

Prof. dr hab. Joanna Mankiewicz-Boczek,

tel. +48 42 6817007

e-mail: j.mankiewicz@erce.unesco.lodz.pl; mankiew@biol.uni.lodz.pl

Professor in European Regional Centre for Ecohydrology of the Polish Academy of Sciences, Łódź, Poland

and in Department of Applied Ecology, Faculty of Biology and Environmental Protection, University of Lodz, Łódź, Poland

Head of Department of Molecular Ecohydrology in ERCE PAS

Education

- Prof dr hab. (Biological sciences, molecular biology and ecohydrology specialisation) Faculty of Biology and Environmental Protection, University of Lodz, 2014
- Dr hab. (ecotoxicology specialisation) Faculty of Biology and Environmental Protection, University of Lodz, 2008
- Ph.D. (molecular genetic specialisation) Faculty of Biology and Earth Science, University of Lodz, Poland, 2001
- M.Sc. (biochemical and genetic specialisation) Faculty of Biology and Earth Science, University of Lodz, Poland, 1997

Main research areas

- Water biomonitoring and ecotoxicology including genetic ecotoxicology
- Toxicity and genotoxicity of cyanobacteria and different cyanobacterial toxins - health aspects
- Interaction cyanobacteria, other bacteria and cyanophages
- Microorganisms in biodegradation process (e.g. nutrient removal)
- Biotechnology for ecology

Professional experience:

- 2018 - April 18-20, Poland, Kraków, co-organizing and participation in the Scientific Committee of the 8th National Conference of Bioindication „Practical use of bioindication systems for evaluation of toxicity of environment and chemical substances”, Chairman of the session
- 2017 - September, 26-28, Poland, Lodz, International Symposium Ecohydrology for the Circular Economy and Nature-Based Solutions towards mitigation/adaptation to Climate Change, Chairman of the session “ 4th symposium of Healthy Rivers and Sustainable Water Resource Management” - invited speaker
- 2017 - July, 4-6, Poland, Jagiellonian University, Faculty of Biochemistry, Biophysics and Biotechnology, Kraków, Poland, Int. Workshop „CyanoStop2017” - invited speaker
- 2017 - May, 30 and 1 June, Poland, Wrocław, co-organizing and participation in the Scientific Committee of the 7th National Conference of Bioindication „Practical use of bioindication systems for evaluation of toxicity of environment and chemical substances”, Chairman of the session 3 “Toxicity of chemical substances”
- 2016 - October, 23-28, China, Wuhan, 10th Int. Conf. on Toxic Cyanobacteria, Chairman of the session 7 “Secondary metabolites production and functions: biosynthesis, regulation, biological functions – Part 2”
- 2016 - April, 20-22, Poland, Szczecin, co-organizing the 6th National Conference of Bioindication „Practical use of bioindication systems for evaluation of toxicity of environment and chemical substances”
- 2015 - May, 27-29, Poland, Lublin, co-organizing the 5th National Conference of Bioindication „Practical use of bioindication systems for evaluation of toxicity of environment and chemical substances”

- 2015 - February 18-21, Seville, Spain, ECOST-MEETING-ES1105-180215-056221, CYANOCOST Combined WG-MC meetings "Key abiotic and biotic determinants of occurrence and toxicological impact of cyanobacterial blooms in a lowland dam reservoir of Sulejów, Poland" - invited speaker
- 2014 - November, 7-8, Poland, Poznań, II International Scientific Conference OXYGENALIA "Water the molecule of life", invited speaker
- 2014 - May, 28-30, Poland, Olsztyn, co-organizing the 4th Conference „Practical use of bioindication systems for evaluation of toxicity of environment and chemical substances”
- 2013 - September, 17-19, Poland, Łódź, The International Symposium "Ecohydrology, Biotechnology And Engineering: Towards Harmony Between the Biogeosphere and Society on the basis of Long-Term Ecosystem Research", invited speaker
- 2013 - April, 11-12, Poland, Łódź, co-organizing the 3rd Ecotoxicological workshop „Practical use of bioindication systems for evaluation of toxicity of environment and chemical substances”
- 2012 - April, 19-20, Poland, Konstantynów Łódzki, co-organizing the 2nd Ecotoxicological workshop „Practical use of bioindication systems for evaluation of toxicity of environment and chemical substances”
- 2012 - August, Greece, Nea Moudania, Alexander Technological Education Institute of Thessaloniki, scientific visit for the implementation of research of fish diversity
- 2011 - October, 23-24, China, Chongqing, University of Chongqing, Faculty of Urban Construction & Environmental Engineering, scientific visit for the implementation of research "Mechanisms and Early Warning Techniques of Algal Blooms in the Tributaries of the Three Gorges Reservoir, China"
- 2011 - October, 20-22, China, Chongqing, University of Chongqing, co-organizing the 2nd Conference on Healthy Rivers and Sustainable Water Resources Management
- 2010 - September, 12-22, Poland, Łódź-Tresta, co-organizing the international workshop "Ecohydrology & Biotechnology for Sustainable Integrated Water Resources Management in HELP Basins"
- 2009 - September, 14-22, Poland, Łódź-Tresta, co-organizing the international workshop "Ecohydrology & Ecosystems Biotechnologies in Water Resources Management",
- 2003 - Belgium, Liege, University of Liege, visiting scientist (PROJECT EC-EVK2-2002-00546, MIDI-CHIP-TOX- "Linking cyanobacterial diversity and cyanotoxins")
- 2003 - Finland, Helsinki, University of Helsinki, visiting scientist (PROJECT EC-EVK2-2002-00546, MIDI-CHIP-TOX- "Linking cyanobacterial diversity and cyanotoxins")
- 2002 - Belgium, Liege, University of Liege, visiting scientist (PROJECT EC-EVK2-2002-00546, MIDI-CHIP-TOX- "Linking cyanobacterial diversity and cyanotoxins")
- 2001 - Hungary, Veszprem, University of Veszprem, Course of EuroLab "Pollution Surveillance and Control in Wetland Ecosystems"
- 1999 - Ireland, Dublin, Dublin City University, Course of FEBS „Animal Cell Culture Techniques for Biochemists”
- 1999 - Norway, Bergen, Department of Anatomy and Cell Biology, University of Bergen, visiting scientist

Research projects:

Granted by the Polish State Committee for Scientific Research, the National Science Centre (NSC) or the National Research and Development Centre (NRDC)

- 2017-2020 - Development and implementation of innovative biotechnological products for agriculture and wastewater management in order to reduce water pollution, AZOSTOP, NRDC, TANGO2/339929/NCBR/2017 coordinator
- 2016-2019 - Use of artificial neural networks and methods in the field of pattern recognition for a complex catchment analysis of the impact of anthropogenic chemical

and microbiological pollution on water resources, NEURON, NSC
2015/19/B/ST10/02167

- 2016 - Development and implementation of lake reclamation and surface water protection method based on natural biological technologies employing beneficial microorganisms, GEKON, NCRD
- 2014-2017 - Ecological dynamics of cyanophages and their host in polish water bodies, UMO-2013/11/N/NZ8/00607, project supervisor
- 2013-2016 - Application of reporter cell biosensors in ecotoxicology of cyanobacteria: new targets for bioactivity, UMO-2012/07/B/NZ8/03991, coordinator
- 2013-2016 - Assessment of the interaction between hepatotoxic cyanobacterium *Microcystis aeruginosa* and pathogenic bacteria of the genus *Aeromonas*, UMO-2012/07/N/NZ8/00599, project supervisor
- 2013-2016 - Do fish adapt to cyanobacterial blooms?, UMO-2012/05/B/NZ9/00980
- 2012-2016 - Microbial activators in denitrification deposits used for the treatment of nitrate pollution for the implementation of the Water Framework Directive and the Nitrates Directive, NRDC, PBS1/A8/0/2012, sub-coordinator
- 2010-2013 - Explanation of cause-effect relationships between the occurrence of toxinogenic cyanobacterial blooms, and abiotic and biotic factors with particular emphasis on the role of viruses and bacteria, N N305 096439, coordinator
- 2009-2010 - Ecology and toxicity of cyanobacteria *Cylindrospermopsis raciborskii* and *Aphanizomenon gracile*, potential producers of cylindrospermopsin, in selected lakes of Wester Poland, N304 020437
- 2006-2009 - Phenotypic diversity and toxicity of invasive cyanobacteria occurred with *Planktothrix agardhii* (Gom.) Anagn. et Komarek blooms in hypertrophy lakes of Wielkopolska, N304 051 31/1855
- 2005-2007 - The ecotoxicological analyses of surface water; 2PO5F 056 28
- 2004-2007 - Application of molecular methods for monitoring of hepatotoxic strains of cyanobacteria in drinking and recreational water of Poland, 2PO4F 044 27, coordinator
- 2003-2006 - The risk of health estimation by cyanotoxins in drinking water using cytotoxicity and genotoxicity tests, 0546/PO5/2003/25, coordinator
- 2001-2004 - Elimination of cyanobacterial toxins during treatment process, 7T09D 01321
- 2000-2001- Estimation of toxicity of microcystins produced by cyanobacterial, coordinator

Other

- Polish Aid Programme for the year 2010 (944/2010), 2011 (23/2011) and 2012 (64/2012)
"Implementation of Ecohydrology - a transdisciplinary science - for integrated water management and sustainable development in Ethiopia"

Project supported by the European Union

- 2012-2016 ESSEM COST Action ES1105 Cyanobacterial blooms and toxins in water resources: Occurrence, impacts and management (CYANOCOST), MC Substitute
- 2007-2009 NanoInteract– Development of a platform and toolkit for understanding interaction between nanoparticles and the living world, Project EC - No 033231
- 2006-2011 SWITCH - Sustainable Water Management Improves Tomorrow's Cities' Health Project EC – 018530-2
- 2002-2005 - PROJECT EC-EVK1-2001-00182, TOXIC - "Barriers against cyanotoxins in drinking water"
- 2003-2005 - SOCRATES/ERASMUS „Master of Inland Water Quality Assessment” (29369-IC-1-2002-1-SE-ERASMUS-PROGUC-1)
- 2002-2003 - PROJECT EC-EVK2-2002-00546, MIDI-CHIP-TOX - "Linking cyanobacterial diversity and cyanotoxins"

Publications

Co-author of **more than 80 publications**

Co-author of **more than 140 presentations at conferences** (including more than 90 international conferences)

Co-author of **several expertise** related to the assessment of **the quality of surface and drinking water**

Selected publications

- Mantzouki E. et al. **2018**. Temperature effects explain continental scale distribution of cyanobacterial toxins. *Toxins* 10, 156; doi:10.3390/toxins10040156.
- Rzymiski P., Poniedziałek B., **Mankiewicz-Boczek J.**, Faassen E.J., Jurczak T., Gągała-Borowska I., Ballot A., Lürling M., Kokociński M. **2017**. Polyphasic toxicological screening of *Cylindrospermopsis raciborskii* and *Aphanizomenon gracile* isolated in Poland. *Algal Research* 24: 72-80.
- **Mankiewicz-Boczek J.**, Bednarek A., Gągała-Borowska I., Serwecińska L., Zaborowski A., Kolate E., Pawełczyk J., Żaczek A., Dziadek J., Zalewski M. **2017**. The removal of nitrogen compounds from farming wastewater – The effect of different carbon substrates and different microbial activators. *Ecological Engineering* 105: 341-354.
- **Mankiewicz-Boczek J.**, Jaskulska A., Gągała I., Pawełczyk J., Serwecińska L., Dziadek J. **2016**. Cyanophages infection of *Microcystis* bloom in lowland dam reservoir of Sulejów, Poland. *Microbial Ecology*, 71(2): 315-325.
- **Mankiewicz-Boczek J.**, Gągała I., Jurczak T., Jaskulska A., Pawełczyk J., Dziadek J. **2015**. Bacteria homologous to *Aeromonas* capable of microcystin degradation. *Open Life Sciences* 10: 106–116.
- **Mankiewicz-Boczek J.**, Karwacia I., Ratajewski M., Gągała I., Jurczak T., Zalewski M., Pułaski Ł. **2015**. Application of cellular biosensors for detection of atypical toxic bioactivity in microcystin-containing cyanobacterial extracts. *Aquatic Toxicology* 168: 1-10.
- Szklarek S., Stolarska M., Wagner I., **Mankiewicz-Boczek J.** **2015**. The microbiotest battery as an important component in the assessment of snowmelt toxicity in urban watercourses – preliminary studies. *Environmental Monitoring and Assessment* 187: 16.
- **Mankiewicz-Boczek J.**, Gągała I., Jurczak T., Urbaniak M., Negussie Y., Zalewski M. **2014**. Incidence of microcystin-producing cyanobacteria in Lake Tana, the largest waterbody in Ethiopia. *African Journal of Ecology*. 53: 54-63.
- Gągała I., Izydorczyk K., Jurczak T., Pawełczyk J., Dziadek J., Wojtal-Frankiewicz A., Józwiak A., Jaskulska A., **Mankiewicz-Boczek J.** **2013**. Role of Environmental Factors and Toxic Genotypes in The Regulation of Microcystins-Producing Cyanobacterial Blooms. *Microbial. Ecol.* 67(2): 465-479.
- **Mankiewicz-Boczek J.**, Imsiridou A., Kaczkowski K., Tsiora A., Karaiskova N., Łapińska M., Minos G., Zalewski M. **2013**. Genetic diversity of perch populations in three lowland reservoirs (Central Poland): perspective for fish sustainable management. *Pol. J. Ecol.* 61(2): 385-390.
- **Mankiewicz-Boczek J.** **2012**. Application of molecular tools in Ecohydrology. *Ecohydrol. Hydrol.* 12(2): 165-170.
- **Mankiewicz-Boczek J.**, Kobos J., Gągała J., Izydorczyk K., Toruńska A. POLAND: Management and Regulation of Toxic Cyanobacteria. In: Chorus I. [ed.] Current approaches to Cyanotoxin risk assessment, risk management and regulations in different countries. Federal Environmental Agency, Germany, **2012**, TEXTE 63, pp. 109-114.
- **Mankiewicz-Boczek J.**, Kokociński M., Gągała I., Pawełczyk J., Jurczak T., Dziadek J. **2012**. Preliminary Molecular Identification of *Cylindrospermopsis*-producing Cyanobacteria in Two Polish Lakes (Central Europe). *FEMS Microbiology Letters* 326: 173-179.
- Gągała I., **Mankiewicz-Boczek J.** **2012**. The Natural Degradation of Microcystins (Cyanobacterial Hepatotoxins) in Freshwaters - Future for the Modern Treatment Systems and Water Quality Improvement. *Pol. J. Environ. Stud.* 21(5): 1125-1139.
- **Mankiewicz-Boczek J.**, Palus J., Gągała I., Izydorczyk K., Jurczak T., Dziubałtowska E., Stępnik M., Arkusz J., Komorowska M., Skowron A., Zalewski M. **2011**. Effects of microcystins-containing cyanobacteria from a temperate ecosystem on human lymphocytes culture and their potential for adverse human health effects. *Harmful Algae*, 10: 356-365.

- **Mankiewicz-Boczek J.**, Gagała I., Kokociński M., Jurczak T., Stefaniak K. **2011**. Perennial toxigenic *Planktothrix agardhii* bloom in selected lakes of Western Poland. *Environmental Toxicology* 26(1): 10–20.
- Kokociński M., Stefaniak K., **Mankiewicz-Boczek J.**, Izydorczyk K., Soininen J. **2010**. The ecology of invasive cyanobacterium *Cylindrospermopsis raciborskii* (Nostocales, Cyanophyta) in two hypereutrophic lakes dominated by *Planktothrix agardhii* (Oscillatoriales, Cyanophyta). *European Journal of Phycology* 45(4): 365-374.
- Wagner I, Izydorczyk K, Kiedrzyńska E, **Mankiewicz-Boczek J.**, Jurczak T, Bednarek A., Wojtal-Frankiewicz A., Frankiewicz P., Ratajski S., Kaczkowski Z., Zalewski M. **2009**. Ecohydrological system solutions to enhance ecosystem services: the Pilica River Demonstration Project. *Ecohydrology & Hydrobiology* 9(1): 13-39.
- Kokociński M., Dziga D., Spoof L., Stefaniak K., Jurczak T., **Mankiewicz Boczek J.**, Meriluoto J. **2009**. First report of the cyanobacterial toxin cylindrospermopsin in shallow, eutrophic lakes in western Poland. *Chemosphere* 74: 669-675.
- Izydorczyk K., Jurczak T., Wojtal-Frankiewicz A., Skowron A., **Mankiewicz-Boczek J.**, Tarczyńska M. **2008**. Influence of abiotic and biotic factors on microcystin content in *Microcystis aeruginosa* cells in a eutrophic temperate reservoir. *Journal of Plankton Research* 30(4):393-400.
- Boutte C., **Mankiewicz-Boczek J.**, Komarkova J., Grubisic S., Izydorczyk K., Wautelet F., Jurczak T., Zalewski M., Wilmotte A. **2008**. Diversity of planktonic cyanobacteria and microcystin occurrence in Polish water bodies investigated using a polyphasic approach. *Applied and Environmental Microbiology* 51: 223-236.
- Schmidt W., Bornmann K., Imhof L., **Mankiewicz J.**, Izydorczyk K. **2008**. Assessing drinking water treatment systems for safety against cyanotoxins breakthrough using maximum tolerable values. *Environ Toxicol.* 23: 337-345.
- **Mankiewicz-Boczek J.**, Izydorczyk K., Romanowska-Duda Z., Jurczak T., Stefaniak K., Kokociński M. **2006**. Detection and monitoring toxigenicity of cyanobacteria by application of molecular methods. *Environmental Toxicology* 21: 380-387.
- Rantala A., Rajaniemi-Wacklin P., Lyra C., Lepisto L., Rintala J., **Mankiewicz-Boczek J.**, Sivonen K. **2006**. Detection of microcystin-producing cyanobacteria in Finnish lakes with genus-specific microcystin synthetase gene E (*mycE*) PCR and associations with environmental factor. *Applied and Environmental Microbiology* 72(9): 6101-6110.
- **Mankiewicz-Boczek J.**, Urbaniak M., Romanowska-Duda Z., Izydorczyk K. **2006**. Toxic *Cyanobacteria* strains in lowland dam reservoir (Sulejow Res., Central Poland): amplification of *mcy* genes for detection and identification. *Polish Journal of Ecology*, 54(2): 171-180.
- Znachor P., Jurczak T., Komarkowa J., Jezberova J., **Mankiewicz J.**, Kastovska K., Zapomelova E. **2006**. Summer changes of cyanobacterial blooms and microcystins concentration in eutrophic Czech reservoirs. *Environmental Toxicology* 21: 236-243.
- **Mankiewicz J.**, Komarkova J., Izydorczyk K., Jurczak T., † Tarczyńska M., Zalewski M. **2005**. Hepatotoxic cyanobacterial blooms in lakes of North Poland. *Environmental Toxicology* 20: 499-506.
- **Mankiewicz J.**, Jurczak T., Izydorczyk K., Zalewski M. Regulation on Cyanotoxins in Legislation. In: Chorus I. [ed.] Current approaches to cyanotoxins risk assessment, risk management and regulations in different countries. Federal Environmental Agency, Berlin, **2005**, WaBoLu 02, pp. 99-102.
- Jurczak T., Tarczyńska M. †, Izydorczyk K., **Mankiewicz J.**, Zalewski M., Meriluoto J. **2005**. Elimination of microcystins by water treatment processes - examples from Sulejow Reservoir, Poland. *Water Research* 39: 2395-2406.
- **Mankiewicz J.**, Tarczyńska M., Walter Z., Zalewski M. **2003**. Natural Toxins from Cyanobacteria (Blue-Green Algae) *Acta Biologica Cracoviensia* 45/2: 9-20.
- **Mankiewicz J.**, Tarczyńska M., Jurczak T., Wojtysiak-Staniaszczyk M., Zalewski M. **2003**. Test with luminescent bacteria for the toxicity assessment of cyanobacterial bloom samples. *FEB* 12(8): 861-864.
- **Mankiewicz J.**, Walter Z., Tarczyńska M., Palyvoda O., Wojtysiak-Staniaszczyk M., Zalewski M. **2002**. Genotoxicity of cyanobacterial extracts with microcystins from Polish Water Reservoirs as determined by the SOS Chromotest and comet assay. *Environmental Toxicology* 17(4): 341-350.

- **Mankiewicz J.**, Walter Z., Tarczyńska M., Fladmark K.E., Doskeland S.O., Zalewski M. **2001**. Apoptotic effect of cyanobacterial extract on rat hepatocytes and human lymphocytes. *Environmental Toxicology* 3(16), 225-233.

Organisational memberships and other activity

- Biotechnology Research Committee of the Polish Academy of Sciences
- Commission on Ethics, The Lodz Branch of the Polish Academy of Sciences
- Science for Environmental Policy - Advisory Group for newsletter
http://ec.europa.eu/environment/integration/research/newsalert/advisory_group.htm
- Reviewer (Review Editor) at *Frontiers Aquatic Microbiology* - *Frontiers in Marine Science* and *Frontiers in Microbiology*