

# FunG-Eye - A functional approach to unravel the interaction between fungicide pollution and fungi-mediated ecosystem processes

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## Beneficiary entities

| University of Minho – Centre of Molecular and Environmental Biology

| CIIMAR – Interdisciplinary Centre of Marine and Environmental Research

| University of Aveiro – Centre of Marine and Environmental Sciences



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Conclusion date | 30-05-2021

Financial support | European Union 198 476.60 € (FEDER), National public funds 35 025.28 (OE)

Start date | 01-06-2018

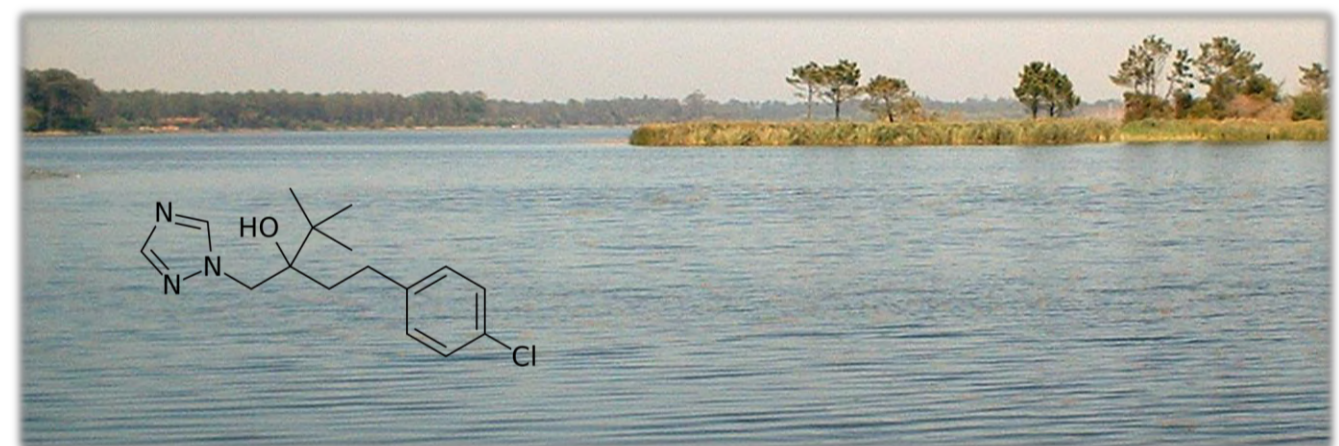
Total eligible cost | 233 501.88 €



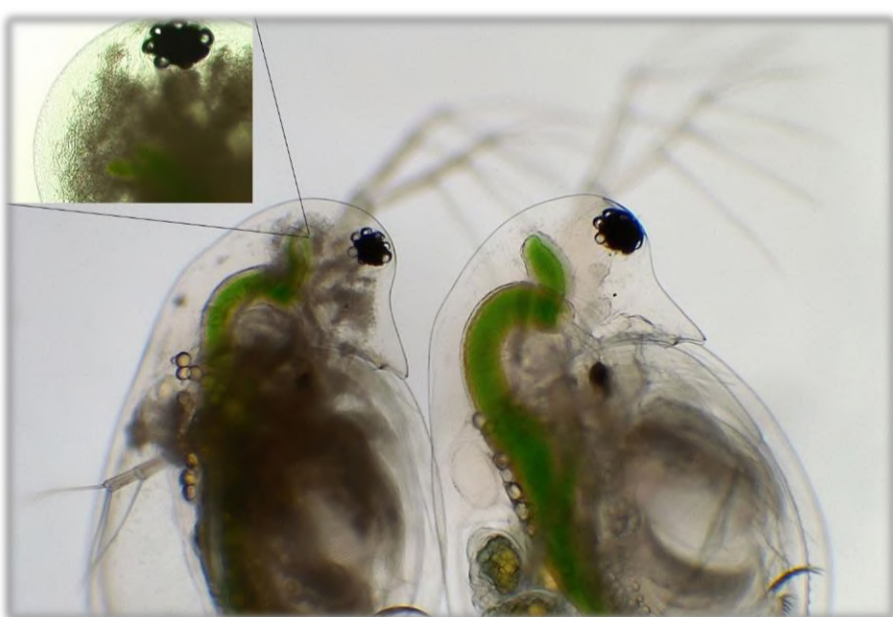
*Pesticide use in agriculture is still away from being sustainable. Project FunG-Eye looks at this environmental problem “through the eye” of fungi, which are key players in food webs and ecosystems. FunG-Eye transcends the available ecotoxicological toolbox and feeds a functional approach to the risk assessment of fungicides; simultaneously, it expands current analytical methods, which are costly and often impractical. Altogether, this project will contribute with novel knowledge and tools for managers and risk assessors, whilst informing authorities, regulators and professionals of the agri-food sector.*

**Main goals** | Using different fungi models as experimental systems, this project serves the dual purpose of:

- generating ecologically-relevant information on the overlooked impact of fungicides on non-target aquatic fungi and the processes where they intervene
- providing analytical tools for detection of fungicides using fungus-based biosensing



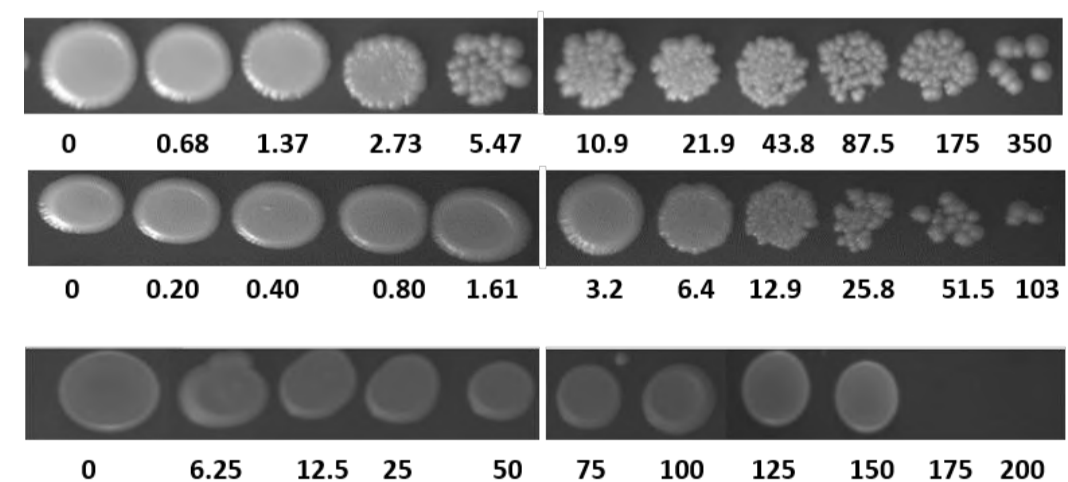
**Aquatic systems** receive fungicide residues via runoff coupled with soil erosion, especially near intensive agriculture areas



**Host-parasite model:** the microparasitic yeast *Metschnikowia bicuspidata* infects planktonic microcrustaceans (*Daphnia* spp.), which are key components of lake and pond food webs. Infected (left) and healthy (right) hosts are shown side by side. Some fungicides interfere with disease spread in aquatic ecosystems.



**Detrital food web model:** decomposer fungi (hyphomycetes) and detritivorous invertebrates (mainly insect larvae) play complementary roles in the decomposition of plant material in streams. Some fungicides can affect decomposition by impairing the community composition and activity of aquatic decomposers.



**Yeast biosensor:** phenotypic and/or translational responses of model yeast *Saccharomyces cerevisiae* to selected fungicides allow engineering strains for the detection of these pollutants in aqueous samples.

Check out the project publications:

