

P2.22**Effects of flame retardants (BDE47) exposure on benthic organisms from coastal area: experiment on symbiont-bearing foraminifera of the genus *Peneroplis***

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Abstract

Benthic foraminifera are unicellular marine organisms widely present in world oceans and seas, representing an important knot of the food network and seabed ecosystem. Due to their sensitivity to environmental changes and pollution, they are often used as bioindicators, providing an efficient tool in toxicity studies on different pollutant affection. Among benthic foraminifera, the family Peneroplidae is constituted by specimens with average to large dimensions, living in temperate and low-deep coastal waters and bearing symbiont algae. Foraminifera response to environmental stress (eg. pollutants) includes morphological and physiological alterations and the loss of vitality, the reproduction arrest and the expulsion of symbiont algae from the cell (when present). Among the pollutants affecting marine coastal and estuarine environments persistent flame retardants (Polybrominated diphenyl ethers - PBDEs) are often found. It was assessed that also low-level exposures of BDE-47, a PBDEs congener, can affect marine organisms development. In order to assess the effect of BDE-47 exposures on benthic organisms from coastal marine environment, foraminifera specimens belonging to Peneroplidae family were sampled and exposed to non-lethal BDE47 concentrations from T0 up to 48h, and vitality indicators were analysed during the experiment. Changes in the pseudopodial activity and length, movement, reduction of ectoplasm dimension, and the loss of symbiont algae were measured in presence of BDE47. The results show the sensitivity of this species to BDE-47 exposure, suggesting the nocive repercussion of PBDEs pollution on marine coastal ecosystems, in relation to the organisms in it selves and to the effect of biomagnification on the food-web and human health.

Keywords

vitality indicators, coastal large foraminifera, bleaching, PBDEs toxicity