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Benvenuti a SCI2021!

Il Congresso Nazionale della Società Chimica Italiana, giunto alla sua XXVII edizione, si svolgerà in modo virtuale da martedì 14 settembre a giovedì 23 settembre 2021. Come di consueto, sarà un punto di incontro e di confronto per tutto il mondo della chimica in Italia su argomenti di grande attualità.

Il congresso sarà aperto dalla *plenary lecture* del Prof. **Stanley Whittingham, premio Nobel per la Chimica 2019**, e prevede interventi di una serie di illustri oratori, fra cui **il premio Nobel per la Chimica 1981, Prof. Roald Hoffmann**. Il congresso si articolerà in sessioni plenarie di interesse generale e sessioni parallele, a cura delle Divisioni della Società Chimica Italiana. Nel pomeriggio di mercoledì 22 settembre sono previsti eventi satellite di interesse industriale, accessibili gratuitamente per gli iscritti al congresso.

Nelle attuali necessità di distanziamento sociale, il congresso si svolgerà tutto in modalità live telematica, con presentazioni, discussioni e tavole rotonde in diretta. Gli interventi verranno comunque registrati e resi disponibili ai partecipanti nelle due settimane successive alla chiusura del congresso, con possibilità di contatto e discussione con i presentatori.

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Evaluation of the presence of plastics in two fish species of the Mediterranean Sea and potentially correlated harmful effects

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The widespread diffusion of plastics in the environment, especially in the oceans, is an issue well known which is raising concern all around the world.

Plastics can break up in smaller pieces as a consequence of photo-degradation, physical fragmentation, and biological and chemical processes. Plastic debris are sorted according to their size, from nanoplastics (1 to 1000 nm) to macroplastics (1 cm and larger) [1].

Plastic particles can be ingested by marine organisms accidentally, but also because, due to their colour and shapes, they resemble natural food sources.

The ingestion of micro and macroplastics and their accumulation in the gastrointestinal tract (GIT) can lead to physical damage, but also to chemical adverse effects related to the release of toxic plastic additives or waterborne persistent organic pollutants adsorbed onto the plastic particles [2].

In this work we evaluated the presence of macro and microplastics in two species of the Mediterranean Sea: the Mediterranean small-spotted catshark (*Scyliorhinus canicula*, SC) and the Atlantic horse mackerel (*Trachurus trachurus*, TT). The fish were collected during the Spring 2018 in two geographic locations in the southern region of the Central Mediterranean Sea: near Mazara del Vallo and Lampedusa Island. The plastics isolated from the GIT of the fish, were sorted according to shape (fibres, filaments, and fragments), dimension, colour, and characterised by Raman spectroscopy to identify the polymer typology. Moreover, RNA was extracted from the spleen of the SC and the liver of TT specimens to investigate, via real time PCR analyses, the possible activation of immune response in SC and endocrine disruption in TT, possibly correlated to plastic ingestion.

The results showed that plastic ingestion is widely diffused in the two species from both locations, with microplastics (mainly polyester, polypropylene and polyamide) found in almost all the specimens analysed. Macroplastics (mainly polyethylene) were found with an average frequency of ingestion of 18% for SC both in Mazara del Vallo and Lampedusa, whereas for TT, macroplastics were found exclusively in a subset of larger specimens from Lampedusa.

Results from spleen and liver gene expression showed changes in the expression of three immune-related genes for SC specimens and anomalies in the production of vitellogenin in both males and females of TT.

Overall, our study suggests that the high frequencies of micro and macroplastics found in the two fish species considered could be a major cause for adverse effects in marine organisms, besides the interactions between the organisms and the wide variety of endocrine-disrupting substances present in seawater [2, 3].

[1] N. B. Hartmann *et al.*, *Environ. Sci. Technol.* **2019**, *53*, 1039 – 1047.

[2] A. Mancia *et al.*, *Mar. Environ. Res.* **2020**, *155*, 104876.

[3] T. Chenet *et al.*, *Environ. Pollut.* **2021**, *in press*, 117449.