

## **SIMI SCIENTIFIC COMMITTEE**

*Section: Pollution Assessment and Management Systems*

**SR Biochim. LUCACIU Irina Eugenia**  
**INCD-ECOIND**  
**Pollution Control Department**  
**Bioassays-Biological Analysis Laboratory**



### **SHORT PROFESSIONAL INFO**

Irina Lucaciu is currently senior researcher within INCD-ECOIND, with great expertise and experience in eco-toxicological studies (establishment of biodegradability level for organic substances/products and waste waters and evaluation of the lethal toxicity concentrations and /or maximum allowable values in water for chemicals / pollutants). She has also more than 20 years experience in fundamental and applicative research studies on: waste water/potable water/ aquatic emissary quality monitoring and control; hydro-biological and microbiological characterization and industrial pollution impact on the biotic and non-biotic components of the Romanian rivers ecosystems; integrated ecological risk assessment and predicting aquatic ecosystem quality using biological / toxicological methods; analytical control and diagnosis analysis on technological flow of WWTP / DWTP; environmental diagnosis analysis.

*Manager/Responsible of national research projects* developed within different programmes of Romanian Research Plan in the field of environment control and protection (ORIZONT 2000, PNCD(I) – INFRAS, CALIST, MENER, RELANSIN (2003-2006), CEEEX-INFRAS (2005-2007); PNCDI (II)– INOVATION, CAPACITIES, PARTNERSHIP IN PRIORITY FIELDS (2007-2009); PNCDI (III)–CERC-CO-PED-2016 (2017-2018); CORE Program (2004-2017).

*Manager/expert of European research projects* in the field of environmental control and protection: PHARE Program Europe Aid/114921/D/SV/RO, RO 0107.04.03- "Environment Statistics Survey"(2004); PHARE Project RO 2002/IB/EN/01- "Twinning in the field of chemicals to improve the legal framework and to improve the enforcement"(2002-2005); Senter International Project in Romania PPA02/RM/9/2 – "The implementation of EU legislation for dangerous substances and preparations, along with the legislation for Good Laboratory Practice"(2003-2004); PHARE Project RO 2002/IB/EN/01 - framework Leonardo da Vinci RO/02/B/F/PP-141004– "Training Module for environmental pollution control"(2003-2005); EU Framework Program COST–Action 624"Optimal management of wastewater systems"(1999-2003) and Action 636-"Xenobiotics in the urban water cycle"(2005-2009); Balkan Environmental Association Program: "The role of biotic components in cycling and recycling process of nutrients (N, P) in lentic aquatic ecosystems from Danube Delta"; "Methods for determining the ecotoxicity (according to Directive 67/548/EEC) in order to implement European legislation for hazardous substances and Principles of Good Laboratory Practice"; "Spatial and temporal dynamics of biotic components – phytoplankton, zooplankton, benthic macro invertebrates in Danube Delta aquatic ecosystems"(2003-2008); EEA FINANCIAL MECHANISM - EEA GRANTS Project RO-0016: "Monitoring system of the quality of water intended for human consumption produced and distributed by a Romanian company" (2009-2011); Project POSM/6/AT/I.1 - Sludge strategy in Romania: characterization of sludge from urban WWTPs S.C. MOTT MACDONALD LTD CROYDON S.A. U.K. (2010-2011); SECTORAL OPERATIONAL PROGRAMME INCREASE OF ECONOMIC COMPETITIVENESS; PRIORITY AXIS 2– RD&I: Operation 2.2.1 – Project 115/2600-INFRAECO (2009-2012); Project 1881/48693- MEDIND (2014-2015).

Providing technical assistance and consultancy for microbiological / biological/toxicological laboratories organizing and endowment; QA/QC trainer for quality management system ISO/CEI 17025:2005 design and implementation in the environmental laboratories and auditor for Management Quality System implementation.

## ***ACTUAL POSITION***

- Senior Researcher – Bioassays-Biological Laboratory; Pollution Control Department
- Head of Bioassays and Biological Analysis Laboratory (1991-2016)
- Responsible for the eco-toxicological tests development / implementation to assess environmental risk of chemicals
- Member of several international and national scientific bodies (Romanian Society for Bioengineering and Biotechnology- SRBB); International Water Association- IWA); Balkan Environmental Association- B.EN.A)

## ***ACADEMIC QUALIFICATION***

**1982** – BSc in Biochemistry, Faculty of Biology, University of Bucharest, Romania.

**1984** – Post-university qualification in biochemistry /enzymology (methods for the immobilization of enzymes and utilization of enzymes in amperometric electrochemical biosensors development), Romanian Academy - Biological Research Institute (ICEBIOL), Bucharest, Romania

**2005-2007** – Manager of aquatic toxicity studies (with fish) performed in accordance with OECD principles of GLP;

**2008** – Specialization in assessment of professional competence in the field of environment: Professional Competence Assessor (Certificate no.0219949/26.09.2008)

## ***RESEARCH INTEREST***

Development of the new and modern testing strategies for risk assessments performing; evaluation, interpretation and communication of ecological risk associated with chemical and physical stressors including problem formulation, exposure and effects assessment, risk characterization, uncertainty analysis, and risk management; Whole effluent toxicity testing; Battery of bioassays to test effects of chemicals/environmental samples on ecosystem health and to predict the aquatic/sediment/terrestrial ecotoxicity.

Ecological studies to measure the potential impacts of human activities, such as mining, wastewater discharges, non-point source effects, urban development, and many other activities that affect or potentially affect a water body.

Biomarkers to study changes in cellular or biochemical components, structures or functions, caused by xenobiotics and the interactions of organisms with their environment.

Development of biosensors for the detection pollutants in the environment.

## ***SCIENTIFIC PUBLICATIONS / AWARDS***

1. I.Lucaciu, E.Leonte-Pena, M.Nicolau, G.Rusu, *Ecotoxicity methods applied for chemicals control in order to establish their compliance with the environment* – JEPE (Journal of Environmental Protection and Ecology) Vol. 7, No.1, pp 93-98 (**2006**)
2. M.Nicolau, Lucaciu I., Bumbac C., Gheorghe S., *Consideration concerning the relation structure – ecotoxicity and biodegradability in the series  $\alpha,\beta$  unsaturated acids and their derivatives* – JEPE (Journal of Environmental Protection and Ecology), Vol. 10 (no 2), pp 365-370 (**2009**)
3. St. Gheorghe, I. Lucaciu, E. Stanescu, C. Stoica, *Romanian aquatic toxicity testing strategy under REACH* – JEPE (Journal of Environmental Protection and Ecology), vol.14, no.2, p. 601-611 (**2013**)
4. St. Gheorghe, A. Catranguiu, I. Lucaciu, O. Tiron, C. Cosma, C. Stoica, L. Dinu, *Water Microbial Quality During Drinking Water Treatment Technology and Distribution Provided by Two Romanian Companies*, Water Science and technology: Water Supply, Vol.15(1), 66-74 (**2015**)
5. S. Gheorghe, C. Stoica, I. Paun, I. Lucaciu, M. Nita-Lazar, S. Cristofor, *Ecotoxicological tests used as warning system for Danube Delta quality assessment*, Journal of Environmental Protection and Ecology, 17(1): 171-181, (**2016**)
6. Gheorghe S., Petre J., Lucaciu I., Stoica C. and Nita-Lazar M, *Risk screening of pharmaceutical compounds in Romanian aquatic environment*. Environment Monitoring and Assessment, **188**, 379-394, (**2016**)