

BIOLOGY AND MICROBIOLOGY LABORATORY

DESCRIPTION

In our Biology and Microbiology laboratory we provide surface and groundwater analysis services in order to:

- Support water quality surveillance initiatives through standardised national and international methods, in accordance with the Water Framework Directive (WFD 2000/60/EC) and Groundwater Directive (GWD2006/118/EC).
- Monitor cyanobacteria blooms and their toxins in surface water and develop technological solutions for the elimination of cyanotoxins in water treatment.

IMDEA WATER SOLUTIONS

These techniques can have the following applications:

- Analysis of a large set of **biological indicators** coming from:
 - Surface water: reservoirs, lakes, rivers
 - Groundwater (inland and coastal aquifers)
 - Groundwater-dependent ecosystems (hyporheic river areas)
- **Identification of** cyanobacteria, cyclopoids and ostracod **specimens** in the lowest level taxonomic range.
- **Aquaculture and ecotoxicology testing** (bioassays, chronic, acute and sublethal testing) for integrated biological monitoring of water quality, as bacteriological and physicochemical test support.
- **Biodegradation of cyanotoxins** and **diversity** of bio-digesting bacterial populations using standard gene markers and metagenomic studies.
- Development of molecular tools to monitor **cyanobacterial blooms** and their toxins in surface waters.
- Developing a **technological solution** for biological control and removal of cyanotoxins in water treatment.

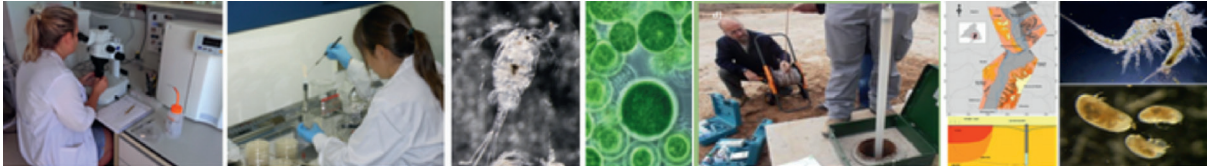
EQUIPMENT

Ecohydrology Unit: fully equipped with high quality optical microscopes, available with high-resolution photomontage systems to facilitate identifications in invertebrate aquaculture, hatcheries and aquariums.

scientific & technical offer

Cyanobacteria and cyanotoxins unit with an incubator for cyanobacteria and bacteria cultures and a Buchi rotary evaporator with cooling system for extraction of cyanotoxins, and solid phase extraction equipment for concentrating toxin extracts.

Molecular Biology Unit equipped with gel documentation system for electrophoresis; real-time PCR, AB7300, for quantitative and qualitative gene studies; nanophotometer, Época, measuring DNA concentrations in volumes as low as 2l; gel electrophoresis equipment, Biorad, for DNA and RNA electrophoresis; PCR thermocycler, to perform the PCR reaction, and DNA extraction homogenizer, Precellys, for extracting DNA from bacterial cells.



IMPLEMENTATION SECTOR

- Catchment Organizations
- Territorial Environmental Services
- Councils
- Local authorities
- Management companies

ADDITIONAL INFORMATION

<http://smarthydro.inkoa.com/index.php/es/>
<http://remtavares.com/>

TECHNOLOGY KEYWORDS

Water quality, biological indicators, cyanobacteria, cyanobacterial toxins, reservoirs

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