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COMPARATIVE AQUATIC PHYTOTOXICITY OF THREE EU-APPROVED TRIAZOLE FUNGICIDES IN *LEMNA MINOR*

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• Introduction

The agricultural application of triazole fungicides represents a potential source of aquatic contamination, as these compounds can be transported from agricultural areas into surrounding water bodies. Therefore, evaluating their phytotoxic effects on aquatic organisms is essential for characterizing the ecotoxicological risks associated with their application.

• Material and method

The experiments involved a seven-day exposure to five concentrations of difenoconazole, prothioconazole and mefentrifluconazole, selected to enable toxicological characterization. Each concentration was tested in triplicate, with 10 initial *Lemna minor* fronds per replicate in 30 mL of test medium (Figure 1). At the end of exposure, the relative frond number, expressed as a percentage of the negative control (culture medium), colony number, and frond-to-colony ratio were evaluated.

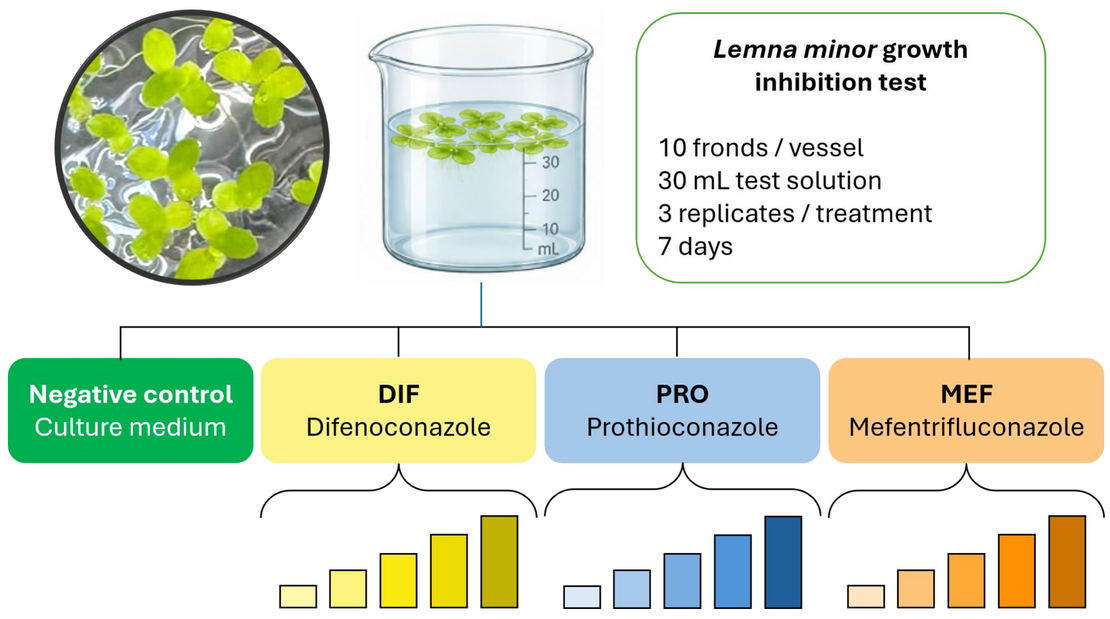


Figure 1. Graphical representation of experimental methodology.

• Results and discussions

The results revealed distinct phytotoxicity profiles among the investigated fungicides. Prothioconazole and difenoconazole exhibited greater phytotoxicity than mefentrifluconazole, inducing pronounced reductions in frond number at substantially lower concentrations (Figure 2).

Furthermore, prothioconazole and difenoconazole reduced the frond-to-colony ratio at specific concentrations, indicating alterations in colony organization consistent with fragmentation. This effect was not observed following mefentrifluconazole exposure (Figure 3).

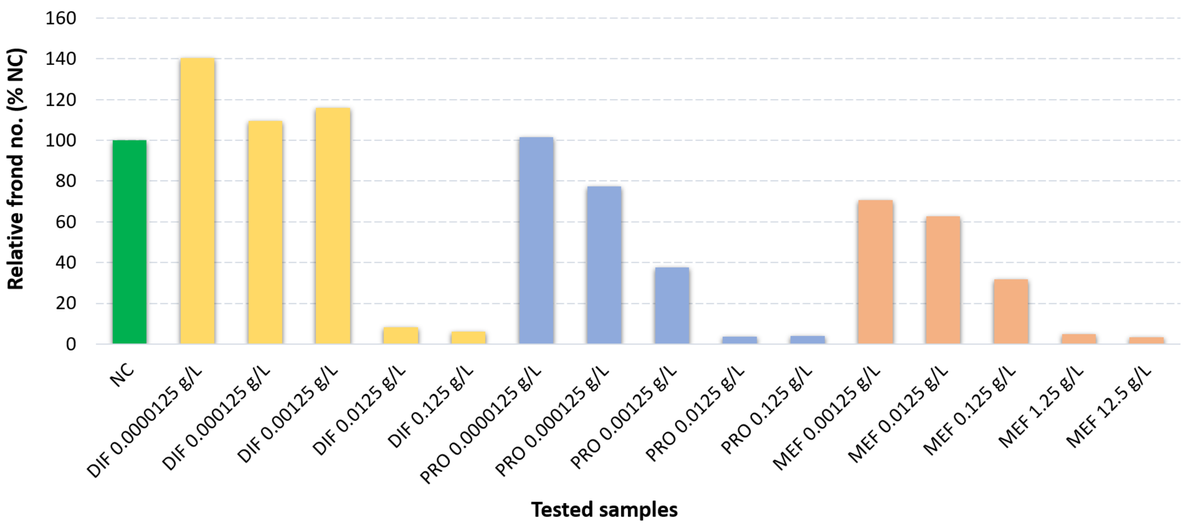


Figure 2. Effect of fungicide exposure on number of *L. minor* fronds.

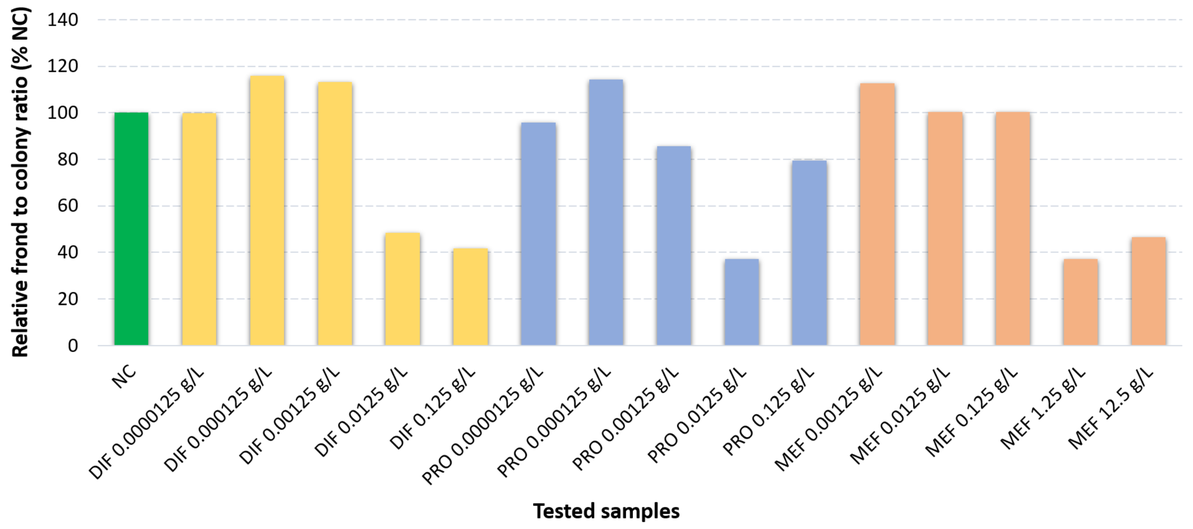


Figure 3. Effect of fungicide exposure on frond to colony ratio of *L. minor*.

• Conclusions

Overall, the findings highlight distinct phytotoxic effects of the investigated fungicides on *Lemna minor*, with prothioconazole and difenoconazole exhibiting greater toxicity than mefentrifluconazole, affecting both frond proliferation and colony organization.

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