Ingestion and effects of micro- and nanoplastics in blue mussel (Mytilus edulis) larvae - DTU Orbit (19/10/2019)

Ingestion and effects of micro- and nanoplastics in blue mussel (Mytilus edulis) larvae

It is well known that mussels are exposed to microplastics but ingestion and potential effects on mussel larvae are not well understood. We quantified ingestion and egestion of 100 nm and 2 μm polystyrene beads in blue mussel larvae after 4 h exposure and 16 h depuration using different plastic-to-microalga ratios. Effects on growth and development of mussel larvae were investigated at 0.42, 28.2 and 282 μgL−1 within 15 days of exposure. We found that, on a mass basis, larvae ingested a higher amount of 2 μm than 100 nm beads, while egestion was independent of particle size and the plastics-to-algae ratio. Although particle egestion occurred readily, microplastics remained inside the larvae. Larval growth was not affected but abnormally developed larvae increased after exposure to polystyrene beads. Malformations were more pronounced for 100 nm beads, at higher concentration and after longer exposure time.

General information
Publication status: Published
Organisations: Department of Environmental Engineering, Environmental Fate & Effect of Chemicals, National Institute of Aquatic Resources, Section for Oceans and Arctic
Corresponding author: Rist, S.
Contributors: Rist, S., Baun, A., Almeda, R., Hartmann, N. B.
Pages: 423-430
Publication date: 2019
Peer-reviewed: Yes

Publication information
Journal: Marine Pollution Bulletin
Volume: 140
ISSN (Print): 0025-326X
Ratings:
BFI (2019): BFI-level 2
Web of Science (2019): Indexed yes
Original language: English
Keywords: Microplastics, Quantifications, Egestion, Growth rate, Development, Malformation
DOIs:
10.1016/j.marpolbul.2019.01.069
Source: FindIt
Source ID: 2443819130
Research output: Contribution to journal › Journal article – Annual report year: 2019 › Research › peer-review