OMICS Group Conferences
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2nd International Summit on
Toxicology

October 07-09, 2013 Hampton Inn Tropicana, Las Vegas, NV, USA

Assessment the toxicity of polluted sediment to the carpet shell clam *Ruditapes decussatus* embryos and larvae

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Sediments represent an important reservoir for contaminants in the aquatic systems and may pose a threat to pelagic and benthic organisms. The objective of this research was to determine the toxicity of sediment contaminated cadmium (inorganic metal), DDT (organochlorine pesticide), chlorpyrifos (organophosphate insecticide) and fluoranthene (polycyclic aromatic hydrocarbon) to embryos and larvae of the European clam *Ruditapes decussatus*, exposed to two sediments fractions, the whole sediment and elutriate. The percentages of abnormal D-shaped larvae and larval mortality have been investigated. The median effective concentrations (EC50) values, reducing 50% of the percentage of D-shaped larvae, in whole sediments and elutriates were respectively 1.17 mg/kg and 417.1 μgl^{-1} (3.71 µM) for cadmium, 1.66 mg/kg and 97.8 μgl^{-1} (0.48 µM) for fluoranthene, 1.71 mg/kg and 384.8 μgl^{-1} (1.08 µM) for DDT and 0.96 mg/kg and 339.5 μgl^{-1} (0.96 µM) for chlorpyrifos. The 96h-median lethal concentrations (LC50) reducing larval survival by 50% were 4.04 mg/kg 654.3 μgl^{-1} (5.82 µM) for cadmium, 17.41 mg/kg 8666.6 μgl^{-1} (42.84 µM) for fluoranthene, 3.93 mg/kg and 457.4 μgl^{-1} (1.29 µM) for DDT and 2.53 mg/kg and 308.06 μgl^{-1} (0.87 µM) for chlorpyrifos.

Based on EC_{50} and LC_{50} comparisons to toxicity data for other marine species, these findings suggest that the *R. decussatus* embryotoxicity and larvae mortality bioassay were one of the most sensitive tools for sediment quality assessment.

Biography

Salem Fathallah has received his Ph.D. degree from High Institute of Biotechnology of Monastir (Monastir University, Tunisia) and is currently working as Assistant Professor in the National Institute of Sciences and Marine Technology (Agricultural Ministry). He published more than 8 papers and has been serving as reviewer member in many reputed journals.

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