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“DATA-DRIVEN ENVIRONMENTAL DECISION-MAKING”

2.02.P-We041 Effects of the Fungicide Tebuconazole with Herbicidal Mode of Action on Monocot and Dicot Macrophyte Species with Different Growth forms

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Since 2010, it is known that dicot macrophytes, such as *Myriophyllum* sp., can be significantly more sensitive to herbicides with specific mode of actions (MoA) such as auxins than the standard monocot test species *Lemna* sp.. For fungicides such as tebuconazole (TBZ) with a not well-known herbicidal MoA, it is questionable if dicot macrophytes are also more sensitive than the monocot duckweed *Lemna gibba* which was the most sensitive species in acute laboratory tests with TBZ in the first tier of the risk assessment. Therefore, we performed 14 d in-situ macrophyte tests within a comprehensive mesocosm study (project AquaFungi at Risk) at the artificial stream and pond facility (FSA) of the German Environment Agency. The goal of this research was to improve the risk assessment of fungicides with herbicidal MoA for higher aquatic ecosystem/macrophyte protection. To study this, 8 naturally established freshwater mesocosms were dosed once with 6 different concentrations of TBZ (5-5000 µg/L) in the beginning of September 2022. We exposed *Myriophyllum spicatum* shoots in bioassays consisting of 10 plant pots in each mesocosm. Exposure was 14 days with starting dates on day 1 and day 21 after TBZ application, and 35 days, covering the full exposure period for the macrophyte bioassays. Colonies of *Lemna trisulca* and *Spirodela polyrhiza* were exposed in floating devices for 14 days starting at day 1 and at day 21. Endpoints including main shoot length, total shoot length, number of whorls, total length of side shoots and dry weight were measured for *Myriophyllum spicatum* while dry weight and number of leaves were measured for *L. trisulca* and *S. polyrhiza*. In addition, floating leaf development of free-growing populations of the dicot species *Nymphoides peltata* and of the monocot species *Potamogeton natans* were measured in the mesocosms. The results indicate that dicot macrophyte species are more sensitive to TBZ than the monocot species. The Risk Assessment of fungicides should therefore include additional macrophyte testing if the fungicide shows herbicidal MoA