

**62. IMPACT AT THE PROTEOME LEVEL OF MPS WITH AND WITHOUT BENZO(A)PYRENE ADSORBED ON THE GILLS OF THE PEPPERY FURROW SHELL CLAM SCROBICULARIA PLANA**

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Microplastics (MPs) are globally present in the marine environment but the biological effects on marine organisms at cellular and subcellular level remains scarce. Due to their lipophilic nature, MPs have the potential to adsorb other contaminants and be a vector of these contaminants present in the marine environment to the biota, which may increase their detrimental effects once accumulated by organisms. The present study investigates the effects of exposure to low-density polyethylene (LDPE) MPs of 11 – 13 µm, with and without adsorbed environmentally concentrations of benzo[a]pyrene (BaP - 16.87±0.22 µg g<sup>-1</sup>) to evaluate the potential role of virgin plastic particles or of adsorbed with BaP once ingested in the peppery furrow shell clam, *Scrobicularia plana*. Clams were exposed to MPs, at a concentration of 1 mg L<sup>-1</sup>, in a water-sediment exposure setup for 14 days and were collected at the beginning and at the end of the exposure period. BaP was analyzed in whole clam tissues and a proteomic approach was carried out in the gills along with a multi-biomarker approach which included antioxidant and biotransformation enzymes activities, neurotoxicity, and oxidative damage. Results suggest a potential mechanical injury on clam gills caused by ingestion of MPs with and without BaP that was also reflected in protein changes at cellular level. The proteomic approach revealed that MPs exposure induces several protein changes affecting multiple cellular mechanisms for which correlation with MPs specificity that still need to be validated.

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