# Title: Identification of microplastics in mussel *Mytilus galloprovincialis from Northern Adriatic* through light and SEM-EDS screening

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## I. Abstract Body

The presence of microplastics (MPs) in marine environment has become a global problem in today's world (1). Understanding of the sources and fate of microplastics under 5mm remains limited, particularly in marine mussel tissues (2). Thus, the abundance and distribution of microplastics in the Mediterranean mussel *Myituls galloprovincialis* sampled from native sites were investigated. Mussel samples were collected from the Norhern Adriatic in 2014 from pristine site, maricultured areas and ports. Dissected mussel digestive glands were cryopreserved, cutted with a cryostat and stained with haematoxylin and eosin. Light and scanning electron microscopy with energy-dispersive spectroscopy (SEM-EDS) was evaluated for detection and characterisation of MPs sized 3 – 116 μm in parallel on slides with and without coverslip. SEM-EDS was used to screen plastic vs non-plastic pellets and confirmed identification of smaller MPs. Total MPs abundances were 8–35 per mussel, with lowest number in St. Chaterine island and highest in Kopar port. Film was the dominant type at all sampling stations, folowed by sphere, pellet, line and fiber. This study is the first to report on MPs in mussel cryosections in Northern Adriatic and suggests that diffuse sources of pollution may be delivering with waste waters in ports. MPs presence in all organisms, particular in farmed mussels and fish will need further attention.

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## II. Image:

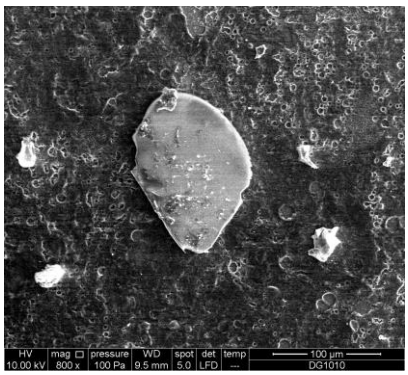



Figure 1. SEM-EDS screening of microplastic and non-plastic pellets

## III. Reference:

1 Trifuoggi, M., Pagano, G., Oral, R., Pavičić-Hamer, D., Burić, P., Kovačić, I., Siciliano, A., Toscanesi, M., Thomas, P. J., and L. Paduano, 2019. Microplastic-induced damage in early embryonal development of sea urchin *Sphaerechinus granularis* . Environmental research, 179

2 Kovačić, Ines; Pustijanac, Emina; Štefanko, Karla; Buric, Petra Histological alteration of mussel Mytilus galloprovincialis digestive gland induced by microplastics. 2019 Rapp. Comm. int. Mer Médit Cascais: CIESM Scientific Committee, 2019. 141-141

## IV. Biography:

Ines Kovačić has completed her PhD at the University of Zagreb, Croatia, Faculty of Science (Scientific Field: geosciences - marine sciences). She is the Head of Integrated undergraduate and graduate university Teacher Study programme, at Faculty of Educational Sciences, Juraj Dobrila University of Pula. She has published 13 papers in reputed journals and has been presenting her work in more than 20 conferences.

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