

Institute of Botany CAS, v. v. i.

Department of Experimental Phycology and Ecotoxicology, Brno branch

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Overview

The activity is focused on the research and development of technologies that lead to the early detection of cyanobacteria and cyanotoxins, reduction of mass development of cyanobacterial water bloom, but it also deals with the research of technologies leading to prevention, such as wastewater cleaning using algae, cyanobacteria toxins effects on other organisms, monitored by ecotoxicological bioassays, and of tissue cultures to evaluate the effects of chemicals. Tumor promoting effects and mechanisms of action of cyanotoxins and other important environmental contaminants such as estrogenic substances and pharmaceuticals are studied as well. Nanotechnology, nanomaterials and biotechnological processes are examined to find ways to remove these contaminants.

Cutting edge analytical methods are used, such as tandem mass spectrometry associated with liquid chromatography (LCMS/MS) and flow cytometry.

Organizational structure

The Department of Experimental Phycology and Ecotoxicology is a division of the Institute of Botany CAS based in Průhonice, Zámek 1

Ecotoxicology Section - Technological Section - Analytical Section - Popularization and Environmental Education Section

Selected projects and grants

MPO FR-TI3/196 - NANORADI - Advanced nanotechnologies for sanitary and toxicological safeguarding of effluents from wastewater treatment plants - (2011-2014; principal investigator ASIO Ltd., Brno-Slatina, co-investigators - **Institute of Botany CAS**; Rawat Consulting Ltd. and Palacký University Olomouc)

MPO FR-TI3/778 - BIOSTREAM - Wastewater treatment system in an integrated biotechnological system (2011-2014; principal investigator DEKONTA, Prague, co-investigators - Institute of Experimental Botany CAS, **Institute of Botany CAS** and VÚT Brno)

MŠMT LH12034 - CHEMOPREV - A new *in vitro* approach for identifying chemopreventive effects and mechanisms of phytochemicals (project in LH - KONTAKT II programme - 2012-2014; principal investigator - Department of Experimental Phycology and Ecotoxicology, Institute of Botany, CAS, co-investigator - Dpt. Of Pediatrics and Human Development, Michigan State University, East Lansing, MI, USA);

SoMoPro 2SGA2858 - A new approach for monitoring and evaluation of toxicity and risk assessment of cyanobacterial toxins - using passive samplers (2011-2013);

TAČR TA01010356 - NANAPL10 - Suitable materials for nanotechnological applications in water and air treatment - (2011-2014; principal investigator ASIO Ltd., Brno-Slatina, co-investigators Centre for Organic Chemistry Ltd., Rybitví; SPUR as Zlín; **Institute of Botany CAS** and Mendel University in Brno)

International cooperation

Michigan State University, Department of Pediatrics and Human Development, University of Michigan, Department of Biologic & Materials Sciences, University of Hyogo, Dept. of Materials Science and Chemistry, Humboldt University of Berlin, Dresden University of Technology, University of Gent etc.

Cooperation with universities

FS MU - RECETOX Research Centre for Toxic Compounds in the Environment,

UP Olomouc - RCPTM Regional Centre of Advanced Technologies and Materials

Public services

The department is involved in popularization of topics for the general public within the Science and Technology Week, Earth Day and Brno Days for Health. Department staff are open to consultation with the public, which is often used.