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Evaluation of cytotoxic potential of chlorpyrifos using *Lens culinaris* Med as efficient bioindicator

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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.

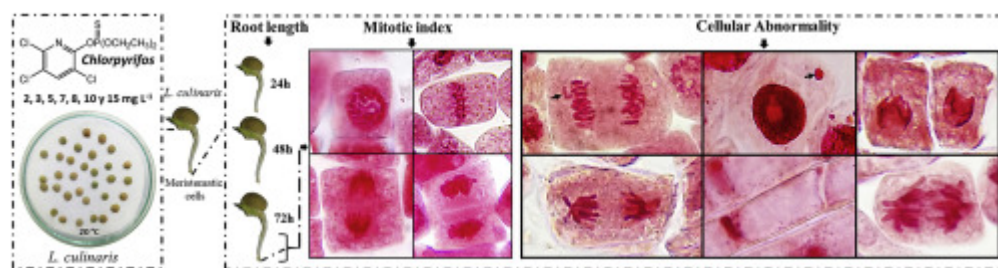
Abstract

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of T5 (8 mg L^{-1}) and T6 (10 mg L^{-1}). On the other hand, it was evidenced that, through all the evaluated concentrations, the inhibition of mitosis in the concentrations of T5 (8 mg L^{-1}), T6 (10 mg L^{-1}) and T7 (15 mg L^{-1}) was greater than 50%. Additionally, a variety of chromosomal abnormalities were reported, such as Micronuclei, sticky chromosomes in anaphase, chromosome disruption, irregular anaphase, nucleus absence, nuclear lesions, 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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