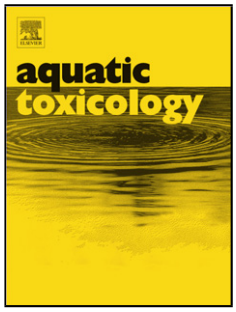

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Toxicokinetic and toxicodynamic of depleted uranium in the zebrafish, *Danio rerio.*

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Highlights

- Waterborne U exposure at environmental level led to organ contamination
- U contamination in different tissues continued over the depuration period
- Genotoxicity of U was evidenced after both exposure and depuration periods
- U exposure led to severe biological damages in males

Abstract

This study investigated the accumulation pattern and biological effects (genotoxicity and histopathology) to adult zebrafish (male and female) exposed to a nominal waterborne concentration of 20 µg L^{-1} of depleted uranium (DU) for 28 days followed by 27 days of depuration. Accumulation pattern showed that (i) DU accumulated in brain, (ii) levels in digestive tract were higher than those measured in gills and (iii) levels remained high in kidney, brain and ovary despite the 27 days of depuration period. Genotoxicity, assessed by comet assay, was significant not only during DU exposure, but also during depuration phase. Gonads, in particular the testes, were more sensitive than gills. The histology of gonads indicated severe biological damages in males. This study improved knowledge of ecotoxic profile of uranium, for which a large range of biological effects has already been demonstrated.

Keywords:
Uranium, zebrafish, toxicokinetics, toxicodynamic, genotoxicity, histopathology