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Effects of the fungicide tebuconazole on macrophytes in a mesocosm study

Oral presentation

A higher-tier study was performed in stream-pond mesocosms at the artificial stream and pond facility of the German Environment Agency in Berlin to study the effects of a fungicide with a Mode of Action as a growth regulator on aquatic macrophytes. For a long time it was already known that dicot macrophytes, such as *Myriophyllum spicatum*, can significantly be more sensitive to growth regulators than the standard monocot test species *Lemna* sp. Therefore we hypothesized that dicot species are more sensitive than monocot species for such a compound. To test this hypothesis, we studied the effects of the fungicide tebuconazole on different macrophyte species with different growth forms in bio-assays. The sediment-rooted *Myriophyllum spicatum* endpoints were assessed at 14 and 35 days. The pleustophyte *Lemna trisulca* and the free-floating *Spirodela polyrhiza* endpoints were assessed at 14 days. Besides the bio-assays, standing stock populations of *Nymphoides peltata*, *Potamogeton natans* and *Myriophyllum spicatum* were monitored and endpoints assessed at 35 days. Overall, the dicot species *Myriophyllum spicatum* showed the lowest, trustworthy

EC10 and EC50 values based on measured tebuconazole start concentrations, of which total shoot length was the most sensitive endpoint. The dicot *Nymphoides peltata* also showed clear effects in the same concentration range. The monocots *Spirodela polyrhiza* and *Lemna trisulca* were less sensitive than the tested dicot species in this mesocosm study. However, in a first-tier laboratory test *Lemna gibba* is more sensitive compared to *Myriophyllum spicatum* in the mesocosm study. These differences will be discussed as well as consequences for the risk assessment.

