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| **Program** | **NUCLEU PN 09-13 03 20** |
| **Project title** (ENG): | **Aerobic granular sludge biotechnological solutions for wastewater treatment** |
| **Project title** (RO): | **Solutii biotehnologice cu namol activ aerob granular pentru epurarea apelor uzate** |
| **Duration** | Ian.2015-dec.2015 |
| **Team Leader** | Costel Bumbac |
| **Summary** (short description) ENG | Characterization methodology of the aerobic granules microorganisms<br>Applicability: Wastewater treatment plants<br>Overview: microbial aerobic granules play an important role in recent research to develop biological treatment systems for waste water treatment due to their advantages compared with suspended sludge conventional system, such as: a global structure stronger and denser, better sedimentation and separation capacity, the possibility of operating with higher concentrations of biomass and a greater ability to withstand shock loads or potentially toxic substrates. Experiments based on modern methods of physico-chemical, microbiological, morphological and physiological characterization led to a better understanding of aerobic granular system and thus identifying opportunities for process monitoring, control and optimization. |
| **Summary** (short description) RO | Metodologie de caracterizare microbiologica a granulelor aerobe<br>Domeniu de aplicabilitate: Statii de epurare a apelor uzate (in special ape uzate industriale cu incarcari organice ridicate)<br>Prezentare generală: Granulele microbiene aerobe ocupa un rol important in cercetarile recente pentru dezvoltarea sistemelor de epurare biologica a apelor uzate, datorita avantajelor acestora comparativ cu sistemul de namol conventional in flocoane, cum ar fi o structura globala mai puternica si mai densa, capacitate mai buna de sedimentare si separare, posibilitatea operarii cu concentratii mai mari de biomasa, precum si o capacitate mai mare de a rezista la incarcari soc sau potential toxice. Experimentele realizate, bazate pe metode moderne de caracterizare fizico-chimica, microbiologica si morfo-fiziologica au condus la o intelegere mai buna a sistemului granular aerob si implicit la identificarea posibilitatilor de monitorizare si control a proceselor de epurare biologica a apelor uzate. |
| **Dissemination of results** | |
| Conferences (platform, poster, abstract / full-paper) | Ionescu Ioana Alexandra, Bumbac Costel, Cornea Petruta, *Aerobic granular sludge in a sequencing batch reactor*, European Biotechnology Congress 2015, Bucuresti ; European Biotechnology Letters, Supplement S, |
| | Bumbac Costel, Ionescu Ioana Alexandra, Tiron Olga, Badescu Valeriu, *Continuous flow aerobic granular sludge reactor for dairy wastewater treatment*, Simpozionul international Mediu si Industria 2015 |
| | Bumbac, C.; Ionescu, I. A.; Tiron, O.; et al.; *A comparative analysis of phenol inhibitory effect on activated sludge: conventional versus granular*; Conference: 15th International Multidisciplinary Scientific Geoconference (SGEM) Location: Albena, BULGARIA Date: JUN 18-24, 2015; VOL II Book Series: International Multidisciplinary Scientific GeoConference-SGEM Pages: 3-10 Published: 2015. |
| | Bumbac Costel, Tiron Olga, Ionescu Ioana, Patroescu Ion Viorel, Badescu Valeriu, *Evaluation of different feeding strategies and reaction conditions for phenol degradation in aerobic granular sludge SBR*.; 7th Eastern Europe IWA YWP Conference, Belgrade, Serbia, 2015 |