

# Laboratory for Ecophysiology and Ecotoxicology (LECOTOX)

*Xenobiotics, Aquatic ecosystems, Toxicity tests, Biomarkers, Effect-based tools*

**S**tudy of adverse effects of xenobiotics, their mixtures and environmental cocktails at different levels of biological organisation by a combination of biomarkers, bioassays and toxicity tests, *in vitro*, *in vivo* and *in situ*, using various cell lines and aquatic species.

- Cellular biomarkers and mode-of-action studies of xenobiotics and their mixtures *in vitro* with human, rat and fish hepatoma cells: expression of selected genes, signalling pathways, metabolic activity, biotransformation enzymes, cytotoxicity and cell proliferation.
- Adaptive, general and specific response of aquatic organisms to chemical stress *in vivo* and *in situ*, using free living and caged fish: expression of target genes, activity of enzymes involved in oxidative stress response and biotransformation of xenobiotics, markers of neurotoxic effects, endocrine disruptive, growth and reproduction inhibitory properties of selected xenobiotics / mixtures, environmentally realistic chemical cocktails and environmental samples.
- Cause-effect studies under multi-stress condition, linking adverse biological effects observed *in vitro*, *in vivo* and *in situ* with environmentally realistic contamination profiles.



## COLLABORATIONS

- Department for Effect-Directed Analyses, UFZ-Helmholtz Centre for Environmental Research, Leipzig, Germany
- Department for Ecosystem Analyses, Institute for Environmental Research, RWTH Aachen University, Germany
- Wageningen Environmental Research (Alterra), Wageningen University and Research Centre, Netherlands

## SELECTED EQUIPMENT

- Facilities and equipment for *in situ* and *in vivo* experiments with aquatic organisms
- Facilities and equipment for *in vitro* assays using various cell lines
- Facilities and equipment for gene expression analysis (RNA isolation and quantification, cDNA synthesis, relative quantification of gene expression)

## SELECTED PROJECTS

**Title:** Solutions for present and future emerging pollutants in land and water resources management (acronym Solutions)

**Type:** European Commission Work Program 7 Collaborative Project No. 603437

**Duration:** 2013-2018

**Contact person:** Dr Ivana Teodorovic

**Title:** Endocrine disrupting compounds: reproductive, metabolic, and developmental responses and mechanism(s) of action in selected model organisms and cell lines

**Type:** National

**Duration:** 2011-ongoing

**Contact person:**

Dr Radmila Kovacevic, prof. emeritus

**Title:** Water matrix and physico-chemical properties of relevant organic xenobiotics: implications on ecotoxicity and water treatment processes

**Type:** National

**Duration:** 2011-ongoing

**Contact person:** Dr Ivana Ivancev

Tumbas, Dept. Chemistry, Biochemistry and Environmental Protection



## CONTACT PERSON

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