**Increasing demand of sublethal endpoints and their standardisation**
- Higher sensitivity than traditional endpoints

**Goals:**
- Standardised method in the lab for invertebrate behaviour
- Making non-standard studies more reliable and relevant for environmental risk assessment

**Study organism:** *Gammarus pulex*
- High abundances
- Essential ecosystem services
- Leaf shredding
- Provision of resources for other trophic levels

**Method:**
- Behavioural change analysis with the multi-species online monitoring tool ToxmateLAB
- Pulsed pollutant exposures for 90 min
- Endpoint: Total distance moved [m]
- Body sizing and sex identification as covariates for multivariate statistics
- AChE inhibition assay
  - Differentiation: mode of action vs. stress reaction

**Outlook:**
Project to continue the investigation of behavioural endpoints in the context of the multi-stressor framework focusing on
- Anthropogenic chemical pollution
- Climate change
- Biodiversity
- Native vs. invasive *Gammarus* species
- Parasite effects

**Results:**
- Concentration-response curves: The Y-axis shows the TDM in % of the respective control for each treatment. The X-axis represents the different concentrations used in the treatments. Values are based on the estimated marginal means derived from the GLM with post hoc LSD tests. The graphs show different activity patterns in response to the two different pesticides. The red dot shows the Dichlorvos treatment while Methiocarb is represented by blue squares.

**Significant but different behavioural alterations of Dichlorvos and Methiocarb**

**Enzyme**

**Organism**

**Population**

**Effects on individual behavioural traits can affect:**
- predator-prey,
- reproduction-,
- population dynamics

**Impact on ecosystem functions**

**Inhibition of AChE was not reflected in behavioural tests**

**Stress/defence reaction**

**SMALL, ENVIRONMENTALLY RELEVANT TIMEFRAMES AND CONCENTRATIONS REVEAL UNDERESTIMATED EFFECTS**

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