



The Seventh International Symposium on  
Environmental Biotechnology and Engineering  
May 22-26, 2023 - Marseille, France



GENERAL PROGRAM

Oral presentations & Posters

Organizers



Sponsors





# The Seventh International Symposium on Environmental Biotechnology and Engineering

May 22-26, 2023 - Marseille, France

## Overview of the program

	22/05/2023	23/05/2023	24/05/2023	25/05/2023	26/05/2023
	Monday	Tuesday	Wednesday	Thursday	Friday
8h15-8h30		Registration		Registration	Registration
8h30-9h00	Registration/coffee	ORAL SESSION 2. Technology development for environmental protection and restoration.		ORAL SESSION 3. Emerging pollutants.	ORAL SESSION 4. Biorefinery & Renewable energy production
9h00-9h30					
9h30-10h00	Opening Ceremony				
10h00-10h30		COFFEE BREAK		COFFEE BREAK	COFFEE BREAK
10h30-11h00	Opening Conference	KEYNOTE LECTURE	Marseille Sea Thermic plant	KEYNOTE LECTURE	INDUSTRIAL CONFERENCE
11h00-11h30					
11h30-12h00	ORAL SESSION 1. Risk Assessment and environmental impact,	ORAL SESSION 2. Technology development for environmental protection and restoration.		ORAL SESSION 3, Emerging pollutants.	Oral session 4. Biorefinery & Renewable energy production
12h00-12h30			PICNIC LUNCH		
12h30	LUNCH	LUNCH		LUNCH	LUNCH
14h00					
14h00-14h30	ORAL SESSION 1. Risk Assessment and environmental impact	ORAL SESSION 2. Technology development for environmental protection and restoration.	MARSEILLE Wastewater Treatment plant	ORAL SESSION 4. Biorefinery & Renewable energy production	ORAL SESSION 4. Biorefinery & Renewable energy production 5. Societal Challenges
14h30-15h00					
15h00-15h30			Château Virant wine cellar & Olive oil mill		
15h30-16h00	COFFEE BREAK	COFFEE BREAK		COFFEE BREAK	COFFEE BREAK
16h00-16h30	KEYNOTE LECTURE	KEYNOTE LECTURE		KEYNOTE LECTURE	ORAL SESSION 5. Societal Challenges 6. Cross-cutting tools
16h30-17h00					
17h00-17h30	Poster session	ORAL SESSION 2. Technology development for environmental protection and restoration.		ORAL SESSION 4. Biorefinery & Renewable energy production	CLOSING CONFERENCES & CEREMONY
17h30-18h00					
18h00-18h30	WELCOME COCKTAIL	Poster session		Poster session	CLOSING COCKTAIL
18h30-19h00					
20h30-23h00				GALA DINNER	



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	22/05/23	23/05/23	25/05/23	26/05/23
	MONDAY	TUESDAY	THURSDAY	FRIDAY
8h15-8h30	REGISTRATION / COFFEE	REGISTRATION	REGISTRATION	REGISTRATION
8h30-9h00 9h00-9h30		ORAL SESSION 2. Technology development for environmental protection and restoration. 449359, 420484, 420689, 451424 , 449222, 436085,	ORAL SESSION 3. Emerging pollutants. 442246, 442329, 442026, 450113, 449779, 447867,	ORAL SESSION 4. Biorefinery & Renewable energy production 420666, 450182, 419218, 439346 449160, 420974
9h30-10h00	OPENING CEREMONY			
10h00-10h30	OPENING CONFERENCE Digital technology, gas pedal of the Anthropocene MALLARINO Didier FRANCE	COFFEE BREAK	COFFEE BREAK	COFFEE BREAK
10h30-11h00	ORAL SESSION 1. Risk Assessment and environmental impact, 436263, 442584, 449834, 442257, 441762, 420765	KEYNOTE LECTURE Thermodynamics for environmental stewardship DOLFING Jan UK	KEYNOTE LECTURE Electrofermentation: How to combine microbial.... TRABLY Eric FRANCE	INDUSTRIAL CONFERENCE Paving the way for tomor- row's energy - Jupiter 1000 VINCENDON Franck FRANCE
11h00-11h30 11h30-12h00		ORAL SESSION 2. Technology development for environmental protection and restoration. 450417, 442243, 449798, 420871,	ORAL SESSION 3, Emerging pollutants. 420931, 420354, 442492, 420611	Oral session 4. Biorefinery & Renewable energy production 441878, 447519, 442121, 420861
12h00-12h30	LUNCH	LUNCH	LUNCH	LUNCH
12h30 14h00				



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	22/05/23 MONDAY	23/05/23 TUESDAY	25/05/23 THURSDAY	26/05/23 FRIDAY
14h00-14h30	<b>ORAL SESSION</b> <b>1. Risk Assessment and environmental impact</b> 449356, 441937, 446090, 446217, 450192, 420844	<b>ORAL SESSION</b> <b>2. Technology development for environmental protection and restoration.</b> 449597, 448631, 420798, 449357, 440783, 419661	<b>ORAL SESSION</b> <b>4. Biorefinery &amp; Renewable energy production</b> 442255, 449790, 449476, 420307, 420801, 442044	<b>ORAL SESSION</b> <b>4. Biorefinery &amp; Renewable energy production</b> 442788, 442298 <b>5. Societal Challenges</b> 448332, 440626, 449273, 449930
14h30-15h00				
15h00-15h30				
15h30-16h00	<b>COFFEE BREAK</b>	<b>COFFEE BREAK</b>	<b>COFFEE BREAK</b>	<b>COFFEE BREAK</b>
16h00-16h30	<b>KEYNOTE LECTURE</b> Sewage samples for epidemics monitoring: lessons from Covid 19. <b>LA SCOLA Bernard.</b> FRANCE	<b>KEYNOTE LECTURE</b> Biological treatment of gaseous emissions: advantages, drawbacks.... <b>AROCA Germán</b> CHILE	<b>KEYNOTE LECTURE</b> Bioconversion of industrial CO <sub>2</sub> into synthetic fuels <b>CARMONA Alessandro</b> SPAIN	<b>ORAL SESSION</b> <b>5. Societal Challenges</b> 420609, <b>6. Cross-cutting tools</b> 443156, 420586, 442370
16h30-17h00				
17h00-17h30	<b>POSTER SESSION</b>	<b>ORAL SESSION</b> <b>2. Technology development for environmental protection and restoration.</b> 419968. 447488, 420655, 420650, 441818, 420729,	<b>ORAL SESSION</b> <b>4. Biorefinery &amp; Renewable energy production</b> 451161, 449375	<b>CLOSING CONFERENCES &amp; CEREMONY</b>
17h30-18h00				
18h00-18h30	<b>WELCOME COCKTAIL</b>	<b>POSTER SESSION</b>	<b>POSTER SESSION</b>	<b>CLOSING COCKTAIL</b>
18h30-19h00				
20h30-23h00			<b>GALA DINNER</b>	



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## OPENING CONFERENCE:

### Didier MALLARINO



**OSU Pytheas, MIO, Toulon University,  
Toulon, FRANCE**

Didier Mallarino is a CNRS engineer. He is working on the FAIR management of environmental data from the OSU Pytheas as part of Open Science. He is also responsible for the Toulon part of the computer infrastructure of the MIO laboratory (Mediterranean Institute of Oceanography). He is also a member of the steering committee of the CNRS/INSU SIST network (<https://sist.cnrs.fr>), which works on the interoperable management of research data, and the deputy director of the EcoInfo collective, which works to reduce the environmental impacts of digital technology (<https://ecoinfo.cnrs.fr>)

## DIGITAL TECHNOLOGY, GAS PEDAL OF THE ANTHROPOCENE

We are facing major environmental and societal challenges that threaten the survival of our societies. Climate change and the accelerated disappearance of living species are threatening our survival, or at the very least, the stability of our societies. Digital tools are often presented as the solution to these problems. Unfortunately, they are also a significant cause of these same problems. In this conference, we will see the direct impacts of digital technology, how we can act to address these impacts, as well as the numerous indirect impacts and societal consequences they engender. Finally, we will examine why it is so difficult to act and what obstacles prevent us from doing so.

## KEYNOTES & INDUSTRIAL PRESENTATIONS



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**Bernard LA SCOLA**



**MEPHI, IHU, APHM, Aix Marseille Université  
Marseille, FRANCE**

MD, Marseille, 1995 ; PhD, Marseille, 1999 ; HDR research, Marseille, 2002. Full professor of Microbiology since 2011.

Head at Federation of bacteriology-virology-hygiene and head of biosafety level 3 laboratory of IHU Mediterranée Infection.

Expertise: Pneumonia and agents of pneumonia, viral and intracellular bacteria cell culture, giant viruses, and biosafety level 3 agents

Clarivate highly cited researcher 2018, 2021

### **SEWAGE SAMPLES FOR EPIDEMICS MONITORING: LESSONS FROM COVID 19**

From the beginning of the Covid crisis in France, teams working closely with water networks as suppliers (Eaux de Paris, Marseille water company), biological risk specialists (Battalion of Marseille firefighters) and academics (University de Paris, Aix-Marseille University) tried to investigate whether the detection of SARS-CoV-2 in wastewater could be a tool for monitoring the epidemic. Surprisingly enough for the uninitiated, given the intensity of the epidemic and the particular characteristics of SARS-CoV-2, the tool has proven to be particularly effective in monitoring the different epidemic waves, the increase in sewage generally preceding that of the general population by one week. In the end, despite relatively unsophisticated techniques, this measurement of the virus in wastewater has regularly proved to be an excellent marker of epidemic rises and falls. In a slightly more unexpected way, it also highlighted the more than limited effectiveness of containment measures on epidemic waves. Beyond a simple measurement of the virus, subsequent work has shown that it was even possible to monitor the dominant variants at the scale of a city but also of smaller units such as a district or even to decline this monitoring for other viruses such as influenza or RSV. With hindsight, we realize all the same that this systematic surveillance no longer has much to contribute because it is not the week in advance in the detection of the virus which modifies health policies. On the other hand, wastewater monitoring can still be of interest, for example monitoring or even tracing epidemic emergences in non-endemic areas such as, for example, in the south of France with arboviruses. It can also be used as a means of preventing the introduction of epidemic strains from airplanes or to finely control the emergence of epidemics in people living in outbreaks.





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**Jan DOLFING**



**Dept Mechanical Engineering  
Faculty Energy and Environment  
Northumbria University  
Newcastle, UK**

Jan Dolfing graduated with degrees in Environmental Engineering and Environmental Microbiology from Wageningen University in The Netherlands under the guidance of Professor Gatzke Lettinga. His postdoctoral career includes stints at Michigan State University where he worked with Professor Jim Tiedje on reductive dechlorination and at EAWAG/ETH focussing on anaerobic degradation of aromatics. Currently he is at Northumbria University in the UK. Thermodynamics and environmental biotechnology are the central themes in his research, with a recent focus on bioelectrochemical systems for wastewater treatment. There is lots of energy in waste and wastewater that we could and should harness.

### **THERMODYNAMICS FOR ENVIRONMENTAL STEWARDSHIP**

Oxygen is a better electron acceptor than sulphate; nitrate reduction yields more energy than methanogenesis. These truisms are based on thermodynamics. Consequently, thermodynamics plays a central role in the design and understanding of processes developed to protect the environment. It explains the sequence of redox reactions in natural environments and points to combinations of electron donors and acceptors that allow the mitigation of hazardous substances. This lecture will point out “How thermodynamics can help us in the design and understanding of processes developed to protect the environment”.



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### Germán AROCA



**Biochemical School,  
Universidad Pontificia Católica de Valparaíso,  
CHILE**

German Aroca is a Biochemical Engineer, he got his Ph.D. from The University of Reading in England. He is Full Professor at the School of Biochemical Engineering of the Pontifical Catholic University of Valparaíso in Chile. His research interests include biological treatment and bioconversion of gaseous emissions, production of biofuels, and modeling, simulation, and life cycle analysis of bioprocesses. He has developed an extensive work in applied research in national and international collaborative projects, more than 30 as project leader, principal investigator, or co-investigator, which has generated more than 80 publications and book chapters.

### **BIOLOGICAL TREATMENT OF GASEOUS EMISSIONS: ADVANTAGES, DRAWBACKS AND CHALLENGES**

Biofiltration of gaseous emissions is an operation in which the contaminated air is passed through out a filter where a pure or mixed community of microorganisms has been established and can consume or biodegrade the gaseous compounds contained in those emissions. There are many biofilter configurations and a broad number of applications, and it is particularly cost effective when it is necessary to treat large flows of gaseous emissions and the contaminants are present in low concentrations.

There are many factors affecting the removal capacity and efficiency of a biofilter system, mainly related with the nature of the gaseous compounds treated and the microbial communities established, some of them are still not well understood.

At a local level, the increasing demand of the people for living in a cleaner environment is pushing new regulations in many countries related with odour nuisance from industrial activities, in which biofiltrations systems can decrease efficiently that environmental impact, meanwhile at a global level, awareness for climate change make necessary to implement cost effective technologies for depleting diffusive emissions of greenhouse gases where biofiltration system could be also an efficient alternative. Both cases will be analysed in their advantages and drawbacks.





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### Alessandro A. CARMONA-MARTÍNEZ



**CIRCE - Technology Center,  
Zaragoza, SPAIN**

Alessandro A. Carmona-Martínez holds a B.Sc. in Environmental Engineering and a M.Sc. in Biotechnology by the National Polytechnic Institute of Mexico and a Ph.D. by the Technical University of Braunschweig, Germany. He has been involved in several EU-H2020 and French-ANR projects for i) wastewater treatment (iMETland & MIDES); ii) the production of gaseous biofuels such as bio-H<sub>2</sub> and biogas through microbial electrolysis (DéfiH12) iii) commodities production from CO<sub>2</sub> via microbial electrosynthesis (BIORARE) and iv) bioconversion of biogas into cosmetics thanks to methanotrophic bacteria's metabolism (DEEP PURPLE). At CIRCE he is in charge of coordinating the RE4Industry project for the Decarbonization of Energy Intensive Industries where renewable energy technologies and innovations are assessed as means for the decarbonization of multiple industrial sectors. Additionally, he is involved and leads engineering projects to provide decarbonization, wastewater treatment and waste-to-biofuels solutions to CIRCE's industrial partners as part of the Biomass and Valorization team.

### **BIOCONVERSION OF INDUSTRIAL CO<sub>2</sub> INTO SYNTHETIC FUELS**

The energy intensive industry (EII) relies worldwide on the combustion of fossil-fuels which leads to significant emissions of CO<sub>2</sub>. A first approach on the short-/medium-term to tackle industrial CO<sub>2</sub> emissions depends on the implementation of renewable energy technologies that replace the use of fossil-based energies. A second pillar of this decarbonisation path must be built on avoiding CO<sub>2</sub> emission by EIIs. Industrial CO<sub>2</sub> conversion into synthetic fuels and chemicals using renewable energy to create an artificial carbon cycle should be considered an alternative. Four main broad routes can be identified among the multiple pathways available for CO<sub>2</sub> conversion into fuels. Thermocatalytic conversion, Electrocatalytic reduction, Photocatalytic reduction and Biological conversion of CO<sub>2</sub>. The latter is considered a promising approach under development to produce synthetic fuels from industrial CO<sub>2</sub>. Many microorganisms are known to produce multiple fuels directly from CO<sub>2</sub> or they can be synthetically engineered to produce specific molecules. Algae can be used to efficiently capture CO<sub>2</sub> in the form of biomass that can be later used to produce biomethane. A prerequisite for most of the technologies discussed in the present contribution is the availability of green H<sub>2</sub> that will enable such technologies the production of synthetic fuels from captured industrial CO<sub>2</sub>.



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### Eric TRABLY



#### Environmental Biotechnology Lab, INRAE, Narbonne, FRANCE

Dr. Eric TRABLY, 49 years old, is senior scientist and deputy head of the INRAE-LBE research unit. His academic background deals with environmental biotechnology, and more particularly microbial ecosystem engineering, and microbial interactions in synthetic consortia. Since 2007, Eric Trably has been leading a research group on “Biohydrogen and biomolecules production by dark fermentation in mixed cultures” at INRAE-LBE. He was awarded for his research on the biotechnological innovation in waste/wastewater treatment systems, by the French ADEME price of Innovation in 2012 and 2013 and the French Circular Economy Prize (Research category) in 2018. Since 2014, he has been involved as French representative at the International Energy Agency (IEA) - Hydrogen Implementing Agreement (HIA) in taskgroup 34 “BioH2” and is now subtask leader of BioH2 group in the task “Renewable Hydrogen” of the Hydrogen - Technology Cooperation Program (TCP). Since 2020, he is regional representative at the European Federation of Biotechnology (EFB), Division of Environmental Biotechnology.

#### **ELECTROFERMENTATION : How to combine microbial electro-chemistry and fermentation principles to optimize the production of biohydrogen and biobased molecules from waste**

Nowadays, Hydrogen is considered as one of the most serious alternatives to fossil fuels in the transportation sector. The development of green technologies to produce renewable H<sub>2</sub> is crucial to ensure the sustainability of these systems. The conversion of raw biomass or organic waste by biological processes is very promising as these processes present the lowest environmental impacts and hydrogen can be concomitantly produced along with valuable biobased molecules. However, bioprocesses are often based on mixed culture fermentation that presents several disadvantages such as a high variability together with thermodynamic limitations. To overcome these issues, coupling dark fermentation and bioelectrochemical technologies has been intensively investigated over the past decade and some examples will be here presented. By extension, a new method of bioprocess control so-called electrofermentation has recently been proposed combining the fields of fermentation and electromicrobiology. The fundamentals of electrofermentation, including interspecies electron transfer (IET) as core mechanism, will be presented as well as some experimental evidence of a better control of the microbial metabolic pathways towards the production of biohydrogen and other valuable bio-based molecules.



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### Franck VINCENDON



#### **GRTgaz Aix-en-Provence, FRANCE**

Franck VINCENDON, holds a Master in Acoustic from the University Paul Sabatier in Toulouse, France and studied also at the IAE Business school. After having several position at EDF-GDF, Gaz de France, ENGIE, he is now Head of Development and Renewable Gases at GTRgaz since 12 years .

### PAVING THE WAY FOR TOMORROW'S ENERGY

Jupiter 1000 is an innovative industrial Power-to-Gas demonstrator project. Based on a platform designed for the energy transition, the installation aims to transform renewable electricity into gas for storage. The surplus electricity will be converted into hydrogen by two electrolyzers and into synthetic methane by means of a methanation reactor and a structure for capturing CO<sub>2</sub> from nearby industrial fumes.

GRTgaz and its partners are currently developing the project in Fos-sur-Mer (Bouches-du-Rhône) on the Innovex platform dedicated to hosting demonstrators in connection with the Energy Transition. The project is located at the intersection of the gas and electricity networks and near an industrial CO<sub>2</sub> source.

With the Jupiter 1000 project, GRTgaz and its partners aim to implement on an industrial scale an innovative 1 MWe hydrogen production facility, consisting of two electrolyzers of two different technologies: PEM (membrane) and Alkaline. The demonstrator also includes a CO<sub>2</sub> capture unit on the chimneys of a neighbouring industrial company and a methanation unit to convert the hydrogen produced and the CO<sub>2</sub> thus recycled into synthetic methane.



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## 7ISEBE PROGRAMME

MONDAY, May 22<sup>nd</sup>, 2023

		Time
REGISTRATION /COFFEE	MONDAY	8:15-9:30
OPENING CEREMONY	MONDAY	9:30-10:00
OPENING CONFERENCE	MONDAY	10:00-11:00
<b>Digital technology, gas pedal of the Anthropocene</b>		
MALLARINO Didier. FRANCE		
ORAL SESSION	MONDAY	11:00-12:30
<b>1. Risk Assessment and environmental impact</b>		
CHAIRMAN - MOREAU Xavier. FRANCE		
		11:00-11:15
436263		
Soil transfer impacts restored soil profiles and their hydrodynamic properties		
DUTOIT Thierry. FRANCE		
		11:15-11:30
442584		
Estimation of Relative Bioavailability of Non-dioxin-like polychlorinated biphenyls in soils using in vitro rTi-PBET (relative tenax improved physiologically based extraction test)		
TURGANOVA Ronagul. FRANCE		



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		11:30-11:45
449834		
Methodological approach for ecological risk assessment of heavy metals from application of sewage sludge on agricultural soil in Europe		
		YUNTA Felipe. ITALY
		11:45-12:00
442257		
Contribution of greywater in the distribution of multi-drug resistant bacteria in the environment		
		OUATTARA Aboubakar. BURKINA FASO
		12:00-12:15
441762		
Impact and alternative of environmental pollution at Hann bay, Dakar, Senegal		
		NGOM Adama Diakhere. SENEGAL/FRANCE
		12:15-12:30
420765		
Using epiphyte assemblages of <i>Posidonia oceanica</i> leaves to monitor pollution of coastal ecosystems		
		SARKIS Noëlle. FRANCE
LUNCH	MONDAY	12:30-14:00
ORAL SESSION	MONDAY	14:00-15:30
1. Risk Assessment and environmental impact		
		CHAIRMAN - OUATTARA Aboubakar. BURKINA FASO
		14:00-14:15
449356		
Microplastic pollution in surface waters and groundwaters in southern France		
		WONG-WAH-CHUNG Pascal. FRANCE





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14:15-14:30  
441937  
Modelling air quality impact of private diesel generators emissions in a rural area in Lebanon  
CHEBBO Hiba. LEBANON

14:30-14:45  
446090  
A new concept to classify the biodegradability of chemical substances with a microbial array  
THOUAND Gérald. FRANCE

14:45- 15:00  
446217  
Contribution of Raman spectroscopy to assess cadmium toxicity on marine mussel (*Mytilus edulis*)  
DURAND-THOUAND Marie-Jose. FRANCE

15:00- 15:15  
450192  
Diversity of *Vibrio* species in water and fish of some aquaculture stations in southern Ivory Coast  
KOUSSEMON Marina. IVORY COAST

15:15-15.30  
420844  
Dual approach to refine children health risk caused by oral absorption of trace metals and polyaromatic compounds through settled dust ingestion  
CASTEL Rebecca. FRANCE

TIME FOR A COFFEE BREAK      MONDAY      15:30-16:00

KEYNOTE LECTURE      MONDAY      16:00-17:00  
Sewage samples for epidemics monitoring: lessons from Covid 19  
LA SCOLA Bernard. FRANCE



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POSTER SESSION

MONDAY

17:00-18:00

WELCOME COCKTAIL

MONDAY

18:00-19:00



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**TUESDAY, May 23<sup>rd</sup>, 2023**

**ORAL SESSION**

**TUESDAY**

**8:30-10:00**

**2. Technology development for environmental protection and restoration**

**CHAIRMAN - KATO Mario. BRAZIL**

**8:30-8:45**

**449359**

**The germicidal ultraviolet light side-emitting optical fibers for inhibiting biofouling on reverse osmosis membrane surfaces**

**RHO Hojung. SOUTH KOREA**

**8:45-9:00**

**420484**

**Functionalized chitosan as biosourced coagulant/flocculant for solid and liquid phase separation of sewage sludge digestate**

**BATTIMELLI Audray. FRANCE**

**9:00-9:15**

**420689**

**Using nuclear magnetic resonance spectroscopy to explore the signature of anaerobic digested biomass**

**FERNANDEZ-DOMINGUEZ David . FRANCE**

**9:15-9:30**

**451424**

**Advanced membranes for water treatment and desalination applications**

**FIGOLI Alberto. ITALY**

**9:30-9:45**

**449222**

**What is the role of endogenous and exogenous biodiversities in antimicrobial resistance mitigation?**

**DELLA-NEGRA Oriane. FRANCE**



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		9:45-10:00
436085	Potential of ligand-promoted dissolution at mild pH for the selective recovery of rare earth elements in bauxite residues.	
	LALLEMAND Claire. FRANCE	
<b>TIME FOR A COFFEE BREAK</b>	<b>TUESDAY</b>	<b>10:00-10:30</b>
<b>KEYNOTE LECTURE</b>	<b>TUESDAY</b>	<b>10:30-11:30</b>
	<b>Thermodynamics for environmental stewardship</b>	
	DOLFING Jan. UK	
<b>ORAL SESSION</b>	<b>TUESDAY</b>	<b>11:30-12:30</b>
	<b>2. Technology development for environmental protection and restoration</b>	
	CHAIRMAN - GARCIA-BERNET Diana. FRANCE	
		11:30-11:45
450417	Remediation of MCPA contaminated soils using bacterial biofilms on carrier materials (biocomposites): impact of carrier materials and improvements via surface modifications	
	MEITE Fatima. FRANCE	
		11:45-12:00
442243	Influence of low oxygen concentrations on solid state culture for forest litter based biofertilizer production	
	CHRISTEN Pierre. FRANCE	
		12:00-12:15
449798	Effect of carbon supplementation on landfill leachate treatment in aerobic granular sludge systems	
	FRUTUOSO Kamila. BRAZIL	



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12:15-12:30

420871

**Impact of treatment level on soil microbial community structures modification during irrigation period with treated wastewater**

MOULIA Vincent. FRANCE

**LUNCH TIME**

**TUESDAY**

**12:30-14:00**

**ORAL SESSION**

**TUESDAY**

**14:00-15:30**

**2. Technology development for environmental protection and restoration**

**CHAIRMAN - CAVINATO Cristina. ITALY**

14:00-14:15

449597

**Macrophyte assisted phytoremediation of metal(loid)s, impact of plant type, and hydraulic retention time on the metal(loid)s toxicity of metal(loid)s polluted groundwater.**

KHAN Aqib Hassan Ali. SPAIN

14:15-14:30

448631

**Production of custom short chain and medium chain-length polyhydroxyalkanoates and their associated biodegradation in natural marine environment**

DERIPPE Gabrielle. FRANCE

14:30-14:45

420798

**Striving to understand bacterial roles within an electrogenic community**

PRADOS Maria Belen. ARGENTINA

14:45-15:00

449357

**Removal of arsenic from leachates of decaying Sargassum biomass in a natural iron material-based biofilter**

BATTAGLIA-BRUNET Fabienne. FRANCE





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		15:00-15:15
440783	Understanding how microalgae cells remediate heavy metals using a biophysical approach	
	FORMOSA-DAGUE Cécile . FRANCE	
		15:15-15:30
419661	Batch and heap bioleaching of uranium from contaminated sediments of a natural wetland	
	PRETZ Florencia. ARGENTINA	
<b>TIME FOR A COFFEE BREAK</b>	<b>TUESDAY</b>	<b>15:30-16:00</b>
<b>KEYNOTE LECTURE</b>	<b>TUESDAY</b>	<b>16:00-17:00</b>
<b>Biological treatment of gaseous emissions: Advantages, drawbacks and challenges.</b>		
	AROCA Germán. CHILE	
<b>ORAL SESSION</b>	<b>TUESDAY</b>	<b>17:00-18:00</b>
<b>2. Technology development for environmental protection and restoration</b>		
	CHAIRMAN - MONROY Oscar. MEXICO	
		17:00-17:15
419968	Denitrifying anaerobic methane oxidation: high-performance operation in a continuous bioreactor	
	CONTRERAS José A. MEXICO	
		17:15-17:30
447488	Comparison of environmental impacts of activated carbons using life cycle assessment methodology	
	MORALES LOPEZ Carlos Eduardo. MEXICO	



**The Seventh International Symposium on  
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17:00-17:15

420655

**Sustainable treatment of industrial membrane concentrates by wet air oxidation**

GOUT Emilie. FRANCE

17:15-17:30

420650

**Exhaust gas wash-water treatment by membrane processes: application to maritime transportation field**

DROUIN Maryse. FRANCE

17:30-17:45

441818

**Methane-producing microbial communities from marine sediments as a tool for aquaculture waste treatment (registered presentation)**

AGUILAR Polette / CABROL Léa. CHILE/FRANCE

17:45-18:00

420729

**Treatment of livestock manure to maintain resource value through GHG mitigation**

THORN Camilla. IRELAND

POSTER SESSION

TUESDAY

18:00- 19:00



# The Seventh International Symposium on Environmental Biotechnology and Engineering

May 22-26, 2023 - Marseille, France

THURSDAY, May 25<sup>th</sup>, 2023

ORAL SESSION

THURSDAY

8:30-10:00

3. Emerging pollutants

CHAIRMAN - BUITRON Germán. MEXICO

8:30-8:45

442246

Chemicals of emerging concern in coastal aquifers: assessment along the land-ocean interface.

GUTIERREZ-MARTIN Daniel. SPAIN

8:45-9:00

442329

Reputed sorption process of TBP on wood and its removal by *Trametes versicolor* through solid state fermentation

LOSANTOS Diana. SPAIN

9:00-9:15

442026

An evaluation of biotransformation, biodegradation, and bioaccumulation of per- and polyfluorinated substances (PFAS)

RAMIREZ Diana. USA

9:15-9:30

450113

Development of a bioprocess for the production of a herbicidal sugar as sustainable alternative to glyphosate

STEURER Xenia. GERMANY

09:30-09:45

449779

Diazotrophs contribute significantly to the organic carbon export flux in the western subtropical south Pacific ocean.

ABADOU Fatima Ezzahra. FRANCE



# The Seventh International Symposium on Environmental Biotechnology and Engineering

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9:45-10:00

447867

Assessment of microplastic's removal efficiency of membrane treatment processes in different water samples (seawater, freshwater, and wastewater) using an improved  $\mu$ -FTIR-based methodology

MONNOT Mathias. FRANCE

TIME FOR A COFFEE BREAK THURSDAY

10:00-10:30

KEYNOTE LECTURE

THURSDAY

10:30-11:30

Electrofermentation : How to combine microbial electrochemistry and fermentation principles to optimize the production of biohydrogen and biobased molecules from waste

TRABLY Eric. FRANCE

ORAL SESSION

THURSDAY

11:30-12:30

3. Emerging pollutants

CHAIRMAN - PALACIO Edwin. SPAIN

11:30-11:45

420931

Influence of nitrate, sulfate and iron-III as electron acceptors on Linear Alkylbenzene Sulfonate biodegradation.

KATO Mario Takayuki. BRAZIL

11:45-12:00

420354

Evaluation of the biodegradability of chlordecone during mesophilic and thermophilic organic waste treatment via anaerobic digestion

ALNAJJAR Perla. LEBANON/FRANCE



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		12:00-12:15
442492	Monitoring of 18 pollutants during treatment in wastewater treatment plants by high resolution mass spectrometry	REVERBEL Solenne. FRANCE
		12:15-12:30
420611	Oxidation of Linear Alkylbenzene Sulfonate by Electroactivated Water Treatment	ROCHA Jessica/FLORENCIO Lourdinha. BRAZIL
LUNCH TIME	THURSDAY	12:30-14:00
ORAL SESSION	THURSDAY	14:00-15:30
<b>4. Biorefinery &amp; Renewable energy production</b>		
CHAIRMAN - KIM Dong-Hoon. SOUTH KOREA		
		14:00-14:15
442255	Effect of carbohydrates and lactate on microbial community dynamics, interactions, and metabolic pathways during biohydrogen production	VITAL-JÁCOME Miguel. MEXICO
		14:15-14:30
449790	Impacts of composition and biodegradability characteristics of organic waste on biohydrogen production by dark fermentation	PERAT Lucie. FRANCE
		14:30-14:45
449476	Stimulation of the organic matter biodegradability with pulsed H <sub>2</sub> injections during in situ biomethanation	MAHIEUX Margot. FRANCE





# The Seventh International Symposium on Environmental Biotechnology and Engineering

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14:45-15:00

420307

Anodic microbial community evolution in a microbial electrolysis cell as a function of dark fermentation influent with different volatile fatty acid composition

MAGDALENA Jose Antonio. FRANCE

15:00-15:15

420801

Energy sustainability of an HMEZS-SEBQ biorefinery and its mitigation in the sum of potential environmental impacts

SOTELO Perla. MEXICO

15:15-15:30

442044

Microbial diversity in serpentinite-hosted hyperalkaline springs of New Caledonia related to hydrogen and methane emissions

QUEMENEUR Marianne. FRANCE

TIME FOR A COFFEE BREAK

THURSDAY

15:30-16:00

KEYNOTE LECTURE

THURSDAY

16:00-17:00

Bioconversion of industrial CO<sub>2</sub> into synthetic fuels

CARMONA-MARTÍNEZ Alessandro. SPAIN

ORAL SESSION

THURSDAY

17:00-17:30

4. Biorefinery & Renewable energy production

CHAIRMAN - ESCAMILLA Carlos. MEXICO

17:00-17:15

451161

Sugarcane vinasse anaerobic treatment in ultra-filtration anaerobic membrane reactor

EGERLAND BUENO Beatriz. BRAZIL / NETHERLANDS



# The Seventh International Symposium on Environmental Biotechnology and Engineering

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17:15-30

449375

Operating characteristics of microbial electrolysis cell-anaerobic digestion (MEC-AD) with intermittent low-strength ultrasound input

SEO Hwijin. SOUTH KOREA

POSTER SESSION

THURSDAY

17:30-18:30

GALA DINNER

THURSDAY

20:30-23:00

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May 22-26, 2023 - Marseille, France

FRIDAY, May 26<sup>th</sup>, 2023

ORAL SESSION

FRIDAY

08:30-10:00

## 4. Biorefinery & Renewable energy production

CHAIRMAN - BERNET Nicolas. FRANCE

8:30-8:45

420666

Metha-HYn project - Development of integrated technologies at the service of circular bioeconomy

AEMIG Quentin. FRANCE

8:45-9:00

450182

Unlocking the biomethane potential of Dairy processing sludges

VILLA Alejandra. IRELAND

9:00-9:15

419218

Complete biogas desulfurization and calorific value enhancement in compact absorption units coupled to microalgae-bacteria systems

QUIJANO Guillermo. MEXICO

9:15-9:30

439346

High Biological Methane Potential of photosynthetic granules when grown in SBR.

GALEA-OUTON Sandra. FRANCE

9:30-9:45

449160

Lactic acid production from different sources of food waste: microbial community selection and operational optimization.

VILLANUEVA GALINDO Blanca Edith. MEXICO



# The Seventh International Symposium on Environmental Biotechnology and Engineering

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9:45- 10:00

420974

Assessment of polyhydroxyalkanoates production in photosynthetic communities from activated sludge and *Chlorella sorokiniana* consortium

ROMERO FRASCA Enrique. MEXICO

TIME FOR A COFEE BREAK

FRIDAY

10:00-10:30

INDUSTRIAL CONFERENCE

FRIDAY

10:30-11:30

Paving the way for tomorrow's energy

VINCENDON Franck. FRANCE

ORAL SESSION

FRIDAY

11:30-12:30

4. Biorefinery & Renewable energy production

CHAIRMAN - SOTELO Perla. MEXICO

11:30-11:45

441878

Organic waste from corn nixtamalization as a feedstock for the hydrothermal liquefaction process

NAVA BRAVO Isaac. MEXICO

11:45-12:00

447519

Polyhydroxyalkanoates copolymers production from carboxylic acids and cheese whey using phototrophic bacteria

BUITRON Germán. MEXICO

12:00-12:15

442121

Optimization of *Chlorella sorokiniana* growth on treated waste water cultivated with ashes using factorial experimental design to produce macromolecules

HAMDI Moktar. TUNISIA



# The Seventh International Symposium on Environmental Biotechnology and Engineering

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12:15-12:30

420861

Effect of type of solvent on the extraction of antioxidant compounds from *Opuntia ficus-indica*

CARRILLO Kenia. MEXICO

LUNCH TIME

FRIDAY

12:30-14:00

ORAL SESSION

FRIDAY

14:00-15:30

4. Biorefinery & Renewable energy production

CHAIRMAN - HAMDI Moktar. TUNISIA

14:00-14:15

442788

Use of native and recombinant laccases for lignocellulose pretreatment, a review

CERDAN Ana. MEXICO

14:15-14:30

442298

Effect of gelatin concentration on the continuous ammonia fermentation performance

MAKIAN Masoud. SOUTH KOREA

5. Societal Challenges

14:30-14:45

448332

Potable reuse in Mexico: a challenge towards sustainability

MONROY Oscar. MEXICO

14:45-15:00

440626

Effects of massive organic matter amendment, irrigation, and grass cover on the plant soil continuum in viticulture

REGUS Flor. FRANCE





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15:00-15:15

449273

Climate inequality: vulnerability assessment, and adaptation strategies to the effects of climate change in Mexico according to its geographical and socioeconomic context

ESCAMILLA-ALVARADO Carlos. MEXICO

15:15-15:30

449930

Sustainability, Circularity, and Sustainable Circularity

SOTELO Perla. MEXICO

TIME FOR A COFFEE BREAK

FRIDAY

15:30-16:00

ORAL SESSIONS

FRIDAY

16:00-17:00

5. Societal Challenges

CHAIRMAN - HAMELIN Jérôme. FRANCE

16:00-16:15

420609

Circular bioeconomy as a key to a sustainable future. Case study: opportunities to improve coffee processing in Chiapas, Mexico.

PEREZ-MONTOYA Luz Mariana. MEXICO

6. Cross-cutting tools

16:15-16:30

443156

Miniaturized methods using 3D printing for in-situ monitoring of pollutants in wastewater treatment plants

PALACIO Edwin . SPAIN

16:30-16:45

420586

Development of a novel approach involving culturomics coupled to MALDI - TOF mass spectrometry for the characterization of soil fungal communities and comparison to metabarcoding analysis.

ELIAS Charbel. FRANCE



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16:45-17:00

442370

Development a model based on support vector machines to predict the degradation of pesticides

MOLINA Ahreel. MEXICO

**CLOSING CONFERENCE & CEREMONY FRIDAY 17:00-18:00**

Assessment of the 7ISEBE

Price to the best poster presentations

Presentation of 8ISEBE and possibilities of 9ISEBE

**CLOSING COCKTAIL FRIDAY 18:00-19:00**



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## POSTER SESSIONS

	<b>1</b>
<b>449882.</b> Quantitative analysis of the implementation of EU Sewage Sludge Directive by using the concentration of heavy metals from LUCAS topsoil database. YUNTA Felipe. ITALY	
	<b>2</b>
<b>449667</b> Characteristics of the plume of Saharan dust in SPAIN central GARCIA-GONZALO Pilar. SPAIN	
	<b>3</b>
<b>450022</b> Space-temporal analysis of groundwater quality in three areas of the state of Yucatan and its relationship with existing anthropogenic activity GONGORA ECHEVERRIA Virgilio Rene. MEXICO	
	<b>4</b>
<b>442440</b> Organic contaminants in the sediment of the West Gironde Mud Patch MERROT Pauline. FRANCE	
	<b>5</b>
<b>420804</b> Valorization of water hyacinth and diatoms in biofilm for the treatment of drinking water in Sub-Saharan Africa EBOA MBONJO Franck Cloreil. CAMEROON	
	<b>6</b>
<b>442328</b> Development of an automated sampling-analysis system to assess in-situ aerosol oxidative potential CAMMAN Julie. FRANCE	
	<b>7</b>
<b>442049</b> Lovastatin as an anti-methanogenic additive in dairy cattle: an in vitro study BARRANCO MEDINA Lilibeth MEXICO	



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442054	8
Effect of lovastatin on the kinetics of gas production and degradability of a forage-based diet	
BARRANCO MEDINA Lilibeth. MEXICO	
450158	9
In vitro rumen degradability, gas kinetics, and methane production of forage mass from two grazing management in the Chihuahua desert.	
MARTÍNEZ Mily. MEXICO	
442068	10
In vitro effect of lovastatin on the kinetics of gas production and fibre degradability of a forage-based diet by goat rumen inoculum	
RAZURA David. MEXICO	
442071	11
In vitro evaluation of lovastatin on rumen methane production and a global warming indicator using goat' rumen fluid as inoculum	
RAZURA David. MEXICO	
442819	12
Dose-response effects of lovastatin hydroxy acid on in vitro rumen fermentation profile and methanogenesis	
ABREGO-GARCIA Amaury. MEXICO	
446086	13
TOXLAB : Multidimensional biosensor to assess toxicity of wastewater	
THOUAND G�erald. FRANCE	
449858	14
The toxicity of trace metal elements in downy oak in the Gardanne mining Basin.	
MEVY Jean-Philippe. FRANCE	



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	<b>15</b>
<b>420633</b> Effects of environmental concentrations of chlordecone (insecticide), glyphosate (herbicide) and imazalil (fungicide) in mixture on reproductive rate, morphology and DNA damage (with a Comet assay development) in the freshwater <i>Hydra vulgaris</i> . Preliminary results	
MOREAU Xavier. FRANCE	
	<b>16</b>
<b>442313</b> Wastewater-based epidemiology: an affordable approach to disease surveillance and control	
CARITA GONÇALVES José Manuel. SPAIN	
	<b>17</b>
<b>420618</b> Life cycle analysis of a biorefinery and incineration with energy recovery for the processing of the organic fraction of municipal solid waste	
YAÑEZ-VERGARA Alejandra. MEXICO	
	<b>18</b>
<b>449921</b> Facemask use and environmental impacts in Chilean and Mexican landfills	
SOTELO Perla. MEXICO	
	<b>19</b>
<b>449313</b> Influence of operating regime on alginate-like exopolymers (ALE) recovery in aerobic granulation systems under osmotic stress	
FRUTUOSO Kamila. BRAZIL	
	<b>20</b>
<b>451423</b> Induction of hyper-rhizogenesis in <i>Typha domingensis</i> for wastewater remediation	
HERNANDEZ-PIEDRA Guadalupe. MEXICO	



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	<b>21</b>
<b>420246</b> Experience of a horizontal planted wetland for the treatment of greywater for reuse in gardening in rural households of sahelian countries OUATTARA Abou. BURKINA FASO	
	<b>22</b>
<b>442305</b> Enhancement of constructed wetlands performances using reactive media for wastewater reuse in agriculture HDIDOU Meryem. MOROCCO/FRANCE	
	<b>23</b>
<b>449350</b> Treatment of real pig manure by MBR-BWRO membrane system design and its applicable operation method study in pig farm LEE Chang-Kyu . SOUTH KOREA	
	<b>24</b>
<b>449323</b> Comparison of the performance of two upflow anaerobic sludge blanket (UASB) reactors at laboratory level for the transformation of sulfates to sulfides using sulfate-reducing microorganisms ROJAS-TORREBLANCA Fortino. MEXICO	
	<b>25</b>
<b>450228</b> Impact of struvite as recovered phosphorus fertilizer on soil microbial activities and functional diversity in lettuce crop cultivation GARCIA-GONZALO Pilar. SPAIN	
	<b>26</b>
<b>420441</b> Agronomical valorization of spent mushroom substrates as soil amendment LOBO M. Carmen. SPAIN	
	<b>27</b>
<b>442371</b> Correlation analysis between adaptation and tolerance to Cu and Mn of <i>Bacillus megaterium</i> and <i>Rhodotorula mucilaginosa</i> for heavy metal bioremediation ALVAREZ Alfonso. MEXICO	



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	<b>28</b>
<b>449361</b> <b>Semi-passive treatment of the As-rich acid mine drainage of Carnoulès (Gard, France) in sulfate-reducing bioreactor: results from laboratory and on-site experiments</b> <b>BATTAGLIA-BRUNET Fabienne. FRANCE</b>	
	<b>29</b>
<b>450214</b> <b>Bioremediation studies of heavy metals in sediments tailing of "La Concha" Guerrero</b> <b>LOPEZ DELGADO Nayely. MEXICO</b>	
	<b>30</b>
<b>441093</b> <b>Can spontaneous Mediterranean shrubs play a role as a vegetative barrier efficient to trap metal and metalloids contaminated particles in an industrial brownfield?</b> <b>CALMON Lucie. FRANCE</b>	
	<b>31</b>
<b>441925</b> <b>Management of dredged marine sediments in France: main keys to large-scale beneficial re-use</b> <b>DORLEON Garry. FRANCE</b>	
	<b>32</b>
<b>449635</b> <b>Bioremediation of a TPH &amp; polluted soil using vermicompost and a microbial consortium at a pilot scale</b> <b>KHAN Aqib Hassan Ali. SPAIN</b>	
	<b>33</b>
<b>420908</b> <b>Rare earth elements phytoextraction from Bauxite residues</b> <b>LAMWATI Youssef. FRANCE</b>	
	<b>34</b>
<b>449800</b> <b>Phosphate removal and recovery in dairy industry effluents using chitosan beads</b> <b>VILLA Alejandra. IRELAND</b>	





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<b>449052</b> Development and evaluation of environmental sustainability indexes of the family P based on normalized environmental potential impacts <b>MORALES LOPEZ Carlos Eduardo. MEXICO</b>	
	<b>36</b>
<b>442254</b> Biotransformation of fluoroquinolone antibiotics by ligninolytic fungi <b>AKROUT Imen. FRANCE</b>	
	<b>37</b>
<b>448473</b> Retention capacity evaluation of potential substrates to be used as biomixture in biobed systems for the glyphosate treatment presents in agriculture effluents <b>GONGORA-ECHEVERRIA Virgilio R. MEXICO</b>	
	<b>38</b>
<b>450059</b> Evaluation of the external electrical resistance effect on the performance of an electrochemically assisted artificial wetland <b>ROMERO-MARTÍNEZ Jorge Manuel. FRANCE</b>	
	<b>39</b>
<b>450125</b> Microplastics influence soil chemical properties and enzymatic activities involved in C, N and P cycling in an Andisol from mediterranean ecosystem in the central region of Chile. <b>RIVEROS Gustavo. CHILE</b>	
	<b>40</b>
<b>420873</b> Occurrence of emerging flame retardants vs regulated persistent organic pollutants in suspended matter from the eastern French Mediterranean coastline. <b>RIGAL Camille. FRANCE</b>	
	<b>41</b>
<b>420867</b> Enhanced biogas production using anaerobic codigestion of algal biomass with sugarcane vinasse and residual glycerin <b>MOREIRA LEITE Wanderli Rogério. BRAZIL</b>	



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Evaluation of the effect of inter-electrode space on hydrogen production efficiency in long term acclimated microbial electrolysis cell.	
MENDOZA CHAVEZ Claudia. MEXICO	
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Sustainable biogas processing to mitigate climate change	
MONROY Oscar. MEXICO	
420684	44
Effect of the microbial inoculum pre-treatment on VFAs and hydrogen production from the dark co-fermentation of wine lees and waste activated sludge	
LANFRANCHI Alice. FRANCE	
443167	45
Enhanced methane production from wool waste by thermal alkali hydrolysis pre-treatment	
PALACIO Edwin. SPAIN	
420395	46
Theoretical and experimental biomethane yield estimation of cashew shells in Burkina Faso	
NIKIEMA Mahamadi. BURKINA FASO	
442356	47
Study of hydrogen production in batch culture using a non-solventogenic, non-sporogenic, <i>ldh- Clostridium acetobutylicum</i> mutant.	
AROCA Germán. CHILE	
449908	48
Optimization of hydrogen production from industrial wastes using new hyperthermophilic organisms isolated from shallow hydrothermal fields of volcanic islands of the Aeolian archipelago, Italy	
DAVIDSON Sylvain. FRANCE	



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<b>449484</b> In-situ biogas upgradation using autogenerative high pressure in a continuous operating reactor	
	KIM Dong-Hoon. SOUTH KOREA
	<b>50</b>
<b>420989</b> CsrA participates in the regulation of extracellular electron transfer and electroactive biofilm formation in <i>Geobacter sulfurreducens</i>	
	HERNANDEZ-ELIGIO Alberto. MEXICO
	<b>51</b>
<b>420990</b> Transcriptomic profile of a <i>Geobacter sulfurreducens</i> mutant strain with enhanced Fe(III) reduction and bioelectricity production	
	JARAMILLO RODRIGUEZ Juan Bernardo. MEXICO
	<b>52</b>
<b>442324</b> Exploring the potential of redox mediators for the anaerobic conversion of CO <sub>2</sub> via microbial electrosynthesis	
	PALACIOS Paola Andrea. DENMARK
	<b>53</b>
<b>449923</b> Effect of external resistance in power density of microbial fuel cell start up inoculated with <i>Shewanella oneidensis</i> MR-1 and their correlation with biofilm development	
	PADILLA Natalia. CHILE
	<b>54</b>
<b>420250</b> Characterization of different support materials for <i>Geobacter sulfurreducens</i> electroactive biofilm formation	
	RODRIGUEZ-TORRES Luis Miguel. MEXICO
	<b>55</b>
<b>449912</b> Prospection of culture conditions that promote graphene hydrogel synthesis by electrogenic bacteria	
	PRADOS Maria Belen. ARGENTINA



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Volatile fatty acid and methane production of algal biomass mixed with organic substrates using BMP tests and two-stage reactors.	
SCANDOLARA Magnus Bruna. BRAZIL	
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Comparison of products distribution in <i>Clostridium autoethanogenum</i> growing in heterotrophic and mixotrophic conditions.	
AROCA Germán. CHILE	
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Caproic acid production using a mixed culture from granular anaerobic sludge and cassava wastewater	
MOREIRA LEITE Wanderli Rogério. BRAZIL	
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Characteristics of continuous culture of <i>Methylocystis</i> sp. MJC1 using methane as sole carbon and energy source	
NA Jeong-Geol. SOUTH KOREA	
442268	60
Biological fixation of CO <sub>2</sub> from a landfill gas by a microbial community in a biotrickling-filter reactor	
ALVAREZ-GUZMEN Cecilia Lizeth. MEXICO	
420603	61
Anaerobic co-digestion of crude glycerol, sugarcane vinasse, and microalgae biomass using mixture design	
KATO Mario Takayuki. BRAZIL	
420800	62
Effect of operational conditions on the glycerol fermentation in an anaerobic reactor with immobilized mixed microbial consortium	
FLORENCIO DOS SANTOS Maria de Lourdes. BRAZIL	



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451425 Invasive pelagic <i>Sargassum</i> algae in the Caribbean : a key biomass for bioactive molecules extraction and for the synthesis of activated carbons for environmental and energy storage applications NARAYANIN-RICHENAPIN Stacy. GUADELOUPE-FRANCE	
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449075 New metrics for evaluating the environmental sustainability of biorefineries and industrial technologies YAÑEZ-VERGARA Alejandra. MEXICO	
	65
442332 Isolation of <i>Aspergillus flavus</i> strains from Bambara groundnut ( <i>Vigna subterranea</i> (L.) Verdcourt) seeds and screening for the production of aflatoxin B1 and B2 OUATTARA Abou. BURKINA FASO	
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450130 Development of a microbial production process and a formulation of a herbicidal sugar as sustainable alternative to glyphosate STEURER Xenia. GERMANY	
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451204 The circular economy at the service of the environment MEROUANI Amar. ALGERIA	
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441413 Influence of forest litter origin on physico-chemical and microbiological characteristics of a forest litter-based biofertilizer CHRISTEN Pierre. FRANCE	
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433108 Physicochemical description of traditional <i>Ceratonia siliqua</i> L. cultivars GARAU TABERNER Carme. SPAIN	



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441109 Physical control methods ( <i>Globodera pallida</i> and <i>Globodera rostochiensis</i> ) against the cystic nematode ( <i>Globodera pallida</i> and <i>Globodera rostochiensis</i> ) in potato crop" GARAU TABERNER Carme. SPAIN	
433310 <i>Ceratonia siliqua</i> L.: use of marginal lands for sustainable production LUNA PROHENS Joana Maria. SPAIN	71
451426 Alkaline hydrogen peroxide pretreatment of biomass mixtures for photo-fermentative hydrogen production ESCAMILLA ALVARADO Carlos. MEXICO	72
451427 Nutrient behavior as P and heavy metals in woody crops for sustainable nutrition SASTRE-CONDE Isabel. SPAIN	73
451428 Spatial-temporal variations of agronomic characteristics in crops susceptible to <i>Xylella</i> infection in the Mediterranean area. SASTRE-CONDE Isabel. SPAIN	74
451429 Retention capacity of organic and mineral substances in biochar filtered with water, chemical fertilizer and IHPLUS®BF. PENTÓN FERNÁNDEZ Gertrudis/CHRISTEN Pierre. CUBA/FRANCE	75
420489 Toxicity of the gaseous effluent in the biodegradation of toluene by <i>Macrophomina phaseolina</i> RAMÍREZ-LÓPEZ Elsa Marcela. MEXICO	76