of the city of Milan (main urban center in the area). These concentrations indicate the distribution and fate of emerging contaminants in the environment.

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Specifications Table

Subject area	<i>Analytical Chemistry</i>
More specific subject area	<i>Emerging Contaminants in the environment</i>
Type of data	<i>Tables</i>
How data was acquired	<i>Mass spectrometry (API 3000 QqQ, ABSciex; 6410 QqQ Agilent Technologies)</i>
Data format	<i>Raw data</i>
Experimental factors	<i>Samples were filtered and extracted by solid phase extraction</i>
Experimental features	<i>Samples were collected in the influents and effluents of three wastewater treatment plants in Milan, and in rivers receiving discharges from the plants and the surrounding urbanised area. Wastewater effluents were samples taking into account the wastewater resident time in the plant.</i>
Data source location	<i>Milan and River Lambro basin; North of Italy</i>
Data accessibility	<i>The data are available within this article.</i>
Related research article	<i>This data article is a companion paper of the research article: Castiglioni, S.; Davoli, E., Riva F, Palmiotto, M. Camporini, P. Manenti, A., Zuccato E. 2017. Mass balance of emerging contaminants in the water compartment of an highly urbanized and industrialized area of Italy. Water Research. In press.</i>

Value of the Data

- These data offer a comprehensive overview of the occurrence of a wide panel of emerging contaminants in waste and surface water in a urban area and can be compared with other studies.
- These data may help to understand the distribution and fate of the emerging contaminants in the environment.
- These data may contribute to the need of monitoring data to support future prioritisation exercises and guidelines development by national and international authorities.
- The occurrence and distribution of contaminants may help to identify the sources of contamination in an urban area.

1. Data

The presented data were obtained during a comprehensive monitoring study in the most urbanised and industrialized area of Italy. The occurrence of about 80 emerging contaminants was investigated in wastewater (WW) and surface water in the river Lambro basin. The fate of these contaminants during wastewater treatment was assessed by analysing influents and effluents in three wastewater treatment plants (WWTPs) which collect wastes from the entire city of Milan. Data presented include: (1) concentrations of emerging contaminants in influent wastewater collected before any treatment (Tables 1–3); (2) concentrations in effluent wastewater collected immediately before the discharge in surface water (Tables 4–6); (3) concentrations in rivers Olona, Seveso and Lambro collected before Milan (O1,S1,L1) and in the Lambro River after discharges from the city of Milan (L2,3,4) and at the closure of the basin (L5) (Tables 7–9). Refer to [1] for detailed interpretation and discussion.

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