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# **USE OF PARAMECIUM SP. BIOINDICATORS OF WATER POLLUTION BY A SELECTIVE INSECTICIDE**

### **Abstract:**

The water crisis has already been raging for a long time because the contamination of continental and oceanic waters is exerting its misdeeds in an ever increasing way. It affects both the industrialized countries and the seas around them, as well as many parts of the Third World where, in addition to the chronic pollution of continental waters, agricultural production is limited by the lack of water in those with arid climates. Chemicals used in agriculture are the main cause of water pollution. Half of what is poured into the fields does not even reach the plants and ends up in the fresh water; they not only act against the target for which they are registered, but also on the entire ecosystem. The effects on biodiversity, including terrestrial and aquatic flora and fauna, are therefore undeniable. The present study was undertaken to better characterize the impact of an insecticide (indoxacarbe) on growth, on respiratory metabolism as well as on the detoxification system and more specifically on bio-markers which are considered as relevant detection tools for pollutants. Therefore constitute a new approach for assessing the effects of environmental contamination on ecosystems and human health. Four concentrations were tested on aliquots of culture paramecia made in advance. The results show that cell growth of paramecia is sensitive to the insecticide and for the highest concentrations. Toxicity was evaluated by determining the IC 50 and by calculating the percentage response which evaluates the response of protists to the pollutant and confirms the evolution of the growth curve. Also decreased cell generation time and increasing day doubling of the cells treated with high concentrations suggest a possible genotoxic effect. Finally, the determination of enzyme biomarkers: the catalase and glutathione S-transferase reveals fluctuations and this with time and increasing concentrations of indoxacarbe.

### **Keywords:**

aquatic pollution, Indoxacarbe, Toxicity, Cell growth, biomarkers.

**JEL Classification:** Q53, Q53, Q53