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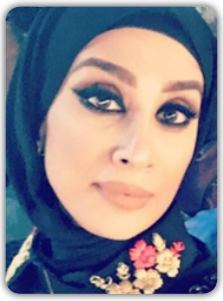

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Assessment of endocrine disrupting chemicals in Kuwait coastal area and its impact on marine fish

Endocrine disrupting chemicals (EDCs) are of global concern and find their way to the marine environment via the sewage treatment plants (STPs). Dumping untreated sewage to the coastal areas is one of the critical stressors to Kuwait marine environment, which can deteriorate the quality of seawater and sediment. This study was designed to investigate the status and sources of EDCs and their effect on fish in Kuwait's coastal areas. The analysis of field samples from exposure sites revealed significant levels of EDCs in seawater (phthalates: 2.1 to 4.6 µg/l; alkylphenols: 1.2 to 16.4 ng/l; estrogens: 0 to 36.2 ng/l) which clearly indicated a local source or chronic input of untreated or partially treated water. Sediment samples showed significant levels of the three main classes of EDCs (phthalates: 2.1 to 15.7 mg/kg dry wt; alkylphenols: 2.5 to 15.1 µg/kg dry wt.; estrogens: 4.1 to 214.2 µg/kg dry wt.) which indicated a possible release from sediment which acts as a reservoir for pollutants. Yellow-finned seabream (*Acanthopagrus latus*) were placed in cages and exposed near sewage discharge areas for two weeks. Fish liver were dissected for histology and immunohistochemistry and the results revealed hepatic alteration in fish liver samples in the form of hepatic depositions and necrotic changes although no marked deviation in the structural integrity of the hepatic tissue was observed. Vitellogenin (Vtg) localization was also detected in liver samples correlated with the EDCs levels in seawater and sediment samples. The existing levels detected in Kuwait marine environment posed a physiological effect on fish and Kuwait Bay is very important and sensitive ecological system which should be protected from all kinds of stressors especially the anthropogenic.

Speaker Biography

Noura Al-Jandal has completed her PhD on 2011 from the University of Exeter, UK. She is an Associate Research Scientist in the Environmental and Life Sciences Research Center at the Kuwait Institute for Scientific Research working on endocrine disrupting chemicals effect on marine biota. She lead several client funded project and published he work in peer-reviewed journals. She is a member in the Associate of the Higher Education Academy (AHEA) and a qualified British Sub-Aqua Club (BSAC) Diving License Holder. She presented her work in several international conferences as a speaker. Recently she gave an Oral presentation in Conference Series the 12th International Conference on Environmental Toxicology and Ecological Risk Assessment held during in Atlanta, Georgia, USA. Currently she is working on projects of a high global significance such as microplastics assessment in Kuwait marine environment.

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