Two dechlorinated chlordecone derivatives formed by in situ chemical reduction are devoid of genotoxicity and mutagenicity and have lower proangiogenic properties compared to the parent compound

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Résumé en anglais	Chlordecone (CLD) is a chlorinated hydrocarbon insecticide, now classified as a persistent organic pollutant. Several studies have previously reported that chronic exposure to CLD leads to hepatotoxicity, neurotoxicity, raises early child development and pregnancy complications, and increases the risk of liver and prostate cancer. In situ chemical reduction (ISCR) has been identified as a possible way for the remediation of soils contaminated by CLD. In the present study, the objectives were (i) to evaluate the genotoxicity and the mutagenicity of two CLD metabolites formed by ISCR, CLD-5a-hydro, or CLD-5-hydro (5a- or 5- according to CAS nomenclature; CLD-1Cl) and tri-hydroCLD (CLD-3Cl), and (ii) to explore the angiogenic properties of these molecules. Mutagenicity and genotoxicity were investigated using the Ames's technique on Salmonella typhimurium and the in vitro micronucleus micromethod with TK6 human lymphoblastoid cells. The proangiogenic properties were evaluated on the in vitro capillary network formation of human primary endothelial cells. Like CLD, the dechlorinated derivatives of CLD studied were devoid of genotoxic and mutagenic activity. In the assay targeting angiogenic properties, significantly lower microvessel lengths formed by endothelial cells were observed for the CLD-3Cl-treated cells compared to the CLD-treated cells for two of the three tested concentrations. These results suggest that dechlorinated CLD derivatives are devoid of mutagenicity and genotoxicity and have lower proangiogenic properties than CLD.

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[1] http://okina.univ-angers.fr/slegeay/publications
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