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PHARMACEUTICALS PRESENT IN URBAN AND HOSPITAL WASTEWATERS IN MEXICO CITY

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Some emerging pollutants in wastewater sources, urban and hospital, of Mexico City was determined. Solid phase extraction of the selected pollutants from the different matrices and an high performance liquid chromatography analysis technique for their quantification were implemented. Results showed that hospital wastewater contained higher organic matter concentration than urban wastewater. Analgesics and antibiotics were found in all samples. High concentrations of paracetamol, naproxen, sulfamethoxazole and β -estradiol were found in hospital wastewater, ranging from 9 to 27 $\mu\text{g}\cdot\text{L}^{-1}$, showing that, in general, pharmaceutical concentrations in hospital wastewater were higher than those found in urban and in the influent of the wastewater treatment plant, where concentration ranged from 0.18 to 4.79 $\mu\text{g}\cdot\text{L}^{-1}$. In the effluent of wastewater treatment only the antibiotics were found, sulfamethoxazole, trimethoprim and ofloxacin at 0.63; 0.55 and 0.29 $\mu\text{g}\cdot\text{L}^{-1}$. It is the first work reporting the presence of pharmaceutical compounds from a hospital and wastewater urban from Mexico City.

Keywords: emerging pollutants, hospital wastewater, Mexico City wastewater, pharmaceuticals.

Introduction

Emerging pollutants (EP), also named micropollutants, have been reported to be present in terrestrial and aquatic environments worldwide, at concentrations that range from nanograms to micrograms per liter. EP comprise pharmaceuticals, personal care compounds, hormones and steroids, illicit and recreational drugs, pesticides, veterinary compounds, as well as engineered nanomaterials [1].

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