Drugs for human and veterinary use can have negative effects on the aquatic biota. In the present study, the effects of exposure to diclofenac on biochemical biomarkers in Rhamdia quelem were evaluated. Juvenile male (20) and female (20) fish were exposed to 3 concentrations (0.2, 2 and 20µg/L) of Diclofenac. One third of the water volume in each tank was replaced twice daily in order to maintain the diclofenac concentration. After 14 days of exposure, the fish were anesthetized, blood was taken from the caudal vein, and the kidney was removed. The activity of biochemical Biomarkers were measured in the kidney. The expressed proteome was analyzed in the blood plasma. The biochemical biomarkers included superoxide dismutase (Sod), catalase (Cat), glutathione peroxidase (Gpx), glutathione S-transferase (Gst), the concentration of glutathione (GSH) and lipoperoxidation (LPO). The plasma proteome was analyzed by liquid chromatography tandem mass spectrometry. The exposure of Rhamdia quelen to diclofenac increased the Sod and Gpx activities at all concentrations and Gst activity at 0.2 µg/L in kidney. However, LPO was reduced by diclofenac at 2µg/L. In plasma many proteins related to kidney damage were changed. In male fish there was an increase in the Complement Factor B (Cfb), Tumor necrosis factor (Tnf) receptor superfamily-Fas protein and Toll like receptor 9 in all groups diclofenac-exposed. There was also increased expression of S-phase Kinase associated protein 2 (e3 ubiquitin protein ligase) (Skp2) (0.2 and 2.0µg/L), and growth arrest and dna-damage-inducible gama protein – (Gadd45g) (2.0µg/L). The expression of Nitric Oxidase Synthase (iNos), Fibrillin 1 protein (Fbn1), Integrin alfa 1 (Itga1) and Cyclooxygenase Class 1 (Cox1) was decreased in all groups. Decreased expression also occurred in Hemoglobin Alpha 1 (Hba1) (2.0 and 20.0µg/L). Female fish showed a decreased expression in Cfb, Fas, Fbn1, Cox1, Skp2 and Gadd45g proteins. In addition, increased expression of Matrix Metallopeptidade 2 [Mmp2], Phosphodiesterase 5A, (Cgmp-specifc-Pde5a) and Hba1. These changes can be linked to morphological injury in kidney, glomerulonephritis, interstitial fibrosis, renal failure, renal vasodilators with influence in glomerular hemodynamics and renal perfusion. Overall, our results suggest that exposure of fish to diclofenac impacted biochemical markers and also modulated the expression of plasma proteins.

PT102. Environmental risk assessement of pharmaceuticals and personal care products in Santos Bay, São Paulo, Brazil

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There is little information about the adverse effects of emerging compounds on the tropical and subtropical marine biota, especially regarding contaminated sediments. The aim of this study was to assess the environmental risk of ibuprofen, 17α-ethinylestradiol and triclosan to marine invertebrates exposed to contaminated sediments. Environmental levels of these compounds were measured in a sediment sample from the vicinities of the Santos submarine sewage outfall (Bay of Santos, São Paulo, Brazil). Ibuprofen (49.0 ng g-1) and triclosan were detected (15.14 ng g-1), while 17α-ethynylestradiol was not (< 33.3 ng g-1). A battery (n=3) of chronic bioassays (embryo-larval development) with sea urchin (Lytechinus variegatus) and bivalve (Perna perna) was performed using ibuprofen, 17α-ethinylestradiol or triclosan spiked sediments in concentrations ranging from 1 to 1,000 ng g-1. All compounds showed developmental effects to both test species. Chemical and ecotxicological data were integrated and the quotient risk estimated for ibuprofen and triclosan showed values higher than 1.0, indicating high environmental risks of this compounds in the Santos Bay. These are the first data of risk assessment of pharmaceuticals and personal care products in sediments of a Brazilian coastal area.

PT103. Cytotoxicity of triclosan and 17α-ethynylestradiol spiked sediments to marine bivalve

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Many studies have reported the presence of pharmaceuticals and personal care products (PPCPs) in coastal environments in the last decades. However, still there is a lack of information about sublethal effects in marine organisms exposed to PPCPs in sediments. The aim of this study was to assess physiological effects of triclosan (TCS) and 17α-ethinylestradiol (EE2) spiked sediments (concentrations ranging from 0.01 to 1.00 ng g-1) to the mussel Mytella falcata by means of the neutral red retention time assay (NRRT). Significant decrease of the lysosomal membrane stability was observed at environmentally relevant concentrations for both compounds (below 0.10 ng g-1). The results suggest important risk to the non-target organisms since such response has been related to effects in higher levels of biological organization, which may affect their ecological fitness. This study showed the first evidences of physiological effects of TCS and EE2 at environmentally relevant concentrations in marine sediments and it reinforces the need of controlling inputs of TCS and EE2 in marine environments.

PT104. Lethal and sublethal effects of carbamazepine, sildenafil, clarithromycin and the binary mixtures on freshwater fish

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The occurrence of pharmaceuticals has been identify in wastewater effluents and surface waters and concern has risen of the potential adverse effects on the aquatic ecosystems. Toxicity of these compounds on Neotropical species is almost unknown and extrapolation with Holarctic species is usually used for risk assessment. In addition, these compounds typically occur in complex mixtures and the evaluation of potential interactions is necessary. In the present study lethal and sublethal effects of single and binary mixtures of three frequently observed pharmaceuticals in wastewaters and surface waters of Argentina were assessed using freshwater fish. Lethal effects of single and binary mixtures were assessed by means of standardized acute toxicity test using the autochthonous fish species, pejerrey (Odontesthes bonariensis). Sublethal effects of single and binary mixtures were assessed using a selected suit of biomarkers on juveniles of common carp (*Cyprinus carpio*) exposed to 0.42 and 42 µM of each pharmaceutical and the binary mixture during 96h. Acute lethal toxicity test indicate moderate to slight toxicity induced by the tested pharmaceuticals (96h-LC50 (mg/L): 6.4, 16.2, >solubility, for sildenafil, carbamazepine and clarithromycin, respectively) and agonistic interaction for the binary mixtures. A clear response was not observed for any of the selected biomarkers selected at the hepatic biotransformation (EROD, BROD) or antioxidant (CAT) enzymes, or oxidative stress (TBARs). Alteration of brain AchE was neither observed by carbamazepine, single or in mixtures. In summary, the studied pharmaceuticals or their mixtures seems not to induce generalized acute toxic effects on the studied fish. Longer-term exposures and more specific responses should be assessed to reach a more general conclusion about potential risk of these pharmaceuticals.

PT105. Occurrence and biological effects of illicit drugs in a Brazilian coastal zone (Santos bay, São Paulo)

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The occurrence and effects of illicit drugs discharged by a WWTP in Santos Bay (São Paulo, Brazil) were evaluated by analyzing the chemical contamination and a battery of acute and chronic bioassays employing the brown mussel Perna perna. Five sites were chosen directly affected by WWTP effluents. Results evidenced aquatic contamination (superficial and deep water) by cocaine and its metabolite benzoylecgonine. Environmental concentrations of cocaine ranged from 12.6 to 537.0 ng.L-1, while benzoylecgonine ranged from 4.6 to 20.8 ng.L-1. Acute (inhibited fertilization) and chronic (abnormal embryonic development) effects of crack cocaine were found in gametes and embryos exposed to 4.5 mg.L-1, whereas cytotoxicity (reduced lysosomal membrane stability) was found in adult organisms exposed to 5.0 µg.L-1. Measured environmental concentrations and ecotoxicological data were integrated to assess environmental risk. Risk quotient denoted high risk of this emerging contaminant in Santos Bay.

PT106. Hepatic responses in *Prochilodus lineatus* caged in a river receiving sewage effluent.