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Standardised and innovative ecotoxicology module

HUNGARIAN UNIVERSITY OF AGRICULTURE AND LIFE SCIENCES
Institute for Aquaculture and Environmental Safety

Project Idea	Support the measurement of **environmental safety aspects** for industrial partners by linking the for- and non-profit sectors. We provide exceptional research infrastructure in the field of ecotoxicology to **validate environmental safety and sustainability** of newly developed products or processes.
Organization name, town and country	**Hungarian University of Agriculture and Life Sciences (MATE)** Institute of Aquaculture and Environmental Safety Gödöllő HUNGARY
Addressed topic(s)	HORIZON-CL4-INDUSTRY-2025-01-TWIN-TRANSITION-36 HORIZON-CL4-2025-05-MATERIALS-51-two-stage HORIZON-CL6-2025-01-CIRCBIO-02 HORIZON-CL6-2025-01-CIRCBIO-03

NCP4 INDUSTRY

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MATE, Institute of Aquaculture and Environmental Safety

HUNGARIAN UNIVERSITY OF AGRICULTURE AND LIFE SCIENCES
Institute for Aquaculture and Environmental Safety

- **Six Departments at five Campuses** : Aquaculture, Environmental Safety, Environmental Toxicology, Freshwater Fish Ecology, Molecular Ecology, Applied Fish Biology
- **Research Centre for Fisheries and Aquaculture** (HAKI);
- Over 110 employees and PhD students;
- **Extensive educational portfolio** (BSc, MSc, and PhD) and adult learning;
- **Main research results of the Institute** (in the last 5 years): 341 publications, 2175 citations; 5 closed and 8 running international projects;
- Awarded as **Centre of Excellence of the Hungarian Academy of Sciences**;
- **Measurements of environmental safety aspects** for industrial partners.
- **Exceptional research infrastructure** in the field of ecotoxicology to validate environmental safety of newly developed products or processes.

REPURPOSE

SCAN ME

TAPAS – 678396 (H2020 - MSCA)	EATFish – 956697 (H2020 - MSCA)	iFishIENCi – 818036 (H2020 - IA)	MEASURES – DTP2-038-2.3 Interreg
AQUAEXCEL3.0 – 871108 (H2020-TNA)	AQUASERVE – 101131121 (HE-TNA)	ActFast – 101181159 (HE – IA)	LIFE Boat 4 Sturgeon LIFE-2021-SAP-NAT
WaterGreenTreat (COFUND-WATER4ALL)	REPurpose – 101057971 (HE – RIA)	BioTreatED (COFUND-WATER4ALL)	PFAQuatic - 2024-1.2.3-HU-RIZONT-2024-00100
SaveGREEN – DTP3-314-2.3 Interreg	AGRIGEP – 101094158 (HE- CSA)		

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Modular connection points

- Complex **ecotoxicological evaluation** from microbes to fish.
- Ecotoxicological methods to evaluate **complex effects** (process, products, mixes)
- Environmentally friendly solutions for **biodegradation and biodetoxification**
- **Ecotoxicological monitoring of** (waste) water quality.
- **Early warning** and **risk evaluation**
- Analysing the **toxicity of newly developed compounds and side streams** (hormonal effects, microplastics, pharmaceutical residues)
- **Molecular ecology**, **environmental microbiology, microbiome**
- Innovative, sustainable and circular **aquaculture technologies** (e.g., feeding, nutrition, fish health & welfare; reproductive biology; genetics & biotechnology)
- SSbD

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Competences

Evaluate the **toxicological effect of environmental samples and newly developed materials**, in acute or chronic schemes, with *in vitro and in vivo* OECD or ISO freshwater toxicity tests (pre-REACH):

1. ***Aliivibrio fischeri* acute (30min, ISO 11348-3:2007) and chronic toxicity**
2. **OECD 201 Algae, 72h - short-term algae**
3. **OECD 202, 211 Daphnia sp., short (48h) and long-term (21d) invertebrate**
4. **OECD 203 Zebrafish acute (96h) adult toxicity – short-term fish**
5. **OECD 210 Zebrafish Early-Life Stage (FELS)**
6. **OECD 236 Zebrafish acute embryo test**

" From microbes to fish "

- **Embryo injection** is used as a professionally applied practical method to measure direct toxicity.
- **Estrogenic effect of environmental samples** can be measured with our self-developed bioindicator zebrafish line (Tg(vtg1.mCherry).

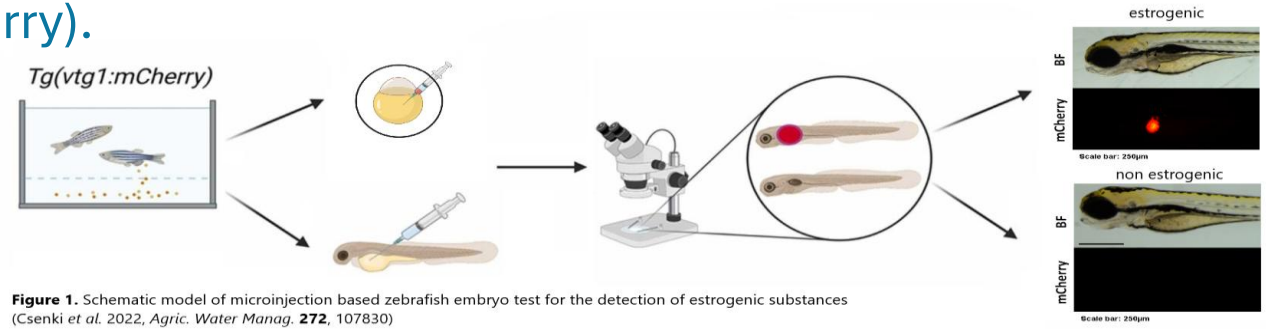

Figure 1. Schematic model of microinjection based zebrafish embryo test for the detection of estrogenic substances (Csenki *et al.* 2022, *Agric. Water Manag.* **272**, 107830)

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