# Selection of environmentally toxic microbial communities by bentazone herbicide pressure 

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## Questions considered

- Which micro-organisms does the herbicide bentazone promote?
- Are these micro-organisms environmentally harmless?

Focus on aquatic environments

## Method



## Microbial identification

Next-Generation Sequencing (16S)


Selection of microbial communities
Incubation of environmental water contaminated with bentazone Collection and rinsing of microbial cells Growth in a culture broth
(Tryptone water)
Cell removal by filtration
$\downarrow$
Algal cultivation in the filtered broth
diluted in a nutrient solution for algae (1:1)

- Algal growth
in filtrates of the original broth (control) and of the broth modified by the microbial cultures (A, B, C and D).



## Discussion/Conclusion

Taxonomic signature of bentazone pressure?
Maybe: microbial signatures of pesticide contaminations have been established in soils (Walder et al., 2022).

Secretion of algicidal chemicals?
Probably: lots of bacteria, in particular strains of Pseudomonas, have been described as producers of algicidal chemicals (Coyne et al., 2022).

Level of toxicity in laboratory testing?
Often higher than the addition of $4.8 \mathrm{~g} / \mathrm{L}$ bentazone.

## What happens in nature?

References
Coyne et al. (2022). Algicidal bacteria: a review of current knowledge and applications to control harmful algal blooms. Frontiers in Microbiology.
Walder et al. (2022). Soil microbiome signatures are associated with pesticide residues in arable landscapes. Soil Biology and Biochemistry.

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