

Paris, 22-24 July 2019



5th

International Congress

water, waste
and energy management

Scientific Program



SciKnowledgeTM

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Welcoming Message

Dear Colleagues,

The **5th International Congress on Water, Waste and Energy Management (WWEM-19)** is organized by academics and researchers belonging to different scientific areas of the University Complutense of Madrid, University Carlos III of Madrid, University of Extremadura, University of las Palmas de Gran Canaria, Universidade de Tras-os-Montes e Alto Douro, University of Granada, University of Santiago de Compostela, and University of Jaen, with the technical support of **Sciknowledge European Conferences**.

This event has the objective of creating an international forum for academics, researchers and scientists from worldwide to discuss worldwide results and proposals regarding to the soundest issues related to **Water, Waste and Energy Management**.

This event will include the participation of renowned keynote speakers, oral presentations, posters sessions and technical conferences related to the topics dealt with in the Scientific Program as well as an attractive social and cultural program.

The papers will be published in the Abstracts E-book of the Conference. Those communications considered of having enough quality can be further considered for publication in International Conference Journals. At the authors' choice, those works not suitable for publication in any of the congress journals will be published in the Extended Abstracts E-book.

To finish, I hope that all of you will enjoy the Conference, and I wish our visitors from abroad will have a very pleasant stay in Paris.

Thank you



Prof. Joaquín R. Domínguez Ph.D.
Chairman of WWEM-19
Chemical Engineering Department
University of Extremadura - UEx
Spain, UE

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Chemical Engineering Department
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Prof. Vicente Ismael Águeda Mate Ph.D.
Chemical Engineering Department
University Complutense of Madrid

GENERAL SCIENTIFIC PROGRAM – ORAL SESSIONS

MONDAY, 22nd JULY 2019

Schedule	ROOM 2	MAIN ROOM 1
8:45	Documentation delivery	
9:15 – 9:30	Opening Session	
9:30-10:15		Plenary talk 1 Treatment of agro-industrial effluents by Fenton based processes Jose A. Peres Universidade de Trás-Os-Montes e Alto Douro (UTAD) Portugal
10:15-11:00	1. WASTE and VALORIZATION Life-cycle of Post-consumer Mattresses: Waste Streams and Recycling Challenges Daniel Goddard Lancaster University United Kingdom Comparison of conventional electro dialysis (ED) and monovalent selective electro dialysis (SED) in treating reverse osmosis (RO) brine Ye Yang East China University of Science and Technology China Factors Influencing Attitudes and Practices towards Solid Waste Management in Lebanon May Massoud American University of Beirut Lebanon	2. WATER Management of Water Supply/Demand in U.A.E with Six Sigma Kahtan Aziz Al Ghurair University United Arab Emirates Supercritical Remediation of Soils contaminated with pesticides by using Ultrasonic Supercritical Extraction Paulo Augusto Faculdade de Engenharia da Universidade do Porto Portugal Smart Water Management System (SWMS) by ICT In Real Time Abdoul Rjoub Jordan University of Science and Technology Jordan
11:00 – 11:30	COFFEE-BREAK	
11:30-12:00	POSTER SESSION 1	

<p>12:00 – 13:30</p>	<p>The effect of vacuum on activated sludge biocenosis -its biodiversity and survival of bacteria Kinga Pogoda Silesian University of Technology Poland</p> <p>Evaluating effect of mixing in digester on overall efficiency of a large-scale biogas plant: A case study Buta Singh Weco-Travel Kft Hungary</p> <p>Quantification of the yearly residual biomass generation and carbon abatement potential of banana crops in Ecuador Juvenal Alejandro Ortiz Ulloa University of Cuenca Ecuador</p> <p>Effect of Components Composition on the Mechanism and Characteristics of Composite Fuel Ignition and Combustion within the Framework of the New Strategy for Industrial and Municipal Waste Utilization Dmitrii Glushkov National Research Tomsk Polytechnic University Russian Federation</p> <p>The potential for secondary anaerobic treatment of digestates and associated capture of biogas Nilufer Ulgudur Duzce University Turkey</p>	<p>Multivariable Robust Regulation of Alkalinities in a Continuous AD Processes against Uncertainties in both Kinetics and Process Inputs Victor Alcaraz-Gonzalez University of Guadalajara Mexico</p> <p>Kinetic study of heterogeneous H₂O₂-assisted treatment of a winery wastewater using pillared clays Vanessa Guimaraes CQVR - Departamento de Química Portugal</p> <p>Snow as a Contributor to Spring Flooding in Belarus Aleh Meshyk Brest State Technical University Belarus</p> <p>Quality control: routine analysis of anions in drinking water by HPLC Ligia Borges HPRD Portugal</p>
<p>13:30-15:00</p>	<p>COCKTAIL</p>	

TUESDAY, 23 TH JULY 2019

Schedule	ROOM 2	MAIN ROOM 1
9:15-10:00		<p align="center">Plenary Talk 2</p> <p align="center">Application of magnetism and nanomagnetism in water, leachates and soils remediation Paulo Augusto University of Salamanca Spain</p>
10:00 – 11:00	<p align="center">1. WASTE TREATMENT AND VALORIZATION</p> <p align="center">Vinasses-to-biomethane: assessing the impact of operational conditions on the energetic and environmental performance of biorefineries Dorian Prato-Garcia University Nacional de Colombia Colombia</p> <p align="center">Regeneration of fluoxetine-loaded sepiolite by electro-Fenton process Bruna Silva University of Minho Portugal</p> <p align="center">Understanding metals extraction mechanisms from fly and bottom ashes produced from municipal solid waste Mohammad Al-Ghouti Qatar University Qatar</p>	<p align="center">2. WATER</p> <p align="center">Unsolved Trinity: Analysis on the case of Grand Ethiopian Renaissance Dam Urangoo Bulgamaa Corvinus University of Budapest Hungary</p> <p align="center">Multi-Criteria Decision Analysis for selection of water treatment technology in Arsenic affected rural area in West Bengal, India Nilanjan Saha Jadavpur University India</p> <p align="center">Rivers Runoff in Belarus: Today's Situation and Future Perspectives Aliaksandr Volchak Brest State Technical University Belarus</p>
11:00-11:30	COFFEE-BREAK	
11:30-12:00	POSTER SESSION 2	

<p>12:00 – 13:30</p>	<p style="text-align: center;">1. ENERGY</p> <p style="text-align: center;">Optimal installation of the distributed H2 production system with cost and safety considerations Jamin Koo Hongik University South Korea</p> <p style="text-align: center;">Hydrogen Production Automatic Control in Continuous Microbial Electrolytic Cells Reactors used in Wastewater Treatment Victor Alcaraz-González Universidad de Guadalajara Mexico</p> <p style="text-align: center;">Can fruit and vegetable biowastes contribute to bioenergy supply at the food-industry? Joana Rodrigues LEAF, Linking Landscape, Environment, Agriculture and Food Portugal</p> <p style="text-align: center;">Influence of the operational parameters in the separation of CO2 from biogas using hollow fiber membrane contactors Jesús M. Martín Marroquín Fundación CARTIF Spain</p> <p style="text-align: center;">Measuring the environmental footprint of bio-hythane (hydrogen-methane) production from renewable resources Dorian Prato-Garcia Universidad Nacional de Colombia Colombia</p> <p style="text-align: center;">Solar-Hydrogen Production with Reduced Graphene Oxide Supported Metal Chalcogenides Atif Koca Marmara University Turkey</p>	<p style="text-align: center;">2. WATER</p> <p style="text-align: center;">Factors affecting the performance of nanoparticle composite photocatalytic membrane Shruti Sakarkar RMIT Australia</p> <p style="text-align: center;">The fate of nanomaterials Paulo A Augusto University of Salamanca Spain</p> <p style="text-align: center;">Multicriteria Decision Support Tool to Evaluate the Replacement of Water Meters Sergio Fernandes Instituto Politecnico de Setubal Portugal</p> <p style="text-align: center;">Using water invoices to foster consumers awareness Rita Martins University of Coimbra Portugal</p> <p style="text-align: center;">Assessment of Water, Sanitation and Hygiene (wash) Service Levels of Small Town Water System in Accordance with SDG Indicators in Selected District (Lake Bosomtwe) Emmanuel Naayo Kwame Nkrumah University of Science and Technology Ghana</p> <p style="text-align: center;">Minimising water consumption in onshore gas production and produced water management: Water-Energy nexus Sangita Bista Murdoch University Australia</p>
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13:30-15:00	COCKTAIL
21.15-22.45	SOCIAL/CULTURAL TOUR A CRUISE ON THE SEINE AT NIGHTFALL Discover the best of Paris. Embark on the Pariscruise ships at the foot of the Eiffel Tower on the Seine river, and enjoy the wonderful sights of the most prestigious monuments and bridges of Paris, by night.

WEDNESDAY, 24TH JULY 2019

Schedule	Room 2	Main Room 1
09:00 – 11h00	<p align="center">1. WASTE TREATMENT AND VALORIZATION</p> <p>Applications of Ochrobactrum oryzae silver nanoparticles for the removal of heavy metals from sewage sludge Sinqobile Fanele Ndulini University of Zululand South Africa</p> <p>Methodology for Technical-Economic Analysis of Municipal Solid Waste Management Systems Rubí Medina Universitat Politècnica de Catalunya Spain</p> <p>The willingness to pay for wastewater service in the context of transitional phase of sewerage construction in Ho Chi Minh City Truc Le Toyo University Vietnam</p> <p>Integrated biotechnological methods to treat the high toxicity of olive mill wastewater sludge loaded polyphenols and lipids Y. Bouhia University Mohammed VI Polytechnic Morocco</p> <p>Recycling High Density Polyethylene (HDPE) into Construction materials as key step in Plastic Waste Reduction: case of Kigali City Isabane Remy Serge Lanzhou Jiatong University Rwanda</p>	<p align="center">2. WATER</p> <p>Evaluation of Integrated Cost-Effective model in hydro economic modelling framework for sustainable water resource management in rural India Gourab Banerjee Jadavpur University India</p> <p>Modeling Imbibition Capillary Pressure Curves from Drainage one Mohsen Safari Beidokhti Research Institute of Petroleum Industry Iran</p> <p>The Concept and Design of Wastewater Treatment Plant in Urban Area of Thailand Nathaporn Areerachakul Suansunandha Rajhabhat University Thailand</p> <p>The indirect reuse of water: The experience of Barcelona Area Joan Pinyol Environmental Protection Director Barcelona Metropolitan Area Spain</p> <p>Occurrence of micropollutants in the industrial wastewaters discharged to Yeşilirmak and Nilüfer Rivers in Turkey Elif Kucuk Middle East Technical University Turkey</p> <p>Sustainable Community Based Ecological Surface Water Treatment For Safe Drinking Water Supply In Rural Areas Manisha Banik Mab Incorporation/Jadavpur University India</p>

11:00-11:30	COFFEE-BREAK	
11:30-12:00	POSTERS SESSION 3	
12:00 – 13:15	<p style="text-align: center;">1. WASTE TREATMENT AND VALORIZATION</p> <p style="text-align: center;">Heavy metal contamination of soil around Buffalo city metro municipality open Landfill Frank Unuofin Walter Sisulu University South Africa</p> <p style="text-align: center;">Towards a prototype for smart irrigation using optimal control Amelia Caldeira SYSTEC and LEMA – ISEP Portugal</p> <p style="text-align: center;">Influence of municipal solid waste compost application on soil fertility and barley yield Houda Oueriemmi High Institute of water sciences and techniques Tunisia</p> <p style="text-align: center;">Smart Sampling and Probing Jorge Costa Pereira Universidade de Coimbra Portugal</p> <p style="text-align: center;">Experimental Analysis and DFT Simulation for Phenolic Compounds Degradation by Free Radicals in EAOP Xingyu Wu East China University of Science and Technology, Shanghai China</p>	<p style="text-align: center;">2. WATER</p> <p style="text-align: center;">Produced Water Management Saeed Abassi Research Institute of Petroleum Industry (R.I.P.I) Iran</p> <p style="text-align: center;">A colorimetric and fluorescent sensor based-azo dye to develop test strip for Cu²⁺ / CN⁻ detection in aqueous media Souad Fettouche Laboratoire Hydrogeochimie et Bassin versant Morocco</p> <p style="text-align: center;">Determinants of water services affordability Micaela Antunes University of Coimbra Portugal</p> <p style="text-align: center;">The performance of a filter system and its efficiency in the treatment of laboratory wastewater Emmanuel Naayo Kwame Nkrumah University of Science and Technology Ghana</p> <p style="text-align: center;">Estimation of Residual Gas Saturation by Imbibition Capillary Pressure Curves Mohammad Parvazdavani Research Institute of Petroleum Industry (RIPI) Iran</p>

	<p>Self-sustaining treatment of digestate waste from semi-dry AD Luis Yerman The University of Queensland Australia</p>	
<p>13:15-15:00</p>	<p>CLOSING COCKTAIL and MUSIC CHAMBERT CONCERT <i>Flute and Piano Duet</i></p>	

POSTER SESSIONS

TOPIC 1: WASTE

TOPIC 2: WATER

TOPIC 3: ENERGY and CLIMATE CHANGE

POSTER SESSION 1 Monday, 22nd July 2019 Title	Name	ID	Topic
The Use of Plant in Scaling Inhibition Process University A. Mira of BEJAIA Algiers	Hassiba Tighidet	33	1
Determination of veterinary drug residues in bovine raw milk by GC/MS using QUECHERS extraction University Center of Maringa Brazil	Jose Eduardo Goncalves	143	1
Extraction and transport of small organic compounds using polymer inclusion membranes (PIMs) Universite Akli Mohand Oulhadj de Bouira Algeria	Fadila Hammache	231	1
Valorization of local natural clay for the removal of heavy metals from wastewater: a case of Cu (II) ion University ibn Tofail Morocco	Mohamed Loutfi	205	1
Reuse of wastewater treated by electrocoagulation in irrigation of market cultivation "Lycopersicon	Boudjema Nouara	243	1

esculentum" University of Bilda Algeria			
Efficiency evaluation of some agricultural waste materials for the biosorption of Cu (II) and Cr (VI) from water in a fixed-bed column Faculty of Technology Novi Sad, University of Novi Sad Serbia	Nevena Blagojev	32	1
Use of pine bark greatly reduces the mobility of sulfonamides in soils University of Santiago de Compostela Spain	Avelino Núñez Delgado	166	1
Use of biomass ash to reduce tetracycline antibiotics toxicity on soil bacterial communities. University of Santiago de Compostela Spain	Avelino Núñez Delgado	167	1
Influence of negative pressure on activity of activated sludge bacteria Silesian University of Technology Poland	Kinga Pogoda	215	1
Combination of adsorption and heterogeneous photo-Fenton processes for the treatment of a winery wastewater CQVR - Departamento de Quimica Portugal	Vanessa Guimaraes	259	1
The use of UV-A LED radiation in the treatment of agro-industrial effluents by photo-Fenton and UV/Peroxymonosulphate/Fe oxidation processes UTAD - Universidade de Tras-os-Montes e Alto Douro Portugal	José A. Peres	267	1
Physical-energy characterization of pellets from brewers spent grain University of Extremadura Spain	Maria Teresa Miranda Garcia-Cuevas	286	1
Soil washing coupled with the magnetic separation to remove heavy metals from metal contaminated soils PuKyong National University South Korea	Taehyoung Kim	148	1
The acceleration of the neutralization for concrete aggregate by using the sparging process of supercritical CO₂ Pukyong National University South Korea	Lee Jinkyun	152	1
The application of electrodialysis enhanced with complex formation for the selective copper salt concentration from industrial wastewaters	Dorota Babilas	178	1

Silesian University of Technology Poland			
Formulation of green emulsified liquid membrane for toxic chromium (Cr(VI)) recovery: characterization, demulsification and diluent reuse Bejaia University Algeria	Ounissa Senhadji- Kebiche	197	1
Optimizing the extraction of phenolic compounds from walnut (<i>Juglans major</i> 209 x <i>Juglans regia</i>) leaves: a valorization proposal as a source of bioactive compounds Universidade de Santiago de Compostela Spain	Julia González- Álvarez	112	1
Trihalomethanes in chlorinated synthetic wastewaters Chemistry Department, University of Beira Interior Portugal	Albertina Marques	117	1
Valorization of microalgae biomass by co-combustion with coal: a thermogravimetric assessment University of Aveiro - CESAM (Centro de Estudos do Ambiente e do Mar) Portugal	Marta Otero	304	1
A self-sustaining alternative for the treatment of green waste The University of Queensland Australia	Luis Yerman	126	1
POSTER SESSION 2 Tuesday, 23rd July 2019			
Title	Name	ID	Topic
Analysis of water quality and presence of agrochemicals in a straight of the Pirapo river basin, Parana University Center of Maringa – Unicesumar Brazil	Jose Eduardo Goncalves	142	2
Use of water for the preparation of new N-acyl sulfonamide derivatives Badji Mokhtar Annaba University Algeria	Chafika Bougheloum	296	2
Removal of Tartrazine in Aqueous Solution by Heterogeneous Advanced Chemical Oxidation Processes Universidad de Extremadura Spain	Teresa González Montero	136	2
Photocatalytic evaluation of hydroxyapatite materials for the degradation of chromium VI Instituto Politecnico Nacional Mexico	Guadalupe Romero Ortiz	184	2

Is the plant water used efficiency modified by irrigation with ozonated water? University Miguel Hernandez of Elche Spain	Ricardo Abadia	249	2
Removal of Bisphenol A by adsorption onto novel carbon materials: Effect of environmentally-relevant aqueous matrices Universidad Complutense de Madrid Spain	Silvia Alvarez Torrellas	250	2
Optimized removal of naproxen and diclofenac from water using catalytic wet peroxide oxidation with an iron-based magnetic catalyst Universidad Complutense de Madrid Spain	Silvia Alvarez Torrellas	251	2
Naproxen degradation by catalytic wet air oxidation with Ru and Pt catalysts Universidad Complutense de Madrid Spain	Marcos Larriba Martinez	260	2
Rehabilitation of water contaminated with an organic solvent by an aerobic bacterium: Toxicological and bioremoval assays University of Minho Portugal	Bruna Silva	280	2
Destruction of Natural Organic Matter by Electrooxidation on a Boron Doped Diamond Anode Instituto de Ciencias. Benemerita Universidad Autonoma de Puebla Mexico	Teresa Zayas	282	2
Design of an economic heat-integrated distilled water pilot plant with internal water circulation cycle Minia University Saudi Arabia	Emad A.M. Abdelghani	299	2
The cesium removal by using the nitric acid treated bamboo charcoal in polysulfone polymer as an adsorbent Pukyong National University South Korea	Rahayu Ni Wayan Sukma Taraning	151	2
Hydrothermal synthesis of GO/TiO₂ composites with high performance as UV photocatalysts for degradation of parabens Universidad de Granada	María Victoria López Ramón	131	2

Spain			
Synthesis and characterization of a new photocatalyst based on Bi-rGO for degradation of sulfamethazine University of Jaen Spain	María Victoria López Ramón	134	2
Influence of the operational parameters in the separation of CO2 from biogas using hollow fiber membrane contactors Fundación CARTIF Spain	Jesús M. Martín Marroquín	73	2
Degradation of the diuretic hydrochlorothiazide by UV/Solar radiation assisted oxidation processes University of Granada Spain	Manuel Sánchez Polo	132	2
Comparative study of the oxidative degradation of sulfonamides in aqueous solution by sulfite activation in the presence of Fe(0), Fe(II), Fe(III) or Fe(VI) University of Granada Spain	Manuel Sánchez Polo	133	2
Photocatalytic behavior of ZnAl hydrotalcite functionalized with SDS in phenol degradation Centro de Nanociencias y Micro y Nanotecnologías (CNMN) Mexico	Guadalupe Romero Ortiz	42	2
Biodegradation of Phenol from the Bacterial Strain Pseudomonas Putida under the Stimulation Effect of Weak Electric Field Bulgarian Academy of Science Bulgaria	Tsvetomila Parvanova-Mancheva	57	2
Biodegradation of 1,2-Dibromoethane by Bradyrhizobium japonicum 273 cells in presence and absence of constant electric field Bulgarian Academy of Science Bulgaria	Tsvetomila Parvanova-Mancheva	58	2
Methodology for generic water pipe model: Hydraulic simulation and failure risks due to polluting threats Universiteit Antwerpen Belgium	Qusay Mansour	130	2
Neonicotinoids removal by associated binary, tertiary and quaternary advanced oxidation processes. Synergistic effects, kinetics and mineralization ability	Teresa González Montero	135	2

Universidad de Extremadura Spain			
Adsorption by Liquid-Solid extraction of mixture Nickel (II) and Copper (II) from aqueous solutions using chelating resin Institute of Science and Technology Algeria	Afaf Amara-Rekkab	203	2
Empirical equations for calculation of free water surface evaporation and identification of trends in measured variables in Hlasivo station T. G. Masaryk Water Research Institute Czech Republic	Petra Šuhájková	399	2
POSTER SESSION 3 Wednesday, 24th July 2019	Name	ID	Topic
Title			
"RAINSOFT the tool for effective and safe management of rainwater in Prague city "project No. CZ.07.1.02/0.0/0.0/17_049/0000842" Research Institute for Soil and Water Conservation Czech Republic	Antonin Zajicek Adam Reil Petra Sychova	283	2
Causes, consequences and solutions to the problem of floating solid waste in the Segura River and its irrigation channels, in the district of Vega Baja (Alicante, Spain) University Miguel Hernandez of Elche Spain	Ricardo Abadia	233	2
Evaluation of the use of desalinated seawater for irrigation of young citrus trees in the Southeast of Spain. Preliminar results IMIDA Spain	Josefa M. Navarro	263	2
Hypochlorite Ion Electrogeneration using a Dimensionally Stable Anode-type of Ti/PtPd(10%)Ox Instituto de Ciencias. Benemerita Universidad Autonoma de Puebla Mexico	Teresa Zayas	281	2
Synthesis, properties and photocatalytic evaluation of titanium-based nanocomposite materials for the photo-oxidation of arsenic in aqueous solution Universidad Autonoma Metropolitana Mexico	Alejandra Michelle Navarrete Magaña	278	2

Zebrafish embryo bioassays for the assessment of microalgae efficiency in the removal of salicylic acid and its toxic effects from water University of Aveiro - CESAM (Centro de Estudos do Ambiente e do Mar) Portugal	Marta Otero	303	2
Long term experience of an ANAMMOX system in an actual big city WWTP to improve nutrient removal rates University of Extremadura Spain	Miguel A. Jaramillo-Morán	127	2
Pollution load and efficiency indices to evaluate urban Wastewater Treatment Plants performance in the Southwest of Spain: a case study University of Extremadura Spain	Miguel A. Jaramillo-Morán	128	2
Comparison of commercial PVDF membrane with laboratory-enhanced GO/PVDF membrane in UF process Lodz University of Technology Faculty of Process and Environmental Engineering Poland	Martyna Blus	159	2
Removal of Methylene Blue from Aqueous Solutions using silica gel derived from Algerian siliceous by- products University A. Mira of Bejaia Algeria	Ingrachen Daouia	36	2
Nitrate removal from aqueous solution using biosorbent: equilibrium and kinetics studies FHC.UMBB Algeria	Benhathat Amal	98	2
Pyto-Dewater of Sewage Sludge American University in Cairo Egypt	Amira Galal Ahmed	165	1
Synthesis and characterisation of a new hetero-junction Ag/NiO Application to photochemical hydrogen production upon visible light. Laboratory of Electrochemistry -Corrosion, Metallurgy and Inorganic Chemistry Algeria	Bagtache Radia	138	3
Analysis of R+D+i capabilities in the design of new energy products or services of Research Centers from EUROACE University of Extremadura Spain	Maria Teresa Miranda Garcia-Cuevas	285	3
Efficiency evaluation of the heating medium on the solar collecting system Kangwon National University	Gwi Hyun Lee	109	3

South Korea			
Status of the peninsular spanish basins according to the quality of their bodies of water Universidad de Sonora Mexico	Alejandra Castro Valencia	173	3
Climatology and vulnerability to climate change in the Altos de Jalisco region Instituto de astronomia y meteorologia Universidad de Guadalajara Mexico	Hermes Ulises Ramirez Sanchez	172	3
Changes in the temperature of the guadalajara metropolitan zone, mexico, under climate change scenarios Instituto de astronomia y meteorologia Universidad de Guadalajara Mexico	Hermes Ulises Ramirez Sanchez	171	3
Thermographic imaging of water bodies to identify pollution "Project No. CZ.07.1.02 / 0.0 / 0.0 / 17_049 / 0000842" Research Institute for Soil and Water Conservation Czech Republic	Stepan Marval Michal Veverka Václav Hradilek	234	3
Nutrient Management and Nutrient Recovery Thematic Network NUTRIMAN Fundación CARTIF Spain	Dolores Hidalgo	73	2