

Program	Program NUCLEU PN 09- 13 03 11
Project title (ENG):	Flexible biotechnological solutions for wastewater treatment - sequential bioreactors for advanced treatment in aerobic / anoxic wastewater with complex organic contaminants
Project title (RO):	Solutii biotehnologice flexibile pentru epurarea apelor uzate - bioreactoare secventiale pentru tratare avansata in procese aerob/anoxice a apelor uzate cu impurificare organica complexa
Duration	2009-2011
Team Leader	dipl.eng. Dinu Laurentiu
Summary (short description) ENG	<p>Analysis of the potential and conditions for the application of sequencing batch reactors.</p> <p>Adaptive SBR model to different experimental conditions, operated in anoxic and oxic sequencing phases.</p> <p>Sequential batch biological treatment for wastewater with high organic loading and compounds that require successive steps with different redox conditions.</p> <p>Study of the biodynamic of the microorganisms involved in the treatment process.</p> <p>Algorithms to control the treatment process on sequential bioreactors.</p> <p>Technological solutions for the treatment of wastewater containing groups of substances with xenobiotic & toxic character, e.g. effluents with high organic phenolic load, based on sequential batch bioreactors.</p> <p>Biological wastewater treatment technology in SBR system for wastewater high organic load and with toxic compounds that require successive steps of oxidation and reduction (compounds with nitrogen).</p> <p>The proposed technology is exploiting the SBR flexibility. The operating strategy has a certain intricacy and can be implemented for the degradation of refractory or toxic organic compounds.</p>
Summary (short description) RO	<p>Analiza potentialului si conditiilor de aplicare a bioreactoarelor secventiale, corelare intre eficienta, parametrii de operare si parametrii constructivi ai SBR.</p> <p>Model experimental adaptabil pentru diferite conditii de incercare- instalatie de bioreactoare pe care se pot conduce procese de epurare biologica cu biomasa suspendata sau atasata in faze aerobe/anoxice.</p> <p>Epurare biologica in sistem secvential pentru ape uzate de mare incarcare organica si cu compusi care necesita trepte succesive de oxidare si reducere</p> <p>Studiul biodinamicii microorganismelor implicate in procesul de epurare.</p> <p>Testarea unor algoritmi pentru controlul procesului de epurare pe bioreactoare secventiale.</p> <p>Solutii tehnologice pentru epurarea unor grupe de ape uzate cu continut de xenobiotice cu caracter toxic –fenoli si ape uzate de mare incarcare organica si cu compusi care necesita trepte succesive de oxidare si reducere (compusi cu azot) bazate pe bioreactoarele discontinue secventiale.</p>
Dissemination of results	
Conferences (platform, poster, abstract / full-paper)	<p>C. Bumbac, R. L. Dinu, A. Popescu, E. Pena-Leonte, <i>Phenol rich wastewater treatment using an aerobic granular sludge SBR</i>, ARA Scientific and Technical Conference Development of the water supply and sewerage systems in the rural communities, 15th-16th June 2010, Bucharest</p> <p>L.Dinu, C. Bumbac, E. Pena-Leonte, A. Popescu, <i>Automation algorithm and installation for sequential processes for the treatment of toxic wastewater with high organic content</i>, SIMI 2011 - International Symposium „Environment and Industry”, 16-18.11, 2011, Bucharest</p>