Program	**Program Nucleu, PN 18 05 03 01**
Project title (ENG):	**Innovative solutions for water quality conservation and protection using conventional and nonconventional processes - SINOVAP**
Project title (RO):	**Solutii inovative pentru conservarea si protectia calitatii apei prin procedee conventionale si neconventionale - SINOVAP**
Duration	2018
Team Leader	PhD Eng. Senior Researcher 1nd degree Gheorghe Batrinescu
Summary ENG (short description)	The project (SINOVAP) approached water resources management domain from the perspective of the following **general objective: identification, development and experimentation of innovative technological solutions aimed to contribute to water conservation and protection.** Both aspects related to drinking water production from ground sources and aspects related to advanced treatment of industrial and municipal wastewater were considered in order to conserve / protect the quality of receiving water bodies. Project's general objective was realised through the following specific objectives (targets proposed to be achieved through project's implementation): ➢ *SO.1 – Removal of halogenated compounds (trichloroethylene) from ground water sources intended to be used for drinking water production via sonolysis associated with biological processes;* ➢ *OS.2 – Setting up the influence and effects induced by Fe^{2+}/Fe^{3+} and Mn^{2+} ions presence upon nitrification process of ground sources intended to be used for drinking water production;* ➢ *SO.3 – Reduction of ground water sources pollution potential through combined enzymatic-membrane processes;* ➢ *SO.4 – Emerging micro pollutants degradation from municipal wastewater through advanced oxidation processes;* ➢ *OS.5 – Elaboration of a new method for identification and dosage of emerging micro pollutants from municipal wastewater via solid phase extraction (SPE) and derivatization coupled with GC/MS.* ➢ *SO.6 – Treatment of wastewater generated by fermentative industry via hybrid processes (conventional – nonconventional).* The project proposed results for 2018 were as follows: 5 conceptual models for water treatment aiming to conserve and protect water quality; 5 experimental models for water treatment technologies based on combined conventional – nonconventional processes; 1 new method for identification and dosage of emerging micro pollutants from municipal wastewater; 12 scientific papers from which 6 articles submitted for publication / published within ISI journal and 6 papers presented within international scientific events.
Summary RO (short description)	Proiectul (SINOVAP) abordeaza problematica legata de managementul resurselor de apa din perspectiva urmatorului **obiectiv general: identificarea, elaborarea si experimentarea de solutii tehnologice inovative care au menirea de a contribui la**

	conservarea si protectia calitatii apei. Sunt luate in studiu atat aspectele legate de obtinerea apei potabile din surse subterane prin indepartarea poluantilor din componenta acestora cat si aspecte referitoare la epurarea avansata a apelor reziduale industriale si municipale in scopul conservarii/protejarii calitatii apei din emisarii care le preiau. Obiectivul general al proiectului va fi realizat prin intermediul urmatoarelor obiective specifice (tinte propuse a fi atinse prin implementarea proiectului): ➢ *OS.1 - Indepartarea compusilor halogenati (tricloretilena) din surse subterane destinate obtinerii apei potabile prin sonoliza asociata cu procedee biologice;* ➢ *OS.2 - Stabilirea influentei si a implicatiilor prezentei ionilor Fe^{2+}/Fe^{3+} si Mn^{2+} asupra procesului de nitrificare biologica a surselor subterane destinate obtinerii apei potabile;* ➢ *OS.3 - Reducerea potentialului poluant al apelor din surse subterane destinate obtinerii apei potabile prin procese combinate enzimatice-membranare;* ➢ *OS.4 - Degradarea micropoluantilor emergenti din apele uzate municipale prin procese de oxidare avansata;* ➢ *OS.5 - Elaborarea unei metode noi de identificare si dozare a micropoluantilor emergenti din apele uzate municipale prin extractie in faza solida (SPE) si derivatizare cuplata cu GC/MS.* ➢ *OS.6 - Epurarea apelor uzate rezultate din industria fermentativa prin procedee hibride (conventionale – neconventionale).* Rezultatele preconizate, ale proiectului pentru anul 2018 sunt: 5 modele conceptuale de tratare / epurare ape in vederea conservarii si protectiei calitatii apelor; 5 modele experimentale de tehnologii de tratare / epurare ape prin procedee combinate, conventionale – neconventionale; 1 metoda noua de identificare si dozare a micropoluantilor emergenti din ape uzate municipale; 13 lucrari dintre care 6 articole transmise spre publicare/publicate in reviste ISI si 7 prezentate la manifestari stiintifice internationale.
Dissemination of results	
Full-paper ISI	*Possible Pathway for Ifosfamide Degradation via Fe-TiO2 Assisted Photo Catalysis,* Lucian Alexandru Constantin, Mirela Alina Constantin, Ines Nitoi, Florentina Laura Chiriac, Toma Grigore Galaon, Nicolae Ionut Cristea, Revista de Chimie (Bucharest), vol. 69, no. 11, 2018, in press.
	Bulk Likuid Membranes for Separation and Recovery of Pharmaceutical Products, Ecaterina Anca Serban, Ioana Diaconu, Elena Ruse, Gheorghe Batrinescu, Gheorghe Nechifor, Mihai Nita-Lazar, Revista de Chimie (Bucharest), vol. 69, no. 11, 2018, in press.
	Nitrate Removal from Groundwater by Denitrification in Fluidized Bed Biofilm Reactors – A Comparative Study, Ion Viorel Patroescu, Ioana Alexandra Ionescu, Lucian Alexandru Constantin, Laurentiu Razvan Dinu, Valeriu Robert Badescu, Revista de Chimie (Bucharest), vol. 70, no. 1, 2019, in press.
	Ultrasonic alkaline pretreatment of biological activated sludge from

	wastewater pretreatment plants, Mihai Stefanescu, Laurentiu Razvan Dinu, Costel Bumbac, Revista de Chimie (Bucharest), vol. 70, no. 1, 2019, in press.
	Fast ultrasound assisted derivatization with trifluoroacetic anhidride for bisphenol A analysis from water sources, Nicolae Ionut Cristea, Lucian Alexandru Constantin, Ines Nitoi, Mirela Alina Constantin, Mihai Stefanescu, Gheorghe Nechifor, Revista de Chimie (Bucharest), vol. 70, no. 1, 2019, in press.
	The influence of reaction media temperature upon PSF-PANI composite membranes characteristics, Gheorghe Batrinescu, Ioana Alexandra Ionescu, Ecaterina Anca Serban, Ionut Nicolae Cristea, Mirela Alina Constantin, sent for publication to Express Polymer Letters
Conferences (platform, poster, abstract / full-paper)	*Bisphenol A degradation via TiO_2 assisted photocatalyse,* Lucian Alexandru Constantin, Ines Nitoi, Mirela Alina Constantin, Nicolae Ionut Cristea, Alex Roger, International Symposyum „The Environmental and the Industry", SIMI 2018, Book of Abstracts;
	Ultrasonic application for biological activated sludge treatment, Mihai Stefanescu, Laurentiu Razvan Dinu, Costel Bumbac, International Symposyum „The Environmental and the Industry", SIMI 2018, Book of Abstracts;
	Break-point Chlorination Drawbacks for a Complex Impurified Groundwater Sources (NH_4, Fe, Mn) Potabilization Treatment, Cristiana Cosma, Ion Viorel Patroescu, Ioana Alexandra Ionescu, Ionut Cristea, Mirela Alina Constantin, International Symposium of Chemical Engineering and Materials, SICHEM 2018, University Politehnica of Bucharest, Romania, 6-7 September;
	Ground Water Quality from Vaslui County, Ion Viorel Patroescu, Ioana Alexandra Ionescu, Ionut Nicolae Cristea, Valeriu Robert Badescu, Givanina-Iuliana Lupu, Mihai Stefanescu, International Symposyum „The Environmental and the Industry", SIMI 2018, Book of Abstracts;
	Assessment of operational parameters in the process of recovery and separation of pharmaceutical products through the techmique of bulk liquid membranes, Ecaterina Anca Serban, Ioana Diaconu, Elena Ruse, Gheorghe Batrinescu, Gheorghe Nechifor, Gabriela Geanina Vasile, International Symposyum „The Environmental and the Industry", SIMI 2018, Book of Abstracts;
	TiO2 assisted photocatalytic degradation of bisphenol in aqueous media, under UV-VIS irradiation, Mirela Alina Constantin, Lucian Alexandru Constantin, Ines Nitoi, Nicolae Ionut Cristea, SGEM Vienna Green Sessions, 3-6 decembrie 2018, Viena, Austria.