

**Atti del XXIX Congresso  
della Divisione di Chimica Analitica  
della Società Chimica Italiana**

Milazzo (Messina)

11-15 Settembre 2022

<https://www.analitica2022.chim.it>



**Atti del XXIX Congresso  
della Divisione di Chimica Analitica  
della Società Chimica Italiana**

Milazzo (Messina)

11-15 Settembre 2022

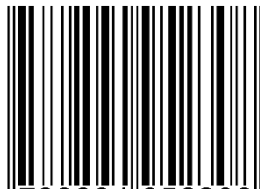
<https://www.analitica2022.chim.it>

ISBN: 978-88-94952-30-8

© Società Chimica Italiana 2022

Publicato online il 15 Settembre 2022 a Messina  
presso l'Università degli Studi di Messina

ISBN 978-88-94952-30-8



9 788894 952308

### COMITATO SCIENTIFICO

Luigi Mondello (UNIME, Presidente)  
Concetta De Stefano (UNIME, Vice Presidente)  
Claudio Minero (UNITO)  
Anna Laura Capriotti (UNIROMA1)  
Alberto Cavazzini (UNIFE)  
Dario Compagnone (UNITE)  
Giuseppe Spoto (UNICT)  
Paolo Oliveri (UNIGE)  
Carmela Maria Montone (UNIROMA1)

### COMITATO ORGANIZZATORE

#### *Università degli Studi di Messina*

Luigi Mondello (*Presidente*)  
Concetta De Stefano (*Presidente*)  
Claudia Foti  
Ivana Lidia Bonaccorsi  
Katia Arena  
Rosalia Maria Cigala  
Danilo Donnarumma  
Anna Irto  
Domenica Mangraviti  
Giuseppe Micalizzi  
Francesca Rigano  
Tania Maria Grazia Salerno  
Emanuela Trovato  
Mariosimone Zoccali

### Con il Patrocinio di:



Comune di Milazzo



ORDINE DEI  
CHIMICI FISICI  
DELLA PROVINCIA  
DI MESSINA



Università  
degli Studi di  
Messina



Regione Siciliana  
Assessorato Turismo  
Sport e Spettacolo

**PLASTICS IN THE MEDITERRANEAN SEA: INVESTIGATION OF THE PRESENCE IN TWO MARINE SPECIES AND POTENTIALLY CORRELATED ADVERSE EFFECTS**

T. Chenet<sup>1</sup>, A. Mancía<sup>2</sup>, G. Bono<sup>3</sup>, A. Baldi<sup>4</sup>, A. Cavazzini<sup>4</sup>, L. Pasti<sup>1</sup>

<sup>1</sup>Department of Environmental and Prevention Sciences, University of Ferrara, Via L. Borsari 46, 44121, Ferrara

<sup>2</sup>Department of Life Sciences and Biotechnology, University of Ferrara, Via L. Borsari 46, 44121, Ferrara

<sup>3</sup>Institute for Biological Resources and Marine Biotechnologies, National Research Council (IRBIM-CNR), Via Vaccara 61, 91026, Mazara del Vallo

<sup>4</sup>Department of Chemical, Pharmaceutical and Agricultural Sciences, University of Ferrara, Via L. Borsari 46, 44121, Ferrara

The ingestion of plastics by marine organisms is an issue well known which is raising concern worldwide.

Indeed, the accumulation of micro and macroplastics in the gastrointestinal tract can lead to physical damage, but also to chemical harmful effects related to the release of toxic plastic additives or waterborne persistent organic pollutants adsorbed onto the plastic particles [1].

In this work, the presence of macro and microplastics was evaluated in two species of the Mediterranean Sea: the Mediterranean small-spotted catshark (*Scyliorhinus canicula*, SC) and the Atlantic horse mackerel (*Trachurus trachurus*, TT) both collected during the Spring 2018 in two geographic locations in the southern region of the Mediterranean Sea (Lampedusa Island and near Mazara del Vallo).

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 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 [1, 2].

[1] A. Mancía et al., Mar. Environ. Res. 155 (2020) 104876.

[2] T. Chenet et al., Environ. Pollut. 284 (2021) 117449.

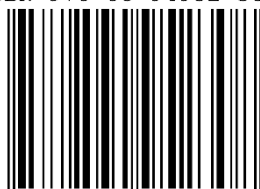
Atti del XXIX Congresso della Divisione di Chimica Analitica  
della Società Chimica Italiana

ISBN: 978-88-94952-30-8

© Società Chimica Italiana 2022

Pubblicato online il 15 Settembre 2022 a Messina  
presso l'Università degli Studi di Messina

ISBN 978-88-94952-30-8



9 788894 952308