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Evaluation of cytotoxic potential of chlorpyrifos using *Lens culinaris* Med as efficient bioindicatorSeir Antonio Salazar Mercado ^a  , Hanner Alejandra Maldonado Bayona ^b  [Show more](#)  Outline |  Share  Cite<https://doi.org/10.1016/j.ecoenv.2019.109528>[Get rights and content](#)

Highlights

- Toxicological assay using *Lens culinaris* was carried out with Chlorpyrifos.
- *Lens culinaris* root system is sensitive bioindicator of environmental pollution.
- Result indicated significant cytotoxic effect.
- The mitotic index decreased with Chlorpyrifos.
- The Cell anomalies increased with Chlorpyrifos.

Abstract

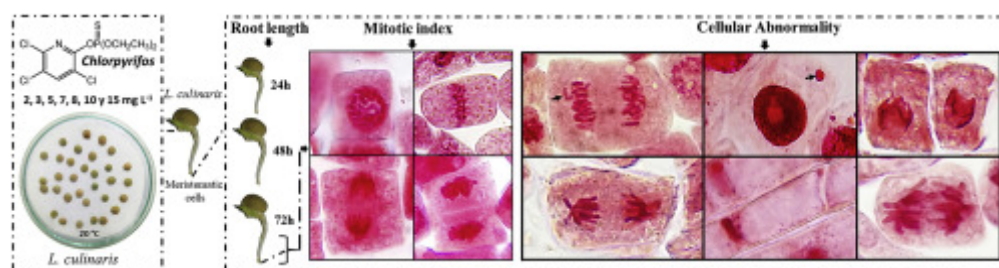
The aim of this study was to evaluate the cytotoxic effect of different concentrations of chlorpyrifos (CPF), using *L. culinaris* apical cells as a biological indicator. *L. culinaris* seeds were exposed to different concentrations of chlorpyrifos (0, 1, 3, 5, 7, 8, 10 and 15 mgL⁻¹) and a control solution based on distilled water. Subsequently, root growth was measured during 24, 48 and 72 h. Therefore, the mitotic index (MI) and the number of cellular abno

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chromosomes grouped in metaphase, anaphase bridges, metaphase sticky chromosomes, present in all concentrations evaluated. Consequently, the presence of micronuclei in the concentrations of 8 mg L^{-1} , 10 mg L^{-1} and 15 mg L^{-1} indicates that the CPF is a highly cytotoxic substance to *L. culinaris*. Therefore, *L. culinaris* is a plant species that offers a feasible experimental model to be implemented in laboratory studies with the purpose to evaluate the cytotoxic effect of pesticides.

Graphical abstract

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Keywords

Cytotoxicity; Mitotic index; Micronuclei; Lentils; Cellular abnormalities

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