

Toxicity evaluation in *Xenopus laevis* tadpoles exposed to carbon based nanoparticles under normalized conditions

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Due to their promising potential in numerous industrial applications because of their exceptional properties, some carbon nanoparticles (nanocarbons) such as carbon nanotubes (CNT), graphene (G), nano diamond (ND) and carbon black (CB) are expected to get into the environment (normal conditions of use, end of life) and especially to be found into the aquatic compartment because of its capability to concentrate pollution. Nevertheless, ecotoxicological data are still scarce, especially on aquatic organisms. The aim of the present work is to contribute to the ecotoxicological assessment in the aquatic compartment by comparing 4 different nanocarbons: CNT, few-layer graphene (FLG), ND and CB. The investigation of their environmental hazard was conducted according to an international standardized bioassay procedure (ISO, 2006) using a sensitive and relevant biological model, the amphibian larvae (*Xenopus laevis*). Few different endpoints were assessed: (i) acute toxicity (mortality), (ii) chronic toxicity (growth inhibition) and (ii) genetic toxicity (induction of micronucleated erythrocytes). The results, depending on the nature of the nanocarbon, showed moderate toxicity since growth inhibition was only observed at very high concentrations (10 and 50 mg/L). The chronic toxicity observed in larvae exposed to high concentrations of nanocarbons would be limited to physical effects (gill clogging and/or abrasive effects and or nutrients deprivation).

Key Words: Nanocarbons, carbon nanotubes, graphene, nano diamond, carbon black, ecotoxicity, amphibian *Xenopus laevis*

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