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Evaluation of the cytotoxic potential of sodium hypochlorite using meristematic root cells of *Lens culinaris* Med

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Highlights

- Toxicological assay utilizing *L. culinaris* was carried out with Sodium Hypochlorite.
- Meristematic root cells of *L. culinaris* Med is sensitive bioindicator of environmental pollution.
- The mitotic index decreased with sodium hypochlorite dose.
- The exposition to 0.2, 1, 3, 5 and 7 mg L⁻¹ sodium hypochlorite caused cellular anomalies.

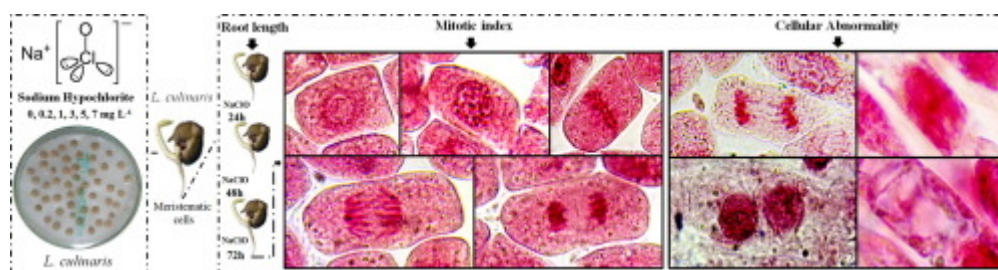
Abstract

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root growth was also studied. The cytotoxic potential of NaClO was determined by calculating the mitotic index (MI), calculating cellular anomalies (CA) and observing the longitudinal growth of the roots during the various time periods. The radicular growth was prolonged and it was observed that there was a greater growth at the dose of 1 and 7 mg L⁻¹ in the time of 72 h. The cytotoxic effects could be analyzed in the mitotic index, since the higher the concentration, the lower the mitotic index, as observed in the dose of 7 mg L⁻¹ where a reduction of the mitotic index of the meristematic cells is observed. The results indicate that NaClO has a cytotoxic effect that induces various types of chromosomal abnormalities. This indicates that Sodium Hypochlorite has a cytotoxic effect according to the increase in its dose. Therefore, *Lens culinaris* turned out to be a kind of appropriate bioindicator to study the cytotoxic effects of various potentially toxic substances.

Graphical abstract


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Keywords

Cell anomalies; Cell cycle; Chromosome; *Lens culinaris*; Mitotic index; Root length

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