



CENTRE FOR CYANOBACTERIA AND THEIR TOXINS

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PROJECT TA01010356 OF THE TECHNOLOGY AGENCY OF THE CZECH REPUBLIC - NANAPL2010 - Proper materials for nanotechnological applications of air and water treatment

The aim of the project of **Technology Agency of the Czech Republic** is the testing and development of nanomaterials for wastewater and air nanofiltration. The project is going to be solved for 4 years (2011–2014).

We cooperate with:

- [ASIO Ltd.](#), Brno-Komarov
- [SPUR Inc.](#), Zlin
- [Centre for Organic Chemistry Ltd.](#), Rybitvi
- [Mendel University](#) in Brno

Institute of Botany staff solving this project:

- Prof. Blahoslav Marsalek, Ph.D.
- Premysl Mikula, Ph.D.
- Daniel Jancula, Ph.D.
- Tomas Kolacek

The aim of the project is a research in **treatment of wastewaters** contaminated by various types of pollutants (both biological and chemical) as well as in **air filtration** technologies. Nanofiltration materials used for this purpose will be enriched by nanoparticles of certain compounds (like **photocatalytically-active** titanium dioxide, silver and others). We suppose that the research of these technologies will provide useful and profitable information in the area of dump wastewater, industrial and hospital water treatment, removal of odors etc.

Our research team will be especially responsible for the assessment of effectiveness of nanofiltration in relation to the occurrence of **bacteria** and **viruses** in treated waters. The objective will be to quantify these microorganisms and assess their activity (viability) as well. For this purpose epifluorescent microscopy techniques and flow cytometry will be used.

Another task of our team is the evaluation of **ecotoxicological properties** of nanomaterials and photocatalytically-active additives. Ecological safety (i.e. no negative effects on aquatic organisms) of treated water should be ensured by the treatment process, so that the treated water could be returned to the recipient.