Standard tests and protocols (for chemical testing) have been established, including the 48-hour acute, and 21-day chronic reproductive, toxicity assays. As a result, there is a wealth of data for chemical effects in *Daphnia* which can be used to establish a baseline response to aquatic pollution stressors, and to rank chemicals based on their toxicity.

Daphnia were initially exposed to three chemicals; triclosan (an antimicrobial), Sodium Dodecyl Sulphate (SDS - a surfactant), and diclofenac (a nonsteroidal anti-inflammatory) which allowed an initial dose response to each of the chemicals to be calculated. To determine the effect of environmental factors, *Daphnia magna* were cultured in three different media (salt only, natural borehole water, and artificial river water with added humic acid as a representative natural organic matter (NOM)) to represent different levels of environmental conditions, before being exposed to the three chemicals again, without or with polyethylene MP (1-4 µm) as a second toxicant. Both acute toxicity with dose response curves, and variability in total protein adsorbed onto the MP particle surfaces at the end of the exposures to chemical and medium mixtures, was ascertained.

We found that variability in toxicity depended on both the exposure scenario and the chemical properties of the pollutants. Triclosan and diclofenac appear to be influenced by co-binding to NOM bound onto the MP particles in this study. SDS readily binds to the surface of the particles due to the amphiphilic nature of the chemical and the hydrophobic surface of the MP, and had elevated toxicity within the exposures containing MP particles, demonstrating a change in exposure pathways as a result of co-exposure. It is essential to consider this at the test design stage to take into consideration the environmental factors that could be drivers for chemical and MP mixture toxicity, to increase the realism of the exposure risk calculations.

2.11.T-04 Combined Effect of Salinity and Leachates of Environmental Plastics on the Copepod *Nitokra spinipes*

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Plastic debris have reached approximately a volume of 8 million tons per year in the oceans and it is necessary to understand the effects on the communities that inhabit them. It is essential to consider that plastic litter comprise not only the polymer that makes them up, but also the various additives that are added during their manufacture and the chemicals that might be sorbed to them from the environment, that are often leached because of their persistence and durability. Coastal areas such as estuaries are transitional zones with natural salinity gradient, that can accumulate plastic litter, and because the release of leachates also depend on such environmental conditions, it is therefore important to assess combined stresses to understand the effects on organisms. The main goal of this study was to analyze the ecotoxicological effect of leachates from environmental and weathered plastics, in two brackish water conditions (two salinities), in a representative model species of planktonic organisms, the harpacticoid copepod *Nitokra spinipes.* Three different environmental samples of PVC, PE, and PP collected in coastal areas from Belgium (North Sea) and Argentina (Río de la Plata estuary) were used for the leachates. The plastics were cut into small fragments (2.5 cm) and the leachates (80 g/L) were prepared in brackish water (BW, salinities of 7 and 15) following standardized method (22°C in dark, 7 d, 80 rpm). After 7 days the leachates were filtrated by 1 and 0.2 µm pore size cellulose filters. The toxicity test to assess the mortality in the copepods was carried out for 96 h following the ISO 14669 protocol, comparing the endpoint among the three polymers and using BW as control (0 % leachates), as well as a positive control using dodecanol. The results indicated a 32% of mortality at 24 h caused by leachates (100% concentration) from PVC, being the mortality of 30% at the end of the experiment ($p<0.05$), at salinity 7. Leachates from PP (2.5% mortality) and PE (7.5% mortality) had no effect on the copepods, compared to the control (5% mortality). The test of ecotoxicological effects of leachates at salinity 15 are currently ongoing. Our results will contribute to assess the combined effect of salinity and leachates of different polymers from environmental stranded plastics, providing information on the complexity of plastics as a diverse group of pollutants with various chemical characteristics, in estuarine ecosystems.

2.11.T-05 Long-Term Effects of Microplastics on a Benthic Community: A Mesocosm Experiment

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However, little information is available on their long-term effects at higher levels of biological organization. From an ecological point of view benthic organisms play an important role in reworking and irrigating sediments and are important food source for organims at higher trophic levels. Consequently, effects on benthic fauna will potentially affect not only benthic communities and ecosystems but also the pelagic food web though transfer of MPs from benthic organisms to pelagic predators. However, scientific literature on MPs in sediments is limited resulting in knowledge gaps related to population- and community-level effects of MP. While most experimental studies focus on single polymer exposures, it is very unlikely that organisms would be exposed to only single polymers in environment, but they are rather exposed to a suite of different polymers. To address this data gap, we performed a five-week large-scale mesocosm experiment to address potential population- and community-level effects of MP under environmentally relevant exposure conditions. We used a suite of polymers tested at both environmentally relevant concentration and a 1000-fold higher concentration. To address this data gap, we performed a five-week, large-scale mesocosm experiment to address potential population- and comnmunity-level effects of MP exposure to a suite of MPs at an environmentally relevant concnetration (680 MPs L^{-1}) and a 1000-fold higher (6.8×10^5 MPs L^{-1}). We exposed specimen of *Macoma balthica, Corophium volutatror,* and *Monoporeia affinis* in a community structure representing species diversity and abundance in the area of collection. In parallel, we ran complementary experiment for three weeks with *M. affinis* exposed to