

Poster Communication 65

Ecotoxicological effects of the plant protection product NATIVO on non-target terrestrial plants: an integrated toxicity index approach

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Abstract

Background: The ecotoxicological assessment of fungicides is essential for understanding their potential impacts on non-target organisms and for supporting environmental risk assessment [1,2]. In this context, the fungicide NATIVO is widely used in agriculture to control fungal diseases in various crops. However, intensive use may promote the dispersion of active compounds into soils, posing a potential risk to non-target organisms such as terrestrial plants. **Objective:** To evaluate the phytotoxicity effects of the fungicide in four terrestrial plants (*Pennisetum glaucum*, *Triticum aestivum*, *Lactuca sativa*, and *Raphanus sativus*) using germination, development, and growth endpoints. **Methods:** Plant bioassays were performed according to the guidelines of OECD 208 and ISO 18763, for 72h under controlled conditions in the dark. For each species, 8 concentrations (1-93 µL/L) of the commercial product NATIVO were evaluated, with 6 replicates per treatment, and 10 seeds per replicate. After exposure, parameters related to germination and early seedling development were evaluated. Subsequently, for each parameter and treatment, the percentage of effect was calculated. Based on these values, the doses were classified into toxicity indices (non-toxic, moderately toxic, and toxic), following the ecotoxicological thresholds related to EC₁₀ and EC₅₀ [3]. Finally, a toxicity index was estimated based on the integrated response of the evaluated parameters for each species. **Results:** In general, the most pronounced effects were observed in the root and shoot growth parameters. For root growth, *L. sativa* and *T. aestivum* exhibited inhibition percentages exceeding 50%, with NATIVO classified as toxic for this parameter and species. For shoot growth, *L. sativa*, *R. sativus*, and *P. glaucum* exhibited inhibition percentages exceeding 50%, and NATIVO was also classified as toxic for this endpoint and species. The integrated analysis indicated greater sensitivity of *L. sativa*, followed by *R. sativus*, *T. aestivum*, and *P. glaucum* to NATIVO. **Conclusions:** NATIVO exposure can significantly impair early development, particularly growth-related parameters of terrestrial plants. Residual contamination in soils may therefore affect plant establishment and regeneration processes. These findings underscore the importance of considering diverse plant species in ecotoxicological studies to provide a more realistic assessment of the environmental risks associated with fungicide use.

Keywords: fungicides; terrestrial plants; environmental risk.

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