

Thema für Abschlussarbeit SETAC GLB Fachökotoxikologe/in:

Analysis of toxicity data on aquatic life stages of amphibians

Desk study

Supervision:

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It is largely accepted that the standard data requirements on toxicity testing of plant protection products (PPPs) with fish covers the sensitivity of aquatic life stages of amphibians (Aldrich, 2009; Fryday and Thompson, 2012; Weltje et al., 2013; EFSA, 2013; Weltje and Wheeler, 2015). This is especially true for acute toxicity, but it has also been demonstrated for chronic toxicity (Weltje et al., 2013).

Nevertheless, in Wagner and Viertel (2016) and in the draft “Scientific Opinion on the state of the science on pesticide risk assessment for amphibians and reptiles” (EFSA, 2017), the use of fish toxicity data as a surrogate for aquatic life stages of amphibians is challenged. Concerns expressed are:

- *limited number of aquatic life stages of amphibians have been tested*
- *variability between amphibian species is unknown*
- *the majority of amphibian studies were conducted with the African clawed frog *Xenopus laevis*, for which limited information is available with regard to its representativeness for European species*

To investigate these claims in detail, the objectives of this proposal are:

1. Compare sensitivity of different amphibian species (e.g. *Xenopus* vs. European species)
2. Compare sensitivity of different aquatic life stages of amphibians
3. Construct and compare species sensitivity distributions (SSDs) for selected PPPs for fish and amphibians separately
4. Investigate potential differences in comparative sensitivities for herbicides, fungicides and insecticides separately
5. Investigate the influence of adding other standard short-term toxicity data, i.e. *Daphnia*, algae and *Lemna* on coverage of aquatic amphibian sensitivity

Acute amphibian toxicity data (i.e. LC₅₀ values) are systematically collected in an Excel file and assigned a reliability index. A final report (Abschlussarbeit) on the data collection, interpretation etc. is written in English. This work may contribute to avoiding unnecessary amphibian (i.e. vertebrate) testing in the future.

References

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