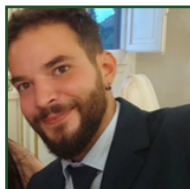


## Environmental and Controlled Uptake of PFOA in *Paracentrotus lividus*: Potential Applications for Biomonitoring and Exposure Effects



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Perfluorooctanoic acid (PFOA) is a persistent and hazardous perfluoroalkyl substance that poses a threat to the marine environment [1].

Strategies are needed for their periodic and sustainable monitoring, as well as for assessing the risks associated with exposure [1].

This study presents findings on the presence and biodistribution of PFOA in ninety specimens of the sea urchin *Paracentrotus lividus* from two different sites along the coast of Palermo (Sicily, Italy) [1]. The bioconcentration factors confirm the highly bioaccumulative nature of PFOA. Significant correlations were found between the concentration of PFOA in the coelomic fluid and in the whole sea urchin. Statistical analysis showed a significant difference between the samples collected at the two sites, suggesting that *P. lividus* could be used as a sentinel species for PFOA biomonitoring. Additionally, some individuals were used in an experimental study to investigate the bioaccumulation of PFOA after exposure to different concentrations of the contaminant for 28 days [2]. During the exposure period, a rapid uptake of PFOA was observed in the coelomic fluid, with high bioaccumulation in the gonads at the end of the experiment. It is noteworthy that the sea urchins were able to depurate rapidly when transferred to a clean environment. To assess the effect of PFOA on the physiological pathways of sea urchins, the expression profile of some marker genes was analyzed in both the gonads and embryos obtained from adults. The study confirms that PFOA is persistent and bioaccumulative and has adverse effects on the health of exposed organisms and their offspring.

### References:

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### Biography:

Dr. Dario Savoca is a researcher in the field of environmental chemistry at the Department of Biological, Chemical, and Pharmaceutical Sciences and Technologies (STEBICEF), University of Palermo. He has a bachelor's degree in environmental science and a master's degree in biodiversity and evolution. He carried out research in the field of characterization of bioindicators of marine pollution and obtained a PhD in molecular and biomolecular sciences. His major research interests lie in investigations of the development and optimization of methods of extraction and analysis of pollutants in complex organic matrices.