

Program	Program NUCLEU PN 09-13 01 01
Project title (ENG):	Assessment of adverse effects of some pharmaceuticals products on aquatic organisms and ecological risk characterization, in accordance with international regulations
Project title (RO):	Evaluarea efectelor adverse generate de unele produse farmaceutice asupra organismelor acvatice si caracterizarea riscului ecologic, in conformitate cu reglementarile internationale in vigoare
Duration	2009-2014
Team Leader	Stefania Gheorghe
Summary (short description) ENG	<p>The project proposed the assessment of adverse effects of some pharmaceuticals products on aquatic organisms and ecological risk characterization, in accordance with international regulations in force. In this regard, based on the existing information of the scientific literature and laboratory experiments that aim, in particular, aquatic bioassays of acute and chronic toxicity on fish, algae, crustaceans and bacteria were established the ecotoxicological criteria. Moreover, the environmental risk induced by the active substances was quantified.</p> <p>The acute toxicity bioassays led to the acute lethal concentration establishment (LC50 - if bioassays were conducted on fish), acute mean inhibitory concentration (CE50- if bioassays were conducted on bacteria) and immobilization (CE50 - if bioassays were performed on crustaceans and algae). Also, chronic toxicity bioassay led to the maximum permissible concentration setting in water - MATC (fish and shellfish) and chronic no observed effect concentration values - NOEC.</p>
Summary (short description) RO	<p>Proiectul prezinta evaluarea efectelor adverse generate de unele produse farmaceutice asupra organismelor acvatice si caracterizarea riscului ecologic, in conformitate cu reglementarile internationale in vigoare. Pentru aceasta, pe baza informatiilor existente in literatura stiintifica si prin experimente de laborator ce vizeaza in mod deosebit bioteste de toxicitate acvatice acuta si cronica pe pesti, alge, crustacee si bacterii, s-au stabilit criteriile de evaluare ecotoxicologica si s-a estimat riscul ecologic indus de substantele active studiate asupra sistemului acvatic. Biotestele de toxicitate acuta efectuate cu organisme acvatice au condus la stabilirea valorilor de concentratie letala acuta (CL₅₀ – in cazul biotestelor efectuate pe pesti), concentratiilor medii acute inhibitoare (CE₅₀- in cazul biotestelor efectuate pe bacterii) si imobilizatoare (CE₅₀ - in cazul biotestelor efectuate pe crustacee si alge). De asemenea, biotestele de toxicitate cronica au condus la stabilirea valorilor de concentratie maxime admisibile in apa – MATC (pesti si crustacee) si la valorile concentratiilor cronice fara efecte observabile – NOEC.</p>
Dissemination of results	
Full-paper ISI	<p>S. Gheorghe, I. Lucaciu, I. Paun, C. Stoica, E. Stanescu, <i>Environmental exposure and effects of some micropollutants found in Romanian surface waters</i>, Journal of Environmental Protection and Ecology, 15(3):878-889, 2014.</p> <p>S. Gheorghe, J. Petre, I. Lucaciu, C. Stoica, M. Nita-Lazar, <i>Risk screening of pharmaceutical compounds in Romanian aquatic environment</i>, Environmental Monitoring and Assessment 188 (6):379-394, 2016.</p>

Conferences (platform, poster, abstract / full-paper	<p>Irina Lucaciu, Stefania Gheorghe, Rozalia Grumaz, Environmental risk assessment methodologies to establish the ecotoxicological effects of pharmaceutically active substances on aquatic organism, Estfalia, Bucuresti, 2009, ISBN 978-973-7681-65-2.</p>
	<p>Gheorghe Stefania, Irina Lucaciu, Jana Petre, Rozalia Grumaz, Ecotoxicological effects of pharmaceutically analgesic substances on aquatic organisms, Politehnica Timisoara, 2010, ISBN 978-606-554-210-5; ISBN606-554-211-2.</p>
	<p>Irina Lucaciu, Stefania Gheorghe, Jana Petre, Vasile Ion Iancu, Iuliana Paun, Margareta Nicolau, Occurrence and ecotoxicological effects of residual pharmaceuticals on aquatic environment, Jaroslav Černi Institute for the Development of Water Resources, 2013, ISBN 978-86-82565-39-0, Unesco Symposium-Cum-Experst Meeting on Emerging Pollutants in Water, 9-11 iulie 2013, Belgrad, Serbia, PREZENTARE ORALA.</p>
	<p>Stefania Gheorghe, Irina Lucaciu, Iuliana Paun, Catalina Stoica, Elena Stanescu, Environmental exposure and effects of some micropollutants found in the Romanian surface waters, Scientific Bulgarian Communication, 2014, ISSN 1311-5065.</p>
	<p>Irina Lucaciu, Stefania Gheorghe, Rozalia Grumaz, Environmental risk assessment methodologies to establish the ecotoxicological effects of pharmaceutically active substances on aquatic organism, Interntional Symposium – SIMI 28-30 octombrie 2009, The Environment and Industry, Bucuresti, POSTER.</p>
	<p>Gheorghe Stefania, Irina Lucaciu, Jana Petre, Rozalia Grumaz, Ecotoxicological effects of pharmaceutically analgesic substances on aquatic organisms, WORKSHOP International B.EN.A.“ GLOREP 2010”, 26-28.11.2010, Timisoara, PREZENTARE ORALA.</p>
	<p>Irina Lucaciu, Gheorghe Stefania, Jana Petre, Iancu Vasile, Paun Iuliana, Are the active pharmaceutical ingredients harmful for aquatic ecosystems?, International Symposium – SIMI 16-18 noiembrie 2011, The Environment and Industry, Bucuresti, POSTER.</p>
	<p>Gheorghe Stefania, Irina Lucaciu, Rozalia Grumaz, Microbiotests versus conventional toxicity tests, Conferinta Internationala SGEM 2010, 21-26.06.2010 Albena, Bulgaria, PREZENTARE ORALA, Volume II, pp. 669-677, (IDS no. BUA32, ISI Web of Science database), ISBN 10:954-91818-1-2, ISBN 13: 978-954-91818-1-4.</p>