{rokbox title=|Representation of the experimental design :: Image: Authors| thumb=|images/stories/ieo/imagenespublicaciones/centro-oceanografico-baleares-ieo-csic-effects-pollutants-microplastics-ingestion-hoyo-et-al-2021-thumb.jpg|}images/stories/ieo/imagenespublicaciones/centro-oceanografico-baleares-ieo-csic-effects-pollutants-microplastics-ingestion-hoyo-et-al-2021.jpg{/rokbox}

Esther Hoyo-Alvarez, Pablo Arechavala-Lopez, Manuel Jiménez-García, Antònia Solomando, **Carmen Alomar**, Antoni Sureda, David Moranta, **Salud Deudero**, 2021.

Effects of pollutants and microplastics ingestion on oxidative stress and monoaminergic activity of seabream brains.
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Abstract: Nowadays, microplastics (MPs) and adsorbed pollutants are considered a global thread to marine ecosystems. This study describes the effects of pollutants and MPs ingestion on fish brains through the assessment of oxidative stress biomarkers and monoaminergic neurotransmitters using gilthead seabream (*Sparus aurata*) as fish model. Juveniles were experimentally exposed to three different dietary treatments for 90 days: Control treatment (C) consisted of standard feed; Virgin treatment (V) contained feed enriched with 10% of MPs; and Exposed treatment (E) consisted of feed with 10% of MPs that were exposed to seawater in an anthropogenically impacted area for 2 months in order to enrich the plastic with the pollutants within the water column. Sampling was made at the start of the experiment (T0), at the end of the dietary treatments (T90) and after a posterior detoxification period of 30 days (T120). Results evidenced that a MPs and pollutants enriched diet increases the activity of some of the oxidative stress biomarkers (e.g. CAT and GST), and it was shown for the first time alterations on dopaminergic and serotonergic system activity on seabream brains, indicating potential neurofunctional effects associated to MPs and pollutants ingestion. In addition, results showed a tendency to recover enzymatic and brain monoaminergic neurotransmitter levels after a 30-day detoxification period. In conclusion, MPs and pollutants exposure for 90 days induced oxidative stress and changes on monoaminergic activity in the brain of *S. aurata*
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Keywords: Microplastics, Biochemistry, Oxidative stress, Neurophysiology, Monoaminergic

neurotransmitters, *Sparus aurata*