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Extensive use of antibiotics in agriculture is becoming an emerging environmental and public health concern at the global scale. Whereas physico-chemical properties and biological activities of pharmaceuticals present challenges to historical environmental assessment and management, an understanding of pharmaceutical bioaccumulation in aquatic life remains limited, particularly for veterinary medicines. Performing *in vivo* fish bioconcentration studies for all pharmaceuticals is impractical in a timely fashion due to high costs, animal welfare and other considerations. Herein, *in vitro* models, including fish S9 substrate-depletion assays, promise to support screening level bioaccumulation assessments of environmental contaminants, and then trigger more intensive whole organism experiments. The primary objective of the present study was to determine *in vitro* biotransformation of select antibiotics used in aquaculture, and the common pharmaceuticals propranolol and diclofenac, using a substrate depletion approach. Following previously reported methods from our research team S9 fractions from rainbow trout (*Oncorhynchus mykiss*) liver were characterized and then used to carry out these experiments. Five major antibiotics used in aquaculture were selected: oxytetracycline, enrofloxacin, florfenicol, sulphadimethoxine and trimethoprim. Propranolol and diclofenac, for which we recently reported biotransformation using this approach, were selected as positive controls. Depletion of each parent compound was monitored by liquid chromatography–high resolution mass spectrometry (LC–HRMS) using a Thermo Fisher Orbitrap. High resolution data-dependent MS/MS spectra were employed for identification of metabolites with high sensitivity and accurate mass. Our findings indicate that hepatic biotransformation rates of these antibiotics were not significant *in vitro*. However, substrate depletion of propranolol and diclofenac were again observed, and their primary metabolites were identified. We then compared these metabolites to similar profiles in humans. Our results suggest that this approach is particularly promising for screening and identification of pharmaceutical metabolites in fish.

WP048. Occurrence of endocrine disruptors in urban effluent and its removal by biological treatment in series

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Emerging contaminants such as endocrine disruptors, active drugs and personal products are always of interest in environmental studies because they are related, among other factors, to the appearance of anomalies in the endocrine system of several aquatic species. Among the contaminants that affect the aquatic environment, the most significant are those from industrial effluents, domestic sewage and from veterinary use. In this context, we performed a work involving studies of processes for the treatment of a domestic sewage in an urban area of south Brazil. The samples were collected in the wastewater treatment pilot plant, in two different sites: one in the process input (tributary) and one at the output after the treatment (effluent). This station is located in the city of Canoas / RS which belong to the urban area of Porto Alegre (the capital of Rio Grande do Sul State). This treatment pilot plant was constructed by the Institute of Hydraulic Research (IPH) of UFRGS, and the process employs three biological treatment steps in sewage series (tributary), passing initially by an up flow anaerobic sludge blanket (UASB), then by an aerobic reactor in Biological Contactor Rotating mode and finally by a system containing vertical flow constructed wetlands (two units in series), followed by two horizontal flow constructed wetlands, which constitutes the final stage of the treatment. Sample collection was carried out between the months of December 2013 to December 2014, and in total 10 samples were collected. The studies focused on the occurrence of 112 drugs (antibiotics, hormones, b-blockers, etc). In the first five sample collection there was only domestic sewage from the city of Canoas, while in the last five samples the effluent also contained leached (at a maximum of 10% of the total flow). This leached came from a landfill with more than 10 years. The introduction of leachate aimed to verify the influence of this effluent in the compounds under study and assess the feasibility of adding into the treatment system, as this is a questionable procedure that can render a lot of discussion. Antibiotics were the most frequently detected during the months of collection, but with high removal rates. After leached input the occurrence of drugs reduced considerably, showing a better removal rate.

WP049. Occurrence of pharmaceuticals and personal care products in sediments from Santos Bay, Brazil

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Although the continuous input of domestic sewage in coastal areas, not only from sewage outfalls but also from illegal housing without sanitary system, few data are available about the presence of pharmaceuticals and personal care products (PPCPs) in coastal environments of South America. Given that such substances have been regarded as pollutants of emergent concern, the aim of the study was to quantify the levels of common used pharmaceutical (acetaminofen, fluoxetine, carbamazepin, diclofenac, 17 α -ethinylestradiol, ibuprofen) and a personal care product (triclosan) in the Santos Bay (São Paulo), a degraded coastal area due to urban and industrial pollution. A sediment sample, composed by sediments collected in five points around the Submarine Sewage Outfall of Santos (SSOS), was analysed through LC-MS/MS. The presence of fluoxetine (10.40 ng g⁻¹), carbamazepin (5.42 ng g⁻¹), ibuprofen (49.0 ng g⁻¹), and triclosan (15.14 ng g⁻¹) was evidenced. The levels of the other compounds analysed were below the detection and quantification limits. Considering the lack of information on the occurrence of PPCPs in marine sediments of tropical and subtropical areas of South America, these data subsidise the assessment of environmental risks of such substances in coastal zones.

WP050. Pharmaceuticals and Personal Care Products in an Urban River Sediments

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The sources of pharmaceuticals and personal care products (PPCPs) in the rural and urbanizing watersheds are largely not known. Two potential sources of PPCPs in water bodies include (1) discharge of household wastewater via septic systems and (2) discharge of domestic wastewater from wastewater treatment plants (WWTP) in streams and rivers. The objective of this study was to investigate the occurrence of PPCPs in the sediments of an urban river in Florida, USA. We collected sediments from an urban watershed to understand the persistence of PPCPs in the environment. A total of 8 PPCPs were detected across 9-sampling sites, with concentrations ranging from 0.5 to 61.9 ng/g. Among the detected PPCPs, carbamazepine (100%), caffeine (100%), trimethoprim (89%), and pseudoephedrine (63%) were frequently detected in the stream sediments. This suggested that some of the sediment sites are likely influenced by the wastewater resulting from the septic systems because there are no other known sources (such as WWTPs) of PPCPs in this watershed. This presentation will discuss our ongoing research to better understand the influence of PPCPs from septic systems on the environment.

WP051. PPCP's determination in Maipo and Mapocho Rivers, Chile

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Pharmaceutical and personal care products (PPCPs) are considered emerging contaminant and its believed that the introduction to superficial waters is due to anthropogenic contamination. Concentration of β -estradiol, caffeine, ibuprofen, carbamazepine along with some sunscreen have been measured in both Maipo River closed to the Andes Mountains and with low human population and in Mapocho River in Santiago City, know by wastewater discharges. Samples were collected in Spring 2014 and Fall 2015, from several points in both rivers, filtered and stored until analysis. The selected PPCPs were determined by TFME coupled with GC-MS with derivatization. Analytical issues of the extraction methods and its limitations were examined in order to obtained high recoveries. Preliminary results indicate that PPCPs were not detected on Maipo River, and detected on Mapocho River. Final results will be discuss and related with possible contamination sources. Authors acknowledge FONDECYT Project 1121237 for funding.

WP052. Reactores biológicos de contacto para estudios de remoción de contaminantes emergentes en aguas residuales domésticas