loss of moieties. In biotic processes, adduct formation was dominant (e.g. N-acetylation). The relevance of the occurrence of biotic and abiotic TP's and suitable precursors for adduct formation in surface water is still unknown and will be addressed in the ongoing study by field and laboratory investigations. Results demonstrate the importance of TP's to fully understand the environmental fate and ecotoxicological effects of FLX. Acknowledgement: The authors thank the Ministry of Science, Research and Art of the Land Baden-Württemberg, Germany for funding the project Effect Network in Water Research (Grant No. 33-5733-2511t32/2).

3.09P.10

Evaluation of reprotoxic effects in the model cell line JEG-3 by means of an LC-MS/MS based approach

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The human placental cells JEG-3 are suitable to evaluate reprotoxicity of contaminants because compounds may enter into the cells and interfere with the routes involved in hormone synthesis. The ability of contaminants to interfere with aromatase activity, a key enzyme involved in the biosynthesis of estrogens, is commonly determined by measuring the amount of tritiated water ($^3\text{H}_2\text{O}$) formed during the aromatization of $1\beta\text{-}^3\text{H}$ -androst-4-ene-3,17-dione (^3H -AD). However, the analysis of tritium has associated health, safety and environmental risks. In this context, the present works aimed at developing a greener and safer methodology for this purpose. For this, liquid-chromatography coupled to tandem mass spectrometry (LC-MS/MS) was explored to determine trace levels of steroids in culture medium, as this technique is capable of delivering the high selectivity and sensitivity that the aforementioned application requires. After optimizing LC-MS conditions for the simultaneous determination in a single analytical run of the steroids of interest, namely estrone, β -estradiol, estriol, testosterone, and androstenedione, the performance of different extraction approaches (i.e., protein precipitation, liquid-liquid extraction, and TurboflowTM clean-up) was also evaluated. TurboflowTM technology provided the best results in terms of accuracy and precision without compromising the method sensitivity, which could be attributed to the associated minimum sample handling. Thus, this technology was fully validated for the analysis of targeted steroids in culture medium and applied to evaluate the endocrine disruption potential of selected disinfection by-products in the framework of the ENFOCAR project. This work summarizes the results obtained regarding method performance and application and hence, the suitability of the automated TurboflowTM-LC-MS approach to determine trace levels of steroids in culture medium. *Acknowledgments:* CP acknowledges support from the Fundación General del CSIC through the ComFuturo Programme (2nd edition). This work was supported by the Government of Catalonia (Consolidated Research Groups 2017 SGR 01404- Water and Soil Quality Unit) and the project PGC2018-097513-B-I00 (MCIU/AEI/FEDER, UE)

3.09P.11

Carbamazepine exposure in the sea anemones *Anemonia sulcata* and *Actinia equina*: metabolite identification and physiological responses

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Pharmaceuticals and other emerging compounds present in the coastal waters increasingly affects species, not yet all studied. In this study, we have focused attention on species (*Anemonia sulcata* and *Actinia equina*) that have been little studied but with an interest in their conservation and biotechnological application. These organisms belong to the class of the Anthozoa (Cnidaria Phylum), commonly known as sea anemones. Both are widely distributed in the Mediterranean Sea. The objectives of this work have been to determine the physiological and biochemical effects of carbamazepine (CBZ) exposure and characterize the degradation routes followed by this compound in water and tissues (biotransformation) of the two anemones species. Anemones provided by Oceanografic of Valencia were acclimatized to laboratory conditions for two weeks and exposed to 1 $\mu\text{g/L}$ and 100 $\mu\text{g/L}$ of CBZ in artificial sea water in a semi-static system. The experiment lasted 8 days. Small portion of the tentacles were taken the 2nd and 8th day of experiment. Water samples were taken of the all aquaria with CBZ after 3rd, 6th, 8th day. Ion transport (measured as N , K , ATPase activity), energetic metabolism (measured as glucose and lactate levels) and nitrogen excretion (measured as ammonia concentration in tissues) were determined. Treated samples of *A. sulcata* and *A. equina* were analysed by ultra-high-performance liquid chromatography high-resolution mass spectrometry on a quadrupole-time-of-flight (QqTOF). The lactate and glucose concentrations in tentacles of both anemones were modified by CBZ exposure. The structures of nine metabolites have been tentatively identified using HRMS and HRMS/MS data and three of this, were confirmed by Medline database program. The current work constitutes the first study on the identification of CBZ metabolites in Cnidaria, of species belonging to the Anthozoa Class. *Keywords* - sea anemones; biochemical determinations; physiological responses; mass spectrometry.

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3.09P.12

Intraweek occurrence and fate of approximately 200 contaminants of emerging concern, including antibiotics, in wastewater samples from 5 wastewater treatment plants in Cyprus by LC-QTOF-MS/MS

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Urban wastewater treatment plants (UWWTPs) are a unique interface between human society and the environment. Analysis of various classes of contaminants of emerging concern (CECs) in wastewater samples along with improvements in analytical high-resolution mass spectrometry (HR-MS) methodologies should allow for future application of promising wastewater tracers, providing UWWTP operators and regulatory authorities a more definitive toolbox with which to assess contamination associated with wastewater reuse and discharge practices. The aim of this study was a comprehensive quantitative target screening of approximately 200 CECs in 24-hour composite flow-proportional samples of influent wastewater (IWW) and treated effluent wastewater (EWW), collected in April 2018, during 7 consecutive days from 5 UWWTPs located in Cyprus, employing conventional activated sludge (CAS) process or membrane bioreactor (MBR) technology. It involved a generic sample preparation, an UltraHigh-Performance Liquid Chromatography coupled with Quadrupole-Time of Flight Mass Spectrometry (UPLC-QTOF-MS/MS) method and post-acquisition data evaluation. An in-house database was built with information of retention time, MS and MS/MS ions for the target compounds which comprises pharmaceuticals, estrogens, illicit drugs, industrial chemicals and artificial sweeteners as well as some human metabolites and transformation products (TPs). Numerous compounds have been detected in high abundance in both IWW and EWW samples, including antibiotics (e.g. trimethoprim, sulfamethoxazole and sulfadoxine), beta-blockers (e.g. atenolol, metoprolol and sotalol), other pharmaceuticals (e.g. diclofenac, lamotrigine and valsartan) and industrial chemicals (e.g. benzotriazole and tolyltriazole). Several CECs presented high removal rate during secondary treatment, i.e. paracetamol, ephedrine, caffeine, theophylline, naproxen and ranitidine, and thus, were below the limit of detection in EWW samples. Moreover, a variety of pharmaceuticals detected in IWW, have been transformed upon CAS and MBR treatment processes generating several TP's. The following parent compounds and their associated TP's have been detected in IWW and EWW, respectively: metformin/guanylurea, clarithromycin/N-desmethyl clarithromycin, lidocaine/norlidocaine, citalopram/N-desmethyl citalopram and citalopram amide, venlafaxine/venlafaxine-N-oxide and N-desmethyl venlafaxine, tramadol/tramadol-N-oxide and carbamazepine/carbamazepine-10,11-epoxide.

3.09P.13

Quantification of Pharmaceuticals and Personal Care Products in Sediment, Seawater, and Biota Collected Around a Wastewater Discharge Point in Norway

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The consumption and use of pharmaceuticals and personal care products (PPCPs) in urban populations may pose a threat to ecosystem health as conventional wastewater treatment plants (WWTPs) do not completely remove these compounds from the discharged effluents. IVAR SNJ Biological WWTP, a regional WWTP in Norway, is an advanced biological treatment plant. The WWTP receives wastewater from both household and industrial sources, including a hospital. It is required by the Norwegian pollution regulation to remove at least 70% of all degradable biological matter before discharge. SNJ is able to reach 80% removal, however, no assessments of PPCPs in the effluents have been made. The residual contaminants released from WWTPs into marine waters undergo rapid dilution and are challenging to detect. These chemicals are often persistent and their effects on the environment are not yet fully understood. Advances in analytical chemistry, such as the development of highly sensitive, high throughput mass-spectrometer instrumentation, enable the quantification of very low concentrations in environmental samples. A recent study in our group evaluated 15 emerging contaminants, including 6 PPCPs (acetaminophen, diclofenac, lamivudine, phenytoin, carbamazepine and sulfamethoxazole), in seawater, sediments, seaweed, and biota. All 15 target compounds were quantified in all samples. For the biota samples, all PPCPs, except diclofenac, were found in