Oral Programme

Sunday 14th May 2023

14:30-15:30	**Registration | Room: Reception Area**	
15:30-17:40	**Plenary Session 1 | Room: Garda** **Chair: Duu Jong Lee**, *City University of Hong Kong, Hong Kong*	
15:30-15:40	**Welcome Address | Room: Garda** **Ashok Pandey**, *CSIR-Indian Institute of Toxicology Research, India,* **Duu-Jong Lee**, *City University of Hong Kong, Hong Kong* and **Pete Lewis**, *Publisher Elsevier, UK*	
15:40-16:20	**[PLN01] Boosting biogas plants to biorefineries,** Mohammad Taherzadeh, *University of Borås, Sweden*	
16:20-17:00	**[PLN02] How can bioprocesses contribute to net zero greenhouse gas emissions?** Christian Larroche, *University Clermont Auvergne, France*	
17:00-17:40	**[PLN03] Beyond solid fuels: Cascaded conversion processes for valorizing biorefinery residuals**, Jillian L. Goldfarb, *University of Cornell, USA*	
17:40-19:15	**Welcome Reception & Poster Session 1** | Room: Palavela	

Monday 15th May 2023

08:00-08:30	**Registration | Room: Reception Area**	
08:30-10:00	**Session 1A | Room: Garda** **Chair: Giorgio Mannina,** *University of Palermo, Italy*	**Session 1B | Room: Riva** **Chair: Reeta Rani Singhania**, *National Kaohsiung University of Science and Technology, Taiwan*
08:30-09:00	**[INV01] Hydrogenotrophic methanogenesis: A bright P2G biotechnology,** Francesca Malpei, *Politecnico di Milano DICA, Italy*	**[INV02] Living membrane bioreactors (LMBRs) for the sustainable treatment of wastewater,** Vincenzo Naddeo, *University of Salerno, Italy*
09:00-09:15	**O1A.1 Removal of copper (II) from the aqueous solution using magnetite (Fe_3O_4) biochar derived from Ascophyllum nodosum seaweed,** Prashant Kumar, *National Kaohsiung University of Science and Technology, Kaohsiung, Taiwan*	**O1B.1 Challenges of sustainability assessment of emerging technologies by the example of methyl ketone and biosurfactant production,** Andreas Schonhoff, *Research Centre Jülich, Germany*
09:15-09:30	**O1A.2 Modelling the kinetics of anaerobic hydrolysis of lipid-rich-waste: Elucidation of the effect of temperature,** Samuel Emebu[1,2], [1] *Tomas Bata University in Zlín Faculty of Applied Informatics, Zlín, Czech Republic.* [2] *University of Benin, Nigeria*	**O1B.2 Biorefinery processes for value addition from forest residues: Sustainable and innovative scenarios,** Ali Mohammadi, *Karlstad University, Sweden*
09:30-09:45	**O1A.3 Biogas production from OFMSW is enhanced by nickel addition in a two stages system compared with a conventional digester,** Karina Salazar-Batres, Universidad Nacional Autonoma de Mexico, Mexico	**O1B.3 A biorefinery approach towards valorization of spent coffee grounds and orange peel residues for microbial oil production and extraction using green solvents,** Eleni Stylianou, *Agricultural University of Athens Department of Food Science and Human Nutrition, Greece*
09:45-10:00	**O1A.4 Discretization of the anaerobic digestion model Number 1 added in a dispersion model to simulate an acidogenic anaerobic fixed-bed reactor,** Pamela Couto, *University of São Paulo, São Carlos, Brazil*	**O1B.4 Production and characterization of date sugar encapsulated camel milk powder,** *Jawaher AlYammahi, United Arab Emirates*
10:00-10:30	**Coffee Break, Poster Session 1 & Meet the Publisher Drop In** | Room: Palavela	
10:30-12:00	**Session 2A | Room: Garda** **Chair: Mohammad Taherzadeh**, *University of Borås, Sweden*	**Session 2B | Room: Riva** **Chair: Luciana Vandenberghe,** *Universidade Federal do Paraná, Brazil*
10:30-11:00	**[INV03] Improving methane yield during anaerobic digestion of wet organic waste materials,** Birgitte Ahring, *Washington State University, USA*	**[INV04] Biological production of 3-hydroxypropioninc acid and its applications**, Sunghoon Park, *Ulsan National Institute of Science & Technology, Republic of Korea*
11:00-11:15	**O2A.1 Can hydrothermal carbonization enhance bioplastic degradation and biogas production in the anaerobic digestion process?** Roberta Ferrentino, *University of Trento, Italy*	**O2B.1 Production and characterization of mutant cellobiose 2-epimerases from *caldicellulosiruptor saccharolyticus* in their performance on different substrates,** Andres Illanes, *Pontifical Catholic University of Valparaíso, Chile*
11:15-11:30	**O2A.2 Scale-up of a novel pig slurry additive for gaseous emission reduction with consequential improved biogas and fertiliser dynamics,** Stephen Nolan, *GlasPort Bio, Ireland*	**O2B.2 Continuous medium-chain carboxylic acid production from two sources of wine lees,** German Buitron, *Autonomous National University of Mexico*

11:30-11:45	**O2A.3 Bioelectrochemical hydrogen production from different fermentation products and their mixture,** Yunjeong Cho, *Ulsan National Institute of Science and Technology (UNIST), Republic of Korea*	**O2B.3 Challenges in mass scale production of bio/co-Polymers,** Ashok Kumar Srivastava, *Indian Institute of Technology, India*
11:45-12:00	**O2A.4 Inhibition mechanisms and mitigation strategies in laboratory and full-scale ADs treating OFMSW,** Yadira Bajon Fernandez, *Cranfield University, UK*	**O2B.4 A toolbox for assessing sustainability of emerging biotechnology-based products: A case study on fermentation-based food colorant production,** Samir Meramo, *Novo Nordisk Foundation Center for Biosustainability, Denmark*
12:00-13:30	**Lunch | Palavela**	
12:30-13:30	**Poster Session 2** | Room: Palavela	
12:30-13:30	**Meet the Editors** | Room: Palavela	
13:30-15:00	**Session 3A | Room: Garda** **Chair: Vincenzo Naddeo,** *University of Salerno, Italy*	**Session 3B | Room: Riva** **Chair: Hector A Ruiz,** *Autonomous University of Coahuila, Mexico*
13:30-14:00	**[INV05] Efficient microwave-assisted mineralization of oxytetracycline driven by persulfate and hypochlorite over cu-biochar catalyst,** Daniel Tsang, *The Polytechnic University of Hong Kong, Hong Kong*	**[INV06] Application of artificial intelligence in anaerobic co-digestion of sewage sludge and food waste with microaeration,** Samir Khanal, *University of Hawaii at Mānoa, Honolulu, USA*
14:00-14:15	**O3A.1 Valorisation of alternative feedstocks via the integration of hydrothermal carbonisation and anaerobic digestion; a comparative study of macroalgal and lignocellulosic biomass,** Aaron Brown, *University of Leeds, UK*	**O3B.1 Using electrochemical systems to increase waste treatment efficiency and energy production from food waste,** Amro Hassanein, *University of Maryland at College Park, USA*
14:15-14:30	**O3A.2 Valorization of bio-graphene by characterizing pre-treatment biomass through thermal pyrolysis alteration,** M.D. Nurhafizah, *School of Physics, Universiti Sains Malaysia, Malaysia*	**O3B.2 Microbial conversion of syngas to C4-C6 acids in trickle bed reactors,** Cesar Quintela, *Technical University of Denmark, Denmark*
14:30-14:45	**O3A.3 Effect of washing on ash content of oil palm empty fruit bunches and its biochar,** M.D. Nurhafizah, *Universiti Sains Malaysia, Malaysia*	**O3B.3 Microwave induced Ni/diatomite catalytic steam reforming of spent transformer oil for hydrogen generation,** Siraphop Tocharoen, *Chulalongkorn University, Thailand*
14:45-15:00	**O3A.4 TBC**	**O3B.4 Biological hydrogen production from steam exploded corn silage,** Paul Zanoni, *Université de Strasbourg, France*
15:00-15:30	**Coffee Break and Poster Session 2** | Room: Palavela	
15:30-17:30	**Session 4A | Room: Garda** **Chair: Cristina Gonzalez -Fernandez,** *Madrid Institute for Advanced Studies, Spain*	**Session 4B | Room: Riva** **Chair: Sunghoon Park,** *Ulsan National Institute of Science & Technology, Republic of Korea*
15:30-16:00	**[INV07] Methanosarcina: Response to stress and its application in biowaste anaerobic digestion,** Fan Lu, *Tongji University*, *China*	**[INV08] Second and third generation bioplastics: New alternatives for their production and applications,** Luciana Vandenberghe, *Universidade Federal do Paraná, Brazil*
16:00-16:15	**O4A.1 Impact of iron-based nanoparticles on the continuous lactate-driven dark fermentation of cheese whey,** Octavio Garcia Depraect, *University of Valladolid, Spain*	**O4B.1 Lignocellulose biomass saccharification potential of *Trichoderma* species sg2,** Benedict Okeke, Auburn *University at Montgomery, USA*
16:15-16:30	**O4A.2 Understanding the behaviour of water hyacinth during anaerobic digestion using biochemical methane potential (BMP),** Andrew Ross, *University of Leeds, UK*	**O4B.2 Development of processes to enhance maize kernel fiber value,** Mark Wilkins, *Kansas State University, USA*
16:30-16:45	**O4A.3 Accessibility and complexity of nutrients present in residual microalgal-bacterial biomass for soil conditioning,** German Buitron *Autonomous National University of Mexico*	**O4B.3 Sustainability evaluation of transition to bio-based plastic over emerging manufacturing, modified recycling, and chemical upcycling techniques toward a circular bioeconomy,** Raffel Dharma Patria, *The Hong Kong Polytechnic, Hong Kong*
16:45-17:00	**O4A.4 Bioaugmentation of cellulolytic microorganisms for surmounting the recalcitrance of lignocellulosic substrate in anaerobic digestion,** Jonathan Lee, *NUS Environmental Research Institute, Singapore, Campus for Research Excellence and Technological Enterprise, Singapore*	**O4B.4 Enhancing polyhydroxyalkanoates production from rice husks via deacetylation and microwave pretreatment: Insight into alleviating lignin and acetic acid inhibition,** Vaibhav Andhalkdar, *Rovira i Virgili University, Tarragona, Spain*
17:00-17:15	**O4A.5 Succession of keratin degrading bacteria and associated health risk during the pig manure composting,** Mukesh Kumar Awasthi *College of Natural Resources and Environment, Northwest A&F University, China*	**O4B.5 Enhancing carotenoid fucoxanthin production from marine diatom by growth phase optimization and its antibacterial efficacy against pathogens,** Archana Tiwari, *Amity University, Noida, India*

17:15-17:30	**O4A.6 Sulfate bio-reduction from phosphogypsum leachates and biological recovery of elemental sulfur using O2-MBfR**, Ayoub Bounaga, *Mohammed VI Polytechnic University, Morocco*	**O4B.6 Continuous butanol production from rice straw by *Clostridium beijerinckii* immobilized onto activated carbon**, Carlos Silvestre, *University of Valencia, Spain*

Tuesday 16th May 2023

08:30-10:30	**Plenary Session 2 | Room: Garda** **Chair: Thallada Bhaskar**, *CSIR-Indian Institute of Petroleum, India*	
08:30-09:10	**[PLN04] Innovations in anaerobic digestion and fermentation for a circular economy**, Stephanie Lansing, *University of Maryland, USA*	
09:10-09:50	**[PLN05] Biochemical conversion of biomass: A sustainable approach to biorefinery**, Reeta Rani Singhania, *National Kaohsiung University of Science and Technology, Taiwan*	
09:50-10:30	**[PLN06] Insightful exploration of algae in circular economy**, Huu Hao Ngo, *University of Technology Sydney, Australia*, presented by: **Duu-Jong Lee**, *City University of Hong Kong, Hong Kong*	
10:30-11:00	**Coffee Break, Poster Session 2 & Meet the Publisher Drop In** | Room: Palavela	
11:00-12:00	**Session 5A | Room: Garda** **Chair: Duu Jong Lee**, *City University of Hong Kong, Hong Kong*	**Session 5B | Room: Riva** **Chair: Jillian L Goldfarb**, University of Cornell, USA
11:00-11:15	**O5A.1 The role of hydrothermal treatment in the extraction of high value fucoidan from macroalgae**, Aaron Brown, *University of Leeds, UK*	**O5B.1 Phosphorous recovery from waste aerobic granular sludge**, Riccardo Campo, *University of Florence, Italy*
11:15-11:30	**O5A.2 Algae-based carbon capture and utilisation for UK cluster decarbonization**, Jonathan Wagner, *Loughborough University, UK*	**O5B.2 Effects of thermo-chemical treatments on properties of acacia nilotica-based biosorbents for phenol removal**, Pushpa Jha, *Sant Longowal Institute of Engineering and Technology, India*
11:30-11:45	**O5A.3 Hydrodynamic cavitation mediated intensified microalgal biorefineries**, Sanjay Nagarajan, *University of Bath Department of Chemical Engineering, UK*	**O5B.3 Greenhouse gases emissions during composting: effects of type of manure and bulking agents**, Ana Garcia Randez, *Universidad Miguel Hernández, Orihuela, Spain*
11:45-12:00	**O5A.4 Numerical and analytical insights in directional monolignols harvesting from a lignin-/extractive-rich Camellia oleifera tea oil shell**, Shao-Yuan Leu, *The Hong Kong Polytechnic University, Hong Kong*	**O5B.4 Adaptation of C. pasteurianum using electron mediators for increased butanol production**, Lars Rehmann, *Western University, London, Canada*
12:00-14:00	**Lunch | Palavela**	
12:45-13:45	**"How to write a scientific paper and get published" Workshop with Elsevier Publisher (Early Career Researcher Event)** |Room: Riva	
14:00-14:40	**Plenary Session 3| Room: Garda** **Chair: Christian Larroche**, *University Clermont Auvergne*, *France*	
14:00-14:40	**[PLN07] Towards a greener chemical industry: Advances in the use of oleaginous yeasts** Cristina Gonzalez-Fernandez, *Madrid Institute for Advanced Studies, Spain*	
14:40-15:40	**Session 6A | Room: Garda** **Chair: Anil Kumar Patel**, *National Kaohsiung University of Science and Technology, Taiwan*	**Session 6B | Room: Riva** **Chair: Samir Khanal**, *University of Hawaii at Mānoa, USA*
14:40-15:10	**[INV09] Microbial succession analysis reveals the significance of restoring functional microorganisms during rescue of failed anaerobic digesters by bioaugmentation of nano-biochar amended digestate**, Yen Wah Tong, National University of Singapore, *Singapore*	**[INV10] Design and operation strategies for hydrothermal processing on a pilot scale for biomass fractionation under the biorefinery concept**, Hector A Ruiz, *Autonomous University of Coahuila, Mexico*
15:10-15:25	**O6A.1 Biohydrogen production from algal biomass using dynamic membrane bioreactor (DMBR) system**, Young-Bo Sim, *Yonsei University, Seoul, Republic of Korea*	**O6B.1 Two-step pretreatment of lignocellulosic biomass for high-sugar recovery from the structural plant polymers cellulose and hemicellulose**, Nikki Sjulander, *Institute of Forestry and Engineering, Estonian University of Life Sciences, Estonia*
15:25-15:40	**O6A.2 Important issues in biomethanation of dairy processing wastewater using anaerobic membrane bioreactor: Ammonia inhibition, trace metal deficiency and loading capacity**, Min Ye, *Tohoku University, Japan*	**O6B.2 Continuous *E. coli* fermentation for intensified production of coniferyl alcohol (CA) from lignocellulosic biomass-derived ferulic acid (FA)**, Sansanee Khiawjan, *The Advanced Centre for Biochemical Engineering, University College London, UK*
15:40-16:00	**Coffee Break & Meet the Publisher Drop In** | Room: Palavela	
16:00-17:30	**Session 7A | Room: Garda** **Chair: Dan Tsang**, The Polytechnic University of Hong Kong	**Session 7B | Room: Riva** **Chair: Rajni Hatti-Kaul**, Lund University, Sweden

16:00-16:30	**[INV11] Advances in microalgae research for sustainable biorefinery,** *Anil Kumar Patel, National Kaohsiung University of Science and Technology, Taiwan*	**[INV12] Sewage sludge and greenhouse gas emission minimization from wastewater treatment plants in view of a transition to water resource recovery facility: New insights from wider-uptake EU project**, Giorgio Mannina, *University of Palermo, Italy*
16:30-16:45	**O7A.1 Mathematical modeling trace metal effects on anerobic digestion to improve process performance and methane yield,** Susan George, *Instituto de la Grasa, CSIC, Sevilla, Spain, University of Naples Federico II, Italy*	**O7B.1 Multi-scale analysis of the pyrolysis and combustion of woody pellets under low temperature ramps,** Alain Brillard, *University of Haute-Alsace, France*
16:45-17:00	**O7A.2 Short-chain organic acids from food waste,** Markku Vainio, *Natural Resources Institute Finland, Finland*	**O7B.2 Insights on thermal pyrolysis, pyrolysate composition and kinetic parameters estimation of *Mesua ferrea* L oilseed,** Janaki Komandur, *Indian Institute of Technology Guwahati, India*
17:00-17:15	**O7A.3 Characteristics of wood rotting fungi, *Trichaptum abietinum* and *Trichaptum biforme* are useful for recycling of waste rubber products**, Shin Sato, *Tottori University of Environmental Studies, Japan*	**O7B.3 Microwave-assisted pyrolysis of agro-industrial residues,** Susan Grace Karp, *Federal University of Paraná, Curitiba, Brazil*
17:15-17:30	**O7A.4 Optimizing poultry feed production through time-series lipidomic analysis of *Tetraselmis subcordiformis* in large-scale ORP cultivation under Qatar's arid climate,** Imen Saadaoui, *Algal Technologies Program, Qatar University, Qatar*	**O7B.4 Microbial peroxide producing cell mediated lignin valorization,** Dhruva Mukhopadhyay, *National Institute of Technology, Raipur, India*
19:00-21:30	**Networking Dinner Reception (Tickets to be purchased)**	

Wednesday 17th May 2023

09:00-10:20	**Plenary Session 4 | Room: Garda** **Chair: Yen Wah Tong**, *University of Singapore, Singapore*
09:00-09:40	**[PLN08] Closing the Plastic Loop: Biobased building blocks, degradation and upcycling** Rajni Hatti-Kaul, Lund University, Sweden
09:40-10:20	**[PLN09] Integration of lignin valorization processes for sustainable biorefinery** Thallada Bhaskar, *CSIR-Indian Institute of Petroleum, India*
10:20-10:50	**Coffee Break** | Room: Palavela
10:50-11:30	**Plenary Session 4 (Cont)** **Chair: Yen Wah Tong**, *University of Singapore, Singapore* **[PLN10] Bioupcycling of waste streams into polyhydroxyalkanoates: Opportunities and challenges,** Caixia (Ellen) Wan, *University of Missouri, USA*
11:30-12:00	**Closing Session & Awards** | Room: Garda

Poster Programme

[P1.002]

Hydrothermal conversion of white lupin straw to 5-hydroxymethylfurfural and sugar-rich fractions for biochemical conversion

Hanna Pinkowska*[1], Malgorzata Krzywonos[2], Pawel Wolak[1], Adrianna Zlocinska[3], [1]*Wrocław University of Economics and Business, Department of Industrial Chemistry, Poland,*[2]*Wrocław University of Economics and Business, Process Management Department, Poland,*[3]*Wrocław Medical University, Laboratory of Elemental Analysis and Structural Research, Poland*

[P1.003]

Demonstration scale leaf protein concentrate production: Towards a sustainable biorefinery concept based on fresh grasses and forage legumes

Thalles Allan Andrade*, Natalia Hachow Motta dos Passos, Chia-wen Carmen Hsieh, Aikaterini Mountraki, Morten Ambye-Jensen, *Aarhus University Department of Engineering, Denmark*

[P1.004]

Investigation of severe fractionation technologies in a green biorefinery demonstration plant: Effect on the extraction of high-value compounds and energy consumption

Thalles Allan Andrade*, Damian Estuardo Lopez Fetzer, Morten Ambye-Jensen, *Aarhus University Department of Engineering, Denmark*

[P1.005]

Phycoremediation of the chromium-containing wastewater by naturally developed communities of macroalgae

Daniel Ocinski*[1], Joanna Augustynowicz[2], Konrad Wolowski[3], Ewa Sitek[2], Irena Jacukowicz-Sobala[1], Hanna Pinkowska[1], Rafal Przejczowski[4], [1]*Wroclaw University of Economics and Business, Poland,*[2]*University of Agriculture in Krakow, Poland,*[3]*W Szafer Institute of Botany Polish Academy of Sciences, Poland,*[4]*Alventa SA, Poland*

[P1.006]

Seasonal variability in the biochemical composition of macroalgae community living in the purification system of chromium landfill leachates

Irena Jacukowicz-Sobala*[1], Daniel Ocinski[1], Konrad Wolowski[2], Hanna Pinkowska[1], Joanna Augustynowicz[3], Ewa Sitek[3], Rafal Przejczowski[4], [1]*Wroclaw University of Economics and Business, Poland,*[2]*W Szafer Institute of Botany Polish Academy of Sciences, Poland,*[3]*University of Agriculture in Krakow, Poland,*[4]*Alventa SA, Poland*

[P1.007]

Valorization of vegetable oils through polyhydroxyalkanoates (PHAs) production

Clara Matte Borges Machado*, Luciana Porto de Souza Vandenberghe, Ariane Fatima Murawski de Mello, Carlos Ricardo Soccol, *Federal University of Parana, Brazil*

[P1.008]

Effect of waste digestates on growth and biochemical composition of red microalga *Porphyridium cruentum*

Juliana Ivanova*[1], Ludmila Kabaivanova[2], Tania Toshkova-Yotova[1], [1]*Institute of Plant Physiology and Genetics, BAS, Bulgaria,*[2]*Stephan Angeloff Institute of Microbiology, BAS, Bulgaria*

[P1.009]

Biochar production and characterization from municipal organic resources in Norway

Maria Magdalena Estevez Rego*[1], Renata Tomczak-Wandzel[1], Long Lin[2], Ran Tao[2], Susanne Eich-Greatorex[3], Geir Skogerbo[4], [1]*Aquateam COWI, Norway,*[2]*WAI Environmental Solutions AS, Norway,*[3]*Norwegian University of Life Sciences Faculty of Environmental Sciences and Natural Resource Management, Norway,*[4]*IVAR IKS, Norway*

[P1.010]

Synergistic antioxidant efficacy of phenolic extract of peels of *Kufri Chipsona-3* and *Kufri Jyoti* potato varieties against oxidation of omega-3 fatty acids enriched food supplement

Abhishek Bhattacharya*, Rabi Ranjan Chattopadhyay, *Indian Statistical Institute, India*

[P1.011]

Tackling lipophilic wood extractives in dissolving pulp with lipolytic enzymes

Sebastian Espana Orozco[1], Robert H. Bischof[2], Elisabeth Fitz*[1], [1]*Division Wood Chemistry and Biotechnology, Wood Kplus, Austria,*[2]*Lenzing AG, Austria*

[P1.012]

Optimization of energy bioconversion yield from Sweet sorghum (Sorghum bicolor (L.) Moench)

Bakari Hamadou*[1,2,3], Djomdi Djomdi[3], Ruben Zieba Falama[2], Roger Djouldé Darnan[3], Fabrice Audonnet[1], Pierre Fontanille[1], Cedric Delattre[1], Guillaume Pierre[1], Pascal Dubessay[1], Philippe Michaud[1], Gwendoline Christophe[1], [1]*Université Clermont Auvergne, CNRS, Clermont Auvergne INP, Institut Pascal, France,*[2]*Energy Research Laboratory, Renewable*

Energy Section (LRE/SENC), Institute for Geological and Mining Research (IRGM), Cameroon,[3]*Department of the Renewable Energies, The National Advanced School of Engineering of Maroua, University of Maroua, Cameroon*

[P1.014]

Promoting biomass-waste re-utilization via machine learning algorithms for corncob waste prediction

Ayooluwa Akintola[1], Ayomide Afolabi[2], Opeolu Ogundele[*1], Samson Masebinu[3], Esther Akinlabi[3], [1]*University of Johannesburg - Doornfontein Campus, South Africa,*[2]*Auburn University, USA,*[3]*University of Johannesburg, South Africa*

[P1.015]

Valorisation of whiskey by-products through anaerobic digestion systems

Anga Hackula[*1], Rajas Shinde[1], Daniel Hickey[1], Richard O'Shea[1], Jerry Murphy[1], David Wall[2], [1]*SFI MaREI Centre for Energy, Climate and Marine, Environmental Research Institute, University College Cork, Ireland,*[2]*SFI MaREI Centre for Energy. Climate and Marine, Environmental Research Institute, University College Cork, Ireland*

[P1.016]

Apple pomace as a resource for volatile fatty acids production: Effect of pH under semi-continuous operation

Berta Riano[1], Maria Cruz Garcia-Gonzalez[2], Beatriz Molinuevo-Salces[*1], [1]*Agricultural Technological Institute of Castilla y León, Spain,*[2]*University of Valladolid, Spain*

[P1.017]

Volatile fatty acids production from cheese whey by anaerobic digestion: Effects of pH and temperature

Viviane da Silva-Lacerda[1], Berta Riano[1], Maria Cruz García-Gonzalez[2], Beatriz Molinuevo-Salces[*1], [1]*Agricultural Technological Institute of Castilla y León, Spain,*[2]*University of Valladolid, Spain*

[P1.018]

Vine shoot biomass pretreatment with green solvents in the context of a multiproduct biorefinery

Paloma Manzanares[*], Aleta Duque, Isabel Higueras, Jose Miguel Oliva, *Research Centre for Energy Environment and Technology, Spain*

[P1.019]

Catalytic transfer hydrogenation of xylose using non-fossile H-donors

Lena Hinterholzer[1,2], Lukas Almhofer[1], Danuta Aigner[*1], Robert Bischof[3], Tanja Wrodnigg[2], [1]*Wood K plus, Austria,*[2]*Graz University of Technology, Austria,*[3]*Lenzing AG, Austria*

[P1.020]

Evaluation of a thermo-biological pretreatment concept for lignocellulose based on natural additives by a techno-ecological benchmark study

Patrick Beuel[*1], Christiane Rieker[1], Oliver Hensel[2], [1]*TH Köln University of Applied Sciences, Germany,*[2]*University of Kassel, Germany*

[P1.022]

Horseradish peroxidase pretreatment removes lignin and modifies structural features of fermented rooibos biomass, enhancing holocellulolytic enzyme cocktail activity

Mpho Mafa[*], Mamosela Mohotloane, *University of the Free State, South Africa*

[P1.023]

Ureolytic bacteria-assisted recycling of waste concrete dust

Petr Holecek[1], Kristyna Klikova[2], Zdenek Prosek[1], Dana Konakova[1], Hana Stiborova[2], Vaclav Nezerka[*1], [1]*Czech Technical University in Prague Faculty of Civil Engineering, Czech Republic,*[2]*University of Chemistry and Technology Prague Faculty of Food and Biochemical Technology, Czech Republic*

[P1.024]

Possibility to recover phosphorus and produce syngas from thermal plasma assisted sewage sludge gasification

Vineet Singh Sikarwar[*1,2,3], Alan Maslani[1], Michal Hlina[1], Guido Van Oost[3], Michael Pohorely[2], Tomas Mates[4], Michal Jeremias[1], [5], [1]*Institute of Plasma Physics Czech Academy of Sciences, Czech Republic,*[2]*University of Chemistry and Technology Prague, Czech Republic,*[3]*Ghent University, Belgium,*[4]*Institute of Physics of the Czech Academy, Czech Republic,*[5]*,*

[P1.025]

Effect of salinity, chemical and biological hydrolysis on methane production from *Sargassum*

Gloria Moreno[*], Martin Barragan-Trinidad, German Buitron, *Autonomous National University of Mexico - Juriquilla Campus, Mexico*

[P1.026]

Organic waste upcycling via Hermetia illucens: Effects of substrate quality on larvae growth and recovery of valuable chemicals

Andres Cardenas*, Sushant Giri, Ribhu Gautam, Harif Fontecha, Baqer Aljaman, S. Mani Sarathy, *King Abdullah University of Science and Technology, Saudi Arabia*

[P1.027]

A prototype of 3D porous bioactive, biodegradable scaffolds from fish industry waste collagen mixed with different polymers

Justyna Kozlowska*, Beata Kaczmarek-Szczepanska, *Nicolaus Copernicus University in Torun Faculty of Chemistry, Poland*

[P1.028]

Integrated process development for grass biomass utilization through enzymatic saccharification and upgrading hydroxycinnamic acids via microbial funneling

Yuzo Suzuki*[1], Yuichiro Otsuka[1], Takuma Araki[1], Naofumi Kamimura[2], Eiji Masai[2], Masaya Nakamura[1], Yoshihiro Katayama[3], [1]*Forestry and Forest Products Research Institute, Japan,*[2]*Nagaoka University of Technology, Japan,*[3]*Kantechs Co. Ltd., Japan*

[P1.029]

Greywater treatment using biochar and *Moringa oleifera* seed proteins

Ivan Kozyatnyk*[1], Mary Njenga[2], [1]*Department of Health, Medicine and Caring Sciences, Unit of Clinical Medicine, Occupational and Environmental Medicine, Linköping University, Sweden,*[2]*Centre for International Forestry Research-World Agroforestry (CIFOR-ICRAF), Kenya*

[P1.031]

Depolymerisation of organosolv lignin fractions using Ni/C catalyst: Effect of process conditions and structural features on product distribution

Tina Rocnik Kozmelj*[1,2], Blaz Likozar[3], Edita Jasiukaityte Grojzdek[3], Miha Grilc[3], [1]*National Institute of Chemistry, Slovenia,*[2]*University of Nova Gorica, Slovenia,*[3]*National Institute of Chemistry Slovenia, Slovenia*

[P1.032]

Pilot-scale fast pyrolysis of sun-dried millet and Sorghum straws sourced from arid and semi-arid zones of western africa in a twin-screw mixer reactor

Joshua Oluyinka Ajikashile*[1], Muhammad-Jamal Alhnidi[1], Axel Funke[2], George Kofi Parku[2], Stephen James Ijimdiya[3], Andrea Kruse[1], [1]*University of Hohenheim Institute of Agricultural Engineering, Germany,*[2]*Karlsruhe Institute of Technology, Germany,*[3]*Ahmadu Bello University, Nigeria*

[P1.033]

Coagulants derived from Castanea sativa shells for decolorization of textile dyeing effluents - preliminary studies

Isabella Tomasi*[1,2], Mafalda Rodrigues[3], Silvia Santos[1,2], Rui Boaventura[1,2], Cidalia Botelho[1,2], [1]*LSRE-LCM - Laboratory of Separation and Reaction Engineering – Laboratory of Catalysis and Materials, Portugal,*[2]*ALiCE - Associate Laboratory in Chemical Engineering, Portugal,*[3]*University of Porto Faculty of Engineering, Portugal*

[P1.034]

Vine shoots as a bioresource for furfural production

Carmen Padilla-Rascon, Alfonso Vidal-Castro, Inmaculada Romero Pulido, Eulogio Castro, Encarnacion Ruiz*, *University of Jaen, Spain*

[P1.035]

Reductive liquefaction of forest waste residues to jet fuel-range hydrocarbon over hybrid zeolite – n-doped activated carbon supported nimo catalyst

Quoc Khanh Tran*[1], Muhammad Abdus Salam[2], Hoang Phuoc Ho[1], Derek Creaser[1], Louise Olsson[1], Christian Kugge[3], [1]*Chalmers University of Technology Department of Chemistry and Chemical Engineering, Sweden,*[2]*Chalmers University of Technology, Chemistry and Chemical Engineering, Industrial Materials Recycling, Sweden,*[3]*SCA R&D Center, Sweden*

[P1.036]

Simulated pyrolysis oil stabilization by catalytic hydrotreatment using alumina-supported catalysts

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[P1.037]

Sustainable vine shoots-to-ethanol valorisation towards a circular bioeconomy

Inmaculada Romero*, Alfonso Vidal-Castro, Juan Miguel Romero, Encarnacion Ruiz, Eulogio Castro, *University of Jaen, Spain*

[P1.038]

Machine learning-guided metabolic engineering of *Deinococcus radiodurans* R1 for enhanced production of lycopene from glycerol

Chang Keun Kang, Young-Kwon Park, Yong Jun Choi*, *University of Seoul, Republic of Korea*

[P1.039]

Low-technology hydrogen bioproduction by dark fermentation from fruits and vegetables waste juice and digestate valorization by photofermentation

Simon Pelletier*[1,2], Jean-Pierre Magnin[3], Christine Dumas[1], Jonathan Deseure[3], Barbara Ernst[1], [1]*Hubert Curien Multidisciplinary Institute, France,*[2]*French Environment and Energy Management Agency, France,*[3]*University Grenoble Alpes, CNRS, LEPMI, France*

[P1.040]

Ionophore antibiotics as a means to combat a coccidiosis - modification of lasalocid acid

Monika Papsdorf*, Radoslaw Pankiewicz, *Adam Mickiewicz University Faculty of Chemistry, Poland*

[P1.041]

Enhancing biomethane production from agro-industrial, agricultural and catch crop biomasses through twin-screw extrusion mechanical pretreatment

Arthur Chevalier*[1,2], Philippe Evon[1], Florian Monlau[3], Virginie Vandenbossche[1], Cecilia Sambusiti[2], [1]*Toulouse INP Graduate School of Chemical Materials and Industrial Engineering, France,*[2]*TotalEnergies Jean Féger Scientific and Technical Center, France,*[3]*TotalEnergies Lacq's Research Center, France*

[P1.042]

Demand-driven biogas production in Upflow Anaerobic Sludge Blanket (UASB) reactor

Rajas Shinde*[1,2,3], Anga Hackula[1,3], Richard O'Shea[1,3], Susanne Barth[2], Jerry Murphy[1,3], David Wall[1,3], [1]*MaREI, Environmental Research Institute, University College Cork, Ireland,*[2]*TEAGASC, Ireland,*[3]*University College Cork School of Engineering, Ireland*

[P1.043]

Biodegradation of chlorpyrifos by *Aeromonas veronii* immobilized rice husk biochar

Soumya Koippully Manikandan*[1], Vaishakh Nair[2], [1]*National Institute of Technology Karnataka (NITK), India,*[2]*National Institute of Technology Karnataka, India*

[P1.044]

Biodiesel as extractive agent of butanol for the glycerol upcycling by fermentation: Towards circular biodiesel process

Alejandro Ortega, Paula Marzal, Javier Alvarez-Hornos*, Josep Penya-roja, Carmen Gabaldon, *Universitat de València, Spain*

[P1.045]

Biomarkers discriminate operational status based on ammonia concentration in anaerobic digestion process fed with OFMSW

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[P1.046]

Power-to-biofuels involving anaerobic digestion, CO2 capture, and high-temperature electrolysis subsystems

Hamed Ghiasirad*[1], Towhid Gholizadeh[1], Nemat Abolzadeh[2], Anna Skorek-Osikowska[1], Siamak Mirmasoumi[3], Rahim Khoshbakhti Saray[4], [1]*Silesian University of Technology, Poland,*[2]*Sungun Cathodic Copper Complex, Iran,*[3]*Chabahar Maritime University, Iran,*[4]*Sahand University of Technology, Iran*

[P1.047]

Production of functional platform chemicals from lignin and phenolics from agricultural wastes by microbial fermentation and their applications

Masaya Nakamura*[1,2], Yuzo Suzuki[1], Takuma Araki[1], Tatsuyuki Endo[2], Koki Kameyama[2], Toshiji Kameyama[2], Yoshihiro Katayama[2], [1]*Forestry and Forest Products Research Institute, Japan,*[2]*Kantechs Co. Ltd., Japan*

[P1.048]

Biowaste valorization via hydrothermal carbonization and evaluation of hydrochar as an amendment for soil remediation

Alvaro Amado-Fierro*[1], Ruben Forjan Castro[2], Diego Baragano Coto[2,3], María A. Diez[1], Teresa A. Centeno[1], Jose Luis Rodriguez Gallego[2], [1]*Carbon Science and Technology Institute, Spain,*[2]*INDUROT and Environmental Biogeochemistry & Raw Materials Group, Spain,*[3]*Czech University of Life Sciences Prague Department of Environmental Geosciences, Czech Republic*

[P1.049]

Upflow granular anammox process treating low-strength sewage at ambient temperature: Effects of continuous and transient organic stresses

Hyungmin Choi*, Jinsu Kim, Jihun Park, Changsoo Lee, *Ulsan National Institute of Science and Technology (UNIST), Republic of Korea*

[P1.050]

Sustainable valorization of biomass waste through pyrolysis and upgrading technologies: Process design, optimization, analysis and DEA evaluation

Yousaf Ayub*, Jianzhao Zhou, Tao Shi, Jingzheng Ren, *The Hong Kong Polytechnic University, Hong Kong*

[P1.051]

The role of biofuels in decarbonizing the Italian road transport sector: A systemic analysis

Francesco Cruz Torres*, Gianluca Pellecchia, Matteo Vincenzo Rocco, Emanuela Colombo, *Politecnico di Milano, Italy*

[P1.052]

Improving anaerobic digestion efficiency and optimising *in-situ* CO_2 bioconversion through the application of carbonaceous bioelectrodes

Xue Ning*[1], Richen Lin[1,2], Richard O'Shea[1], David Wall[1], Jerry Murphy[1], [1]*University College Cork, Ireland,*[2]*Southeast University, China*

[P1.053]

Techno-economic analysis and comparative study of biofuels produced from 2nd generation lignocellulosic biomass using fermentation, gasification, and chemocatalytic routes

Ambereen Niaze*, Sreedevi Upadhyayula, *Indian Institute of Technology Delhi, India*

[P1.054]

Lactic acid production from Municipal Forestry and Greening Waste (MFGW) by *Lactobacillus rhamnosus*

Cristina Alvarez, Antonio David Moreno, Maria Jose Negro, Paloma Manzanares*, Ignacio Ballesteros, *Research Centre for Energy Environment and Technology, Spain*

[P1.055]

Cardioprotective and antioxidant activities in vitro of *Macrocystis pyrifera* protein hydrolysates and their stability to temperature and pH changes

Armin Mirzapour-Kouhdasht*[1], Paniz Biparva[2], Shahriyar Valizadeh[2], Marco Garcia-Vaquero[1], [1]*University College Dublin School of Agriculture and Food Science, Ireland,*[2]*Shiraz University School of Agriculture, Iran*

[P1.056]

Effect of operational variables on the *one-pot* production of tagatose using β-galactosidase from *Aspergillus oryzae* and L-arabinose isomerase from the hyperthermophilic bacterium *Thermotoga maritima*

Carla Aburto*[1], Cecilia Guerrero[1], Carlos Vera[2], Felipe Arenas[2], Andres Illanes[1], [1]*Pontifical Catholic University of Valparaíso, Chile,*[2]*University of Santiago Chile, Chile*

[P1.057]

A novel strategy for shelf-life extension of chicken breast fillets: Edible coatings composed of whey protein and fish gelatin hydrolysates

Armin Mirzapour-Kouhdasht*[1], Forouzan Sabzipour-Hafshejani[2], Diako Khodaei[3], Mohammad Sadegh Taghizadeh[2], Marco Garcia-Vaquero[1], [1]*University College Dublin School of Agriculture and Food Science, Ireland,*[2]*Shiraz University School of Agriculture, Iran,*[3]*Atlantic Technological University - Galway City, Ireland*

[P1.058]

The production of various bioproducts from C1 gas via a synthetic modular co-culture with microalgae and bacteria

Nam Kyu Kang*[1], Hyun-Gi Koh[2], Donald R. Ort[2], Yong-Su Jin[2], [1]*Kyung Hee University - Global Campus, Republic of Korea,*[2]*University of Illinois Urbana-Champaign, USA*

[P1.059]

Simultaneous production of syngas and metal biochar via carbon dioxide-assisted conversion of magnetically harvested harmful algae

Hyeonjung Yu*, Dong-Wan Cho, Jungho Ryu, In-Hyun Nam, *Korea Institute of Geoscience and Mineral Resources (KIGAM), Republic of Korea*

[P1.060]

Co-valorization of poultry litter and sewage sludge to produce hydrogen: Process design AI-based optimization and life cycle analysis

Tao Shi*[1], Ayub Yousaf[1], Jianzhao Zhou[1], Sara Toniolo[2], Jingzheng Ren[1], [1]*The Hong Kong Polytechnic University, Hong Kong,*[2]*University of Verona, Italy*

[P1.061]

Steam explosion of green waste for biomethane production

Stafano Longo*[1], Mirco Garuti[2], Mariangela Soldano[2], Chiara Noto[2], Davide Nascetti[1], Enrico Piraccini[1], [1]*HERA - Ecological Transition Department, Italy*,[2]*Centro Ricerche Produzioni Animali (CRPA), Italy*

[P1.062]

From waste to catalyst: Furfural production using alkali-activated iron catalyst

Annu Rusanen*, Elina Pakkanen, Mika Christophliemk, Salla Kalkaja, Katja Lappalainen, *University of Oulu*, *Finland*

[P1.063]

Optimization of succinic acid production from lignocellulosic biomass with CRISPR/Cpf1 genome edited Corynebacterium glutamicum

Dae-Seok Lee, Seryung Kim*, Hyeun-Jong Bae, *Chonnam National University*, *Republic of Korea*

[P1.064]

Biohydrogen and biochar production by pyrolysis of biomass residues: Study of orange peels, dates stones and coffee grounds

Mohamed Ouerhani*[1], Jean-Francois Largeau[2,3], [1]*Icam Ouest, France*,[2]*Icam, France*,[3]*IMT Atlantique - Nantes Campus, France*

[P1.065]

Biofuels from microalgae: Solutions to reduce the impact on water resource

Ilenia Bravo[1], Sara Toniolo*[2], Patrizia Papetti[1], [1]*University of Cassino and Southern Lazio Department of Economics and Law, Italy*,[2]*University of Verona, Department of Management, Italy*

[P1.066]

Pyrochar stabilizes anaerobic digestion of ammonia-rich high strength distillery wastewater: A Taguchi-based multi-criteria analysis

Kunwar Paritosh*, Richard O'Shea, Archishman Bose, Chen Deng, Jerry D Murphy, *University College Cork, Ireland*

[P1.067]

Production of fatty acids and citric acid with *Yarrowia lipolytica* from thermochemically recycled polyethylene

Teba Torres-Zapata*[1], Patricia Lozano-Martínez[1], M.Victoria Martinez-Lorenzo[1], Ruben M.Buey[2], Nicolas Martin-Sanchez[1], [1]*CARTIF Technology Centre, Spain*,[2]*Metabolic Engineering Group, Departamento de Microbología y Genética. Universidad de Salamanca, Spain*

[P1.068]

Pre-treatment and anaerobic co-digestion of organic waste containing bioplastics

Renata Tomczak-Wandzel*, Beata Szatkowska, *Aquateam COWI, Norway*

[P1.069]

Treatment of cotton/polyester textile blends with green solvents for cotton fibres recovery

Miguel Capilla, Helena Poy, Estela Lladosa, Sonia Loras, Pau San Valero, Javier Alvarez Hornos*, *University of Valencia*, *Spain*

[P1.070]

Syngas production from thermal catalytic steam reforming of waste cooking oil

Jurarat Nisamaneenate*[1], Duangduen Atong[2], Viboon Sricharoenchaikul[1], [1]*Chulalongkorn University Faculty of Engineering, Thailand*,[2]*Metal and Materials Technology Center, Thailand*

[P1.071]

Investigating the synergistic effects in co-pyrolysis of fruit waste and high density polyethylene

Abdullah Nooh*, Ribhu Gautam, Sushant Giri, S. Mani Sarathy, *King Abdullah University of Science and Technology Clean Combustion Research Center, Saudi Arabia*

[P1.072]

Numerical analysis of hydrogen-enriched natural gas on combustion and emission characteristics

Radovan Nosek*, Branislav Zvada, Peter Durcansky, Nikola Cajova Kantova, Pavol Micko, *University of Žilina, Slovakia*

[P1.073]

Enhanced biogas production from modified tapioca starch wastewater using zero valent iron and bioelectrochemical system

Patcharin Racho*, Apinya Pongampornnara, *Suranaree University of Technology, Thailand*

[P1.074]

Azo dye anaerobic treatment in a UASB coupled with PVA/Fe/Starch gel-bead biocarrier

Thu Huong Nguyen*[1], Takahiro Watari[1,2], Tien Thong Võ[1], Masashi Hatamoto[1], Tjandra Setiadi[3], Takashi Yamaguchi[1], [1]*Nagaoka University of Technology, Japan,*[2]*Hanoi University of Science and Technology, Vietnam,*[3]*Bandung Institute of Technology, Indonesia*

[P1.075]

Thermogravimetric analysis of solid alternative fuels and formation of particulate matters

Radovan Nosek*, Michal Sramka, Nikola Cajova Kantova, Michal Holubcik, *University of Žilina, Slovakia*

[P1.076]

Emission produced during the combustion of pellets with FFP2 masks as an additive

Nikola Cajova Kantova*, Alexander Caja, Radovan Nosek, Michal Holubcik, *University of Žilina, Slovakia*

[P1.077]

Detoxification of spent sulphite liquor by UV radiation to improve the fermentation of succinic acid und separation of lignosulfonates

Kateryna Huemer*[1], Tom Distler[1,2], Robert H. Bischof[3], Georg Gubitz[2], [1]*Wood K plus, Austria,*[2]*University of Natural Resources and Life Sciences Vienna, Austria,*[3]*Lenzing AG, Austria*

[P1.078]

Hydrothermal processing of food waste: Maximizing product value

Matteo Pecchi*[1,2,3], Nazih Kassem[2], Alex R. Maag,[1], Marco Baratieri[3], Jillian L. Goldfarb[1], [1]*Cornell University Department of Biological and Environmental Engineering, USA,*[2]*Cornell University Smith School of Chemical and Biomolecular Engineering, USA,*[3]*Free University of Bozen Bolzano Faculty of Science and Technology, Italy*

[P1.079]

Design of experiments approach to upgrade pyrolytic oil via hydrotreating and hydrocracking for sustainable aviation fuel

Marcin Sajdak*[1], Miloud Ouadi[2], Artur Majewski[2], Szymon Sobek[1], [1]*Silesian University of Technology Faculty of Energy and Environmental Engineering, Poland,*[2]*University of Birmingham, UK*

[P1.080]

Making paper mills into bio-refineries by utilizing waste streams – with a focus on biogas and biochar

Karin Granstrom*, *Karlstad University, Sweden*

[P1.081]

New insights on antimony removal from water using iron-coated cork granulates: Regeneration on batch and fixed-bed column systems

Mariko Carneiro*[1,2], Tania Silva[1,2], Pedro Teixeira[1,2], Ariana Pintor[1,2], Rui Boaventura[1,2], Cidalia Botelho[1,2], [1]*Laboratory of Separation and Reaction Engineering – Laboratory of Catalysis and Materials (LSRE-LCM), Department of Chemical Engineering, Faculty of Engineering, University of Porto, Portugal,*[2]*ALiCE - Associate Laboratory in Chemical Engineering, Faculty of Engineering, University of Porto, Portugal*

[P1.082]

Impacts of microbiologically activated bio-based fertilizers derived from manure on tomato plants and their rhizospheric communities

Elisa Clagnan*[1], Mirko Cucina[2], Patrizia De Nisi[1], Marta Dell'Orto[1], Giuliana D'Imporzano[1], Roberto Kron Morelli[3], Fabrizio Adani[1], [1]*University of Milan, Italy,*[2]*National Research Council, Italy,*[3]*Agrifutur, Italy*

[P1.083]

Phenolic compounds recovery from brewery waste stream: Performance assessement of integrated ultrafiltration and nanofiltration process

Paul-Loup Pasquet*, Maud Villain-Gambier, Dominique Trebouet, *Hubert Curien Multidisciplinary Institute, France*

[P1.084]

Economic and environmental feasibility of bacterial carotenoid production by waste material utilization

Lukasz Drewniak*, Mikolaj Iwan, Dariusz Bartosik, *University of Warsaw, Poland*

[P1.086]

Potential valorisation of lignin-rich residues by fast pyrolysis for the production of bio-based solvents

Daniel Chernick*, Andrew B Ross, Valerie Dupont, Richard A Bourne, *University of Leeds, UK*

[P1.088]

Biomethanation and bioenergy potential of seven exotic agrofood wastes in plateau state Nigeria

Clement Dabang*, *Brunel University London, UK*

[P1.089]

Efficient enzymatic saccharification-oriented statistical optimization for the valorization of lignocellulosic wastes by *Aspergillus fumigatus* and its secretome profiling

Namrata Joshi*, Jasneet Grewal, Lukasz Drewniak, Kumar Pranaw, *Institute of Microbiology, Faculty of Biology, University of Warsaw, Poland*

[P1.090]

Green-blue and Car-biorefineries to obtain phytopigments and biogas from a commercial microalgal consortium

Pilar Aguila-Carricondo*[1,2], Juan Pablo de la Roche[2], Pedro Luis Galan[2], Luis Fernando Bautista[1], Gemma Vicente[1], [1]*Rey Juan Carlos University, Spain,*[2]*Microalgae Solutions, S.L, Spain*

[P1.091]

Efficiency of drying and pretreating pyrolysis input biomass material

Thomas Pfeiffer*, Gesa Beck, Nikhil Gunza, Raunak Suryavanshi, Khadija Sarqua, Roland Schnell, Shwetha Ramprasad, Arjun Achuthan, *SRH Berlin University of Applied Sciences, Germany*

[P1.092]

Technical and economic study of the colloidal lignin particles production process on the pilot scale

Elham Khalati*, Pekka Oinas, *Aalto University School of Chemical Technology, Finland*

[P1.093]

Characterization of a novel mutant cellobiose 2-epimerase from Caldicellulosiruptor saccharolyticus in the reactions of isomerization and epimerization of lactose

Andres Illanes*[1], Macarena Huerta[1], Nicolas Ramirez[1], Carla Aburto[1], Carlos Vera[2], Felipe Arenas-Salinas[2], Fabian Cornejo[3], Cecilia Guerrero[1], [1]*Pontifical Catholic University of Valparaíso, Chile,*[2]*University of Santiago Chile, Chile,*[3]*Max Planck Unit for the Science of Pathogens, Germany*

[P1.094]

Enhancement of the potential production of biohydrogen and methane from sugarcane bagasse by integrated ozonolysis-enzymatic saccharification

Jacobo Perez Barragan*[1], Octavio Garcia Depraect[2,3], Ramiro Vallejo Rodriguez[1], Elizabeth Leon Becerril[1], [1]*Centre of Investigation and Assistance in Technology and Design of the State of Jalisco, Department of Environmental Technology, Mexico,*[2]*University of Valladolid, Institute of Sustainable Processes, Spain,*[3]*University of Valladolid, Department of Chemical Engineering and Environmental Technology, Spain*

[P1.095]

Catalytic valorisation of water hyacinth into potential liquid biofuels via ethanolysis

Karim Ismail*, Omar Aboelazayem, Andrew Ross, Valerie Dupont, Alison Tomlin, *University of Leeds, UK*

[P1.096]

Modeling of lactulose synthesis with cellobiose 2-epimerase from Caldicellulosiruptor saccharolyticus

Andres Illanes*[1], Addiel Crossier-Guach[2], Macarena Huerta[1], Felipe Arenas-Salinas[2], Cecilia Guerrero[1], Carlos Vera[2], [1]*Pontifical Catholic University of Valparaíso, Chile,*[2]*University of Santiago Chile, Chile*

[P1.097]

Elucidation of gel fouling cause in MBRs treating real sewage

Toru Miwa*, Yuya Takimoto, Masashi Hatamoto, Takahiro Watari, Takashi Yamaguchi, *Nagaoka University of Technology, Japan*

[P1.098]

Development of a simultaneous extraction and fibrillations (SEF) process for enhancing the lignin isolation and glucan conversion

June-Ho Choi*, Minju No, Sang-Mook You, Hyolin Seong, Hyun Gil Cha, Hoyong Kim, *Korea Research Institute of Chemical Technology, Republic of Korea*

[P1.099]

A study on increased pretreatment efficiency via self-catalyst recycling system of condensate for hydrothermal pretreatment

June-Ho Choi, Myeong Rok Ahn, Kyung-An Kim, Chan-Duck Jung, Hyun Gil Cha, Hoyong Kim*, *Korea Research Institute of Chemical Technology, Republic of Korea*

[P1.100]

Anaerobic digestion of lactose-rich wastewater: The effect of different inoculum to substrate (I/S) ratio and pH adjustment on mesophilic temperatures

Aldyon Restu Azkarahman*[1], Afroditi Chatzifragkou[1,2], Denise Cysneiros[3], Kimon-Andreas Karatzas[1], [1]*University of Reading, Department of Food and Nutritional Sciences, UK,*[2]*Brawijaya University, Faculty of Animal Science, Indonesia,*[3]*Future Biogas Limited, UK*

[P1.101]

Phosphorus extraction from sewage sludge incineration ash (SSA) and its applicability to struvite crystallization process

Nari Park*[1], Hyangyoun Chang[1], Miratul Maghfiroh[2,3], Miseon Kim[2], Hyunman Lim[1], Jinhong Jung[1], Weonjae Kim[1], [1]*Korea Institute of Civil Engineering and Building Technology, Republic of Korea,*[2]*University of Science and Technology, Republic of Korea,*[3]*Research center for limnology, National Research and Innovation Agency (BRIN), Indonesia*

[P1.102]

Improve production of D-mannose and bioethanol from spent coffee grounds by combination of enzymatic hydrolysis and selective fermentation

Eun Jin Cho*, Eunseo Kim, Hyeun-Jong Bae, *Chonnam National University, Republic of Korea*

[P1.103]

Bioconversion of fruit wastes and agricultural waste into value-added products for circular bio economy

Jihye Chang*, Sehee Jang, Hyeun-Jong Bae, *Chonnam National University, Republic of Korea*

[P1.104]

Elimination of water exchange using DHS system in a recirculating aquaria system bred with juvenile *Oreochromis niloticus*

Nur Adlin*[1], Laddu Samadhi Wandana[1], Wilasinee Kotcharoen[1], Masashi Hatamoto[1], Takahiro Watari[1], Yutaka Takeuchi[2], Takashi Yamaguchi[1], [1]*Nagaoka University of Technology, Japan,*[2]*Kanazawa University, Japan*

[P1.106]

A novel wet biogas refinement system combined with mineral carbonization to recover both CH_4 and CO_2

HyangYoun Chang*[1], Weon-Jae Kim[1], Nari Park[1], Jinhong Jung[1], Sang-Jong Han[1], Mi-Seon Kim[2], Hyun-Man Lim[1], Sanghoon Ji[1], [1]*Korea Institute of Civil Engineering and Building Technology, Republic of Korea,*[2]*University of Science and Technology, Republic of Korea*

[P1.107]

Protein, polyglucan and phycocyanin production with the acidophilic microalgae *Galdieria sulphuraria*

Alfredo Martinez*, Mariana Manzoni-Maroneze, Carlos Montenegro-Herrera, *National Autonomous University of Mexico, Mexico*

[P1.108]

Xylose-glucose simultaneous consumption and efficient conversion to ethanol from different lignocellulosic hydrolysates with the ethanologenic *Escherichia coli* strain MS04

Alfredo Martinez*, Eliseo Molina-Vázquez, Estefanía Sierra-Ibarra, *National Autonomous University of Mexico, Mexico*

[P1.109]

Prevention of ammonia inhibition in solid-state mono anaerobic digestion of pig manure using digestate biochar

Shohei Riya*, Kotaro Ishida, *Tokyo University of Agriculture and Technology Faculty of Engineering Graduate School of Engineering, Japan*

[P1.110]

Perceived ease of use and usefullness of deepfield biomass pyrolysis by Ghanaian smallholders and a projection of effects on climate

Thomas Pfeiffer*[1], Roland Schnell[1], Teddy Kinyanjui[2], Gesa Beck[1], Susanne Neubert[3], Christiana Amoatey[4], Mike Commeh[5], Khadija Sarqua[1], Nikhil Gunza[1], Raunak Suryawanshi[1], [1]*SRH Berlin University of Applied Sciences, Germany,*[2]*Cookswell Jycos Ltd., Kenya,*[3]*Humboldt University of Berlin, Germany,*[4]*University of Ghana, Ghana,*[5]*Kwame Nkrumah University of Science and Technology, Ghana*

[P1.111]

Assessment of the biochemical methane potential of fruit and vegetable wastes from wholesale markets in batch as well as continuously operated reactors

Achilleas Kalogiannis*, Katerina Stamatelatou, *Democritus University of Thrace, Greece*

[P1.112]

Commissioning and preliminary results of a slurry biomass-to-liquid pilot plant

Stephan Hochgerner*[1,2], Stefan Arlt[1,2], Theresa Koeffler[1,2], Gerald Weber[2], Matthias Kuba[1,2], Reinhard Rauch[3], Hermann Hofbauer[1], [1]*TU Wien University, Austria,*[2]*Bioenergy and Sustainable Technologies GmbH, Austria,*[3]*Karlsruhe Institute of Technology Engler Bunte Institute, Germany*

[P1.113]

Production of glucose from rice straw using microwave assisted deep eutectic solvent pretreatment: An optimization study using response surface methodology

Helena Poy, Estela Lladosa*, Alejo Valles, Carmen Gabaldon, Sonia Loras, *University of Valencia, Spain*

[P1.114]

Evaluation of ternary deep eutectic solvent pre-treatment of rice straw: Enhancement of sugar hydrolysis for the biobutanol production

Helena Poy[1], André M. da Costa Lopes[2,3], Estela Lladosa[*1], Carmen Gabaldón[1], Sonia Loras[1], Armando J.D. Silvestre[2], [1]*University of Valencia, Spain,*[2]*University of Aveiro CICECO, Portugal,*[3]*Collaborative Laboratory Towards Circular Economy, Portugal*

[P1.115]

Prediction of CO_2 adsorption onto biochar derived from agriculture biomass using applied machine learning

Nouf AlDossary[*], Fatimah AlKhowildi, Jory Mayoof, Kawther AlHajji, Mukarram Zubair, Ibrahim AlJamaan, Ijlal Ateeq, *Imam Abdulrahman Bin Faisal University, Saudi Arabia*

[P1.118]

Biorefinery approaches for the integral valorization of chestnut shells from the agrifood industry

Catarina Teixeira-Guedes[*1,2], Joana Gomes-Dias[1,2], José António Teixeira[1,2], Cristina Rocha[1,2], [1]*University of Minho Centre of Biological Engineering, Portugal,*[2]*LABBELS - Associate Laboratory in Biotechnology, Bioengineering and Electromechanical Systems, Portugal*

[P1.119]

Automated quantification of intracellular lipid for bio-diesel production using a deep-learning based image sensing

Jeong-Joo Oh[*1], Changmin Lee[2], [1]*Korea University, Republic of Korea,*[2]*Yonsei University, Republic of Korea*

[P1.120]

Potential industrial biocatalysts from the well-known biocontrol agent Beauveria bassiana

Prof Santhosh Kumar Kuttan Pillai[*], Dr Ayodeji Amobonye, Dr Prashant Bhagwat, Prof Suren Singh, *Durban University of Technology, South Africa*

[P1.121]

A compendium on Gamma-aminobutyric acid (GABA) with special emphasis on the UN's sustainable development goals under SDG3 & SD12

Bikash Kumar[*], Kiran Bala, *Indian Institute of Technology Indore, India*

[P1.122]

Optimal temperature policy for the fructose production from lactose in a packed-bed reactor subject to thermal deactivation and using a multi-enzyme biocatalyst

Pablo Silva[1], Andres Illanes[*1], Felipe Scott[2], Lorena Wilson[1], Raúl Conejeros[1], [1]*Pontifical Catholic University of Valparaíso, Chile,*[2]*University of the Andes, Chile*

[P1.123]

Microbiome analysis of operating conditions effects on the production of fatty acids from organic residues: a multivariate experimental approach across microbial inoculum sources

Jorge Rico[*], Kenneth Reardon, Susan De Long, *Colorado State University, USA*

[P1.126]

Exopolysaccharide production by the marine bacterium *Alteromonas macleodii* Mo169 using fruit pulp waste as sole carbon source

Patrícia Concórdio-Reis[1,2], Bruno Serafim[*1,2], João R. Pereira[1,2], Xavier Moppert[3], Jean Guézennec[4], Maria A.M. Reis[1,2], Filomena Freitas[1,2], [1]*Associate Laboratory i4HB – Institute for Health and Bioeconomy, School of Science and Technology, NOVA University Lisbon, Portugal,*[2]*UCIBIO – Applied Molecular Biosciences Unit, Department of Chemistry, School of Science and Technology, NOVA University Lisbon, Portugal,*[3]*Pacific Biotech BP, French Polynesia,*[4]*AiMB (Advices in Marine Biotechnology), France*

[P1.127]

Changes in Mechanical Properties of PHA and Silylated CNFs Composite Depending on Types of Polysiloxanes

Jaemin Jo[*], Dong An Cha, In Park, Bonwook Koo, *Korea Institute of Industrial Technology, Republic of Korea*

[P1.128]

Green strategies for *Gelidium* biomass use: enhancing hydrocolloid extraction and by-product valorization in a zero-waste approach

Joana Gomes-Dias[1,2], Catarina Teixeira-Guedes[1,2], Sara Pereira[1,2], José António Teixeira[*1,2], Cristina Rocha[1,2], [1]*University of Minho Centre of Biological Engineering, Portugal,*[2]*LABBELS - Associate Laboratory in Biotechnology, Bioengineering and Electromechanical Systems, Portugal*

[P1.130]

Development of cultivation strategies of microalgae endemic from Mexico and *Spirulina platensis* for the production of high added value compounds in terms of a biorefinery

Rosa M. Rodríguez-Jasso*, Samanta Machado-Cepeda, Gabriela Cid, Alejandra Cabello, Regina Barboza, Miriam Rosales, Gilver Rosero, Héctor A. Ruiz, *Autonomous University of Coahuila, Mexico*

[P1.131]

Pilot-scale tubular steam explosion batch reactor for bioethanol production using macroalgae biomass

Rosa M. Rodríguez-Jasso*, K.D. González-Gloria, Héctor A. Ruiz, *Autonomous University of Coahuila, Mexico*

[P1.132]

Experimental study on hydrothermal co-liquefaction of *Laminaria digitata* and *Chlorella vulgaris* to investigate the impact of the bio-oil yield

Souman Rudra*[1], Taimur Akhtar[2], [1]*Professor at University of Agder, Norway,*[2]*University of Agder, Norway*

[P1.133]

Species specific responses of growth, physiology and metabolic profile of two duckweed species under vanadium and barium treatment

Hanwant Singh*, Deepak Kumar, Vineet Soni, *Mohanlal Sukhadia University Faculty of Science, India*

[P1.135]

Efficacy assessment of phosphate removal from eutrophic waters and the impact on the structure of MMOs

Márcia Silva*, Tiago Farraia, João Tedim, *CICECO-Aveiro Institute of Materials, Department of Materials and Ceramic Engineering, University of Aveiro, Aveiro, Portugal*

Poster Session 2

[P2.001]

Upgrading paper mill wastewater materials to forestry fertilizers and plant nursery growth media

Maria Sandberg*, Ali Mohammadi, Martyna Zywalewska, Karin Granström, *Karlstad University, Sweden*

[P2.002]

Lignocellulosic pruning waste adsorbents to remove emerging contaminants from tire wear and pharmaceuticals present in wastewater in a circular economy scenario

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[P2.003]

Development of functional consortia for the pretreatment of compostable lignocellulosic waste

Juan A. Lopez-Gonzalez*, Francisca Suarez-Estrella, Macarena M. Jurado, Victor Carpena-Istan, Raul Jimenez, Jesus Salinas-Nieto, Rosario Lerma-Moliz, Ana Toribio, María R. Martínez-Gallardo, María J. Estrella-Gonzalez, María J. Lopez, *Unit of Microbiology, Department of Biology and Geology, CITE II-B, Agrifood Campus of International Excellence ceiA3, CIAIMBITAL, University of Almería, Spain*

[P2.004]

Fish sludge and FNA (Free Nitrous Acid) as combined solution for increased biogas production

Beata Szatkowska*[1], Renata Tomczak-Wandzel[1], Kamil Janiak[2], Mateusz Muszynski-Huhajlo[2], [1]*Aquateam COWI, Norway,*[2]*Wroclaw University of Science and Technology, Poland*

[P2.005]

Valorization of agri-food waste as a sustainable source of phenolics and other bioactive compounds

Patrizia De Nisi*, Marta Dell'Orto, Fabrizio Adani, *Gruppo Ricicla –DiSAA-Università degli Studi di Milano, Italy*

[P2.006]

Evaluation of operation parameters on biogas purification plant to optimize CH_4 upgrading and CO_2 capture

Miseon Kim*[1], Sangjong Han[2], Hyangyoun Chang[2], Nari Park[2], Hyunman Lim[2], Sanghoon Ji[2], Jinhong Jung[2], Kwangho Ahn[2], Weonjae Kim[1,2], [1]*University of Science and Technology, Republic of Korea,*[2]*Korea Institute of Civil Engineering and Building Technology, Republic of Korea*

[P2.007]

Comparison of the impact of pyrochar and lignite on the anaerobic digestion of liquid dairy manure

Anna Leithaeuser*[1], Roland Span[1], Mandy Gerber[2], [1]*Ruhr University Bochum, Germany,*[2]*University of Applied Sciences Bochum, Germany*

[P2.008]

Comparison of methane yield and microbial community in anaerobic digestion under ammonia-stressed conditions

Il Ho Bae*, Jae Won Jeong, Il Woo Kang, Dae Wook Kim, Ju Hee Shin, Jin Mi Triolo, Seung Gu Shin, *Gyeongsang National University, Republic of Korea*

[P2.009]

Microbial biopolymer recovery from waste streams

Kasra Khatami*, Zeynep Cetecioglu, *KTH Royal Institute of Technology, Sweden*

[P2.010]

To composting… and beyond: New strategies for the optimization of the agronomic potential of hydrochar

Daniela Bona*[1], Donato Scrinzi[2,1], Gianni Andreottola[2], Luca Fiori[2], Fulvia Tambone[3], Silvia Silvestri[1], [1]*Edmund Mach Foundation Research and Innovation Centre, Italy,*[2]*University of Trento Department of Civil Environmental and Mechanical Engineering, Italy,*[3]*University of Milan Department of Agricultural and Environmental Sciences Production Territory Agroenergy, Italy*

[P2.011]

Sequential optimization of synthesis conditions for activated carbon prepared from waste-biomass by a novel integrated furnace-microwave activation

Rajesh Choudhary*, Aravamudan Kannan, T. Renganathan, *Indian institute of technology Madras, India*

[P2.012]

Potential of simultaneous saccharification and fermentation process to produce biobutanol from red beet discard

Raquel Perez, Juan Carlos Lopez-Linares, Monica Coca, Susana Lucas, Maria Teresa Garcia Cubero*, *University of Valladolid, Spain*

[P2.013]

Simultaneous saccharification and fermentation as an alternative in biobutanol production from sugar beet pulp

Sena Saglamoz, Raquel Perez, Juan Carlos Lopez Linares, Monica Coca, Susana Lucas*, Maria Teresa Garcia-Cubero, *University of Valladolid, Spain*

[P2.014]

Implementation of a low-cost system for the monitoring of a fermentation process in a stirred tank bioreactor

Jaime Madruga, Juan Carlos Lopez-Linares, Maria Teresa Garcia-Cubero, Maria Isabel del Valle*, *University of Valladolid, Spain*

[P2.015]

Simultaneous saccharification and fermentation of thermoplastic starch and rice straw to produce lactic acid

Alejo Valles, Mario García-Puchol, Pau San-Valero, F. Javier Alvarez-Hornos*, Carmen Gabaldon, *University of Valencia, Spain*

[P2.017]

Proposal of carbon-neutral sewage treatment system considering resource and energy recovery

WeonJae Kim*, Hyangyoun Chang, Nari Park, Hyunman Lim, *Korea Institute of Civil Engineering and Building Technology, Republic of Korea*

[P2.018]

Steam-explosion as a pre-treatment for biomethane generation from water hyacinth

Betul Esen*[1], Aaron E. Brown[1], Jessica M. M. Adams[2], Andrew B. Ross[1], [1]*University of Leeds School of Chemical and Process Engineering, UK,*[2]*Aberystwyth University, UK*

[P2.019]

Feeding and temperature strategies for high cell density cultures of *Priestia megaterium* DSM 509

Jean Coltin*[1,2], David Corroler[1,2], Ridha Mosrati[1,2], [1]*University of Caen Normandy, France,*[2]*UR 4651 Aliments Bioprocédés Toxicologie Environnements, France*

[P2.020]

Strengthening of *Lumbricus terrestris* microbiome using probiotics as a novel plastic degradation strategy

Victor Carpena-Istan*, Macarena M. Jurado, Jesus Salinas, Juan A. Lopez-Gonzalez, Maria J. Estrella-Gonzalez, Ana Toribio, Maria R. Martinez-Gallardo, Francisca Suarez-Estrella, Maria J. Lopez, *University, Spain*

[P2.021]

Development of bioorganic fertilizers from agro-industrial waste using solid-state fermentation with fungal inoculants: A sustainable approach to address the peak phosphorous problem and heavy metal contamination

Jennifer Nester*, Agnieszka Saeid, *Wrocław University of Science and Technology, Poland*

[P2.022]

Uncovering the potential of landfill leachate for biodegradation of cassava-derived plastics

Laura Zorza*[1], Dita Gudra[2], Katrina Sipola[1], Baiba Tensone[3], Lilija Dukalska[3], Karlis Vonda[3], Davids Fridmanis[2], Ineta Kalniņa[2], [1]*University of Latvia, Faculty of Biology, Latvia,*[2]*Latvian Biomedical Research and Study Centre, Latvia,*[3]*Getlini EKO Ltd, Latvia*

[P2.023]

Fine-tuning of *Yarrowia lipolytica* fermentation for efficient crude glycerol bioconversion towards valuable products

Asimina Tsirigka*[1,2], Alexandra Moschona[1], Eleni Theodosiou[3], Antonios M. Makris[3], Anastasios J. Karabelas[1], Sotiris I. Patsios[1], [1]*Laboratory of Natural Resources and Renewable Energies, Chemical Process and Energy Resources Institute, Centre for Research and Technology - Hellas, Greece,*[2]*Department of Chemical Engineering, Aristotle University of Thessaloniki, Greece,*[3]*Institute of Applied Biosciences, Centre for Research and Technology - Hellas, Greece*

[P2.024]

Valorization of hydrothermal carbonization food waste process water by dark fermentation

Mario P. Diez*, Emma Barahona, Maria de los Angeles De la Rubia, Angel F. Mohedano, Elena Diaz, *Autonomous University of Madrid, Spain*

[P2.025]

Optimal locations for developing biomass supply chains by incorporating GIS and AHP: A case study

Maryam Roudneshin*, Amanda Sosa, *University College Dublin, Ireland*

[P2.026]

Challenges in energy transition: Greek biorefinery development in the emerging biofuel industry

Evanthia Nanaki*[1], Spyros Kiartzis[2], Apostolis Koutinas[3], Nikolaos Giannakis[3], Eleni Stylianou[3], [1]*Helleniq Energy, Greece,*[2]*HELLENIQ ENERGY, Greece,*[3]*Agricultural University of Athens, Greece*

[P2.027]

Biological production of ectoine from methane and lignocellulose-derived sugars using a type I methanotroph

Eun Yeol Lee*, Diep Ngoc Pham, *Kyung Hee University - Global Campus, Republic of Korea*

[P2.028]

Effective biohydrogen production via steam gasification of biomass over Nickel/metal oxide composite

Young-Kwon Park*[1], Suhyeong Chai[1], Haneul Shim[1], Bo Sung Kang[1], Sumin Pyo[2], Hoesuk Yim[1], Dongwon Chang[1], [1]*University of Seoul, Republic of Korea,*[2]*Korea Advanced Institute of Science and Technology, Republic of Korea*

[P2.029]

Effluent quality and microbial community structure of a high-rate down-flow hanging sponge system installing in Thailand

Takahiro Watari*[1], Yoshihiro Kirishima[2], Pairaya Choeisai[3], Thanapat Thep-ubon[3], Wilasinee Kotcharon[1], Masashi Hatamoto[1], Takashi Yamaguchi[1], [1]*Nagaoka University of Technology, Japan,*[2]*NJS Co. LTD, Japan,*[3]*Khon Kaen University, Thailand*

[P2.030]

Spruce wood biorefinery for integrated production of 2,3-butanediol and biogas: A material flow analysis study

Farinaz Ebrahimian*, Ali Mohammadi, *Karlstad University, Sweden*

[P2.031]

The effect of steam explosion pretreatment with 2-naphthol on substrates produced from softwood bark

Andreas Averheim*[1], Stefan Stagge[2], Leif Jonsson[2], Sylvia Larsson[3], Mikael Thyrel[3], [1]*Valmet AB, Sweden,*[2]*Umeå University, Sweden,*[3]*Swedish University of Agricultural Sciences, Sweden*

[P2.032]

Biomass waste from the food industry: Synergies between thermochemical processes to obtain biofuels and materials for the efficient purification of biogas

E. Ciurcina[1], S. Paniagua[2,3], L. Taboada-Ruiz[1], E. Fuente*[1], F. Suarez-Garcia[1], M. Diaz Somoano[1], B. Ruiz[1], [1]*Instituto de Ciencia y Tecnología del Carbono (INCAR), CSIC, Spain,*[2]*University of Valladolid. Department of Applied Physics, Spain,*[3]*Institute of Sustainable Processes, University of Valladolid, Spain*

[P2.033]

Sequential co-pretreatment and anaerobic digestion of lignocelluloses and carcasses for biogas production

Dae Wook Kim*, Il Ho Bae, Juhee Shin, Jin Mi Triolo, Seung Gu Shin, *Department of Energy System Engineering, Gyeongsang National University, Republic of Korea*

[P2.034]

Sustainability assessment of poly(lactic acid) production from wheat straw

Sofia Maria Ioannidou*[1], Dimitrios Ladakis[1], Ricardo Rebolledo-Leiva[2], Maria Teresa Moreira[2], Ioannis Kookos[3], Apostolis Koutinas[1], [1]*Agricultural University of Athens Department of Food Science and Human Nutrition, Greece,*[2]*University of*

Santiago de Compostela Department of Chemical Engineering, Spain,[3]University of Patras Department of Chemical Engineering, Greece

[P2.035]

Protein engineering of exo-inulinase from Aspergillus awamori

Alexandra Rozhkova*, Anna Dotsenko, Yury Denisenko, Igor Shashkov, Arkady Sinitsyn, *Federal Research Centre "Fundamentals of Biotechnology" RAS, Russia*

[P2.036]

Prediction of anaerobic digestion indicators through long-term monitoring and machine learning in industrial-scale biogas plants

Dae Wook Kim*[1], Il Ho Bae[1], Sung Il Yu[2], Jin Mi Triolo[1], Juhee Shin[1], Jongha Lim[3], Hyoungyoung Ye[4], Jungsoo Mun[4], Seung Gu Shin[1], [1]*Department of Energy System Engineering, Gyeongsang National University, Republic of Korea,[2]School of Urban and Environmental Engineering, Ulsan National Institute of Science and Technology, Republic of Korea,[3]Civil Engineering Division, Lotte Engineering & Construction Co., Ltd., Republic of Korea,[4]Research & Development Institute, Lotte Engineering & Construction Co., Ltd., Republic of Korea*

[P2.037]

Graphene materials prepared from an agar–agar industry macroalgae waste exhibiting outstanding radionucleide removal efficiency

Maria Gonzalez-Ingelmo, Patricia Alvarez*, Marcos Granda, Enrique Fuente, Begona Ruiz, *Carbon Science and Technology Institute, Spain*

[P2.038]

Development of a biological purification process of lactic acid solutions employing a genetically modified *E.coli* strain

Alexandra Nastouli*[1,2], Joseph Sweeney[3], Michael Harasek[2], Anastasios J. Karabelas[1], Sotiris I. Patsios[1], [1]*Chemical Process and Energy Resources Institute, CERTH, Greece,[2]Institute of Chemical, Environmental and Bioscience Engineering, TU Wien, Austria,[3]School of Biosystems and Food Engineering, University College Dublin (UCD), Ireland*

[P2.039]

LIPEPSTREM: discovering the biotechnological potential of cyanobacteria isolated from hot deserts and polar mats

Samuel Cires*[1], David Velazquez[1], María Cristina Casero[1], Antonio Quesada[1], Lars Wormer[2], [1]*Autonomous University of Madrid, Spain,[2]University of Bremen Center for Marine Environmental Sciences, Germany*

[P2.040]

Effects of the agricultural plastic waste presence (LDPE, LLDPE, PET and PS) in vermicomposting process inoculated with polymer degrading microorganisms

Jose Antonio Saez*[1], Zbigniew Emil Blesa Marco[1], Jesus Salinas[2], Encarnacion Martínez Sabater[1], Luciano Orden[1,3], Francisco Javier Andreu-Rodriguez[1], Victor Carpena[2], María Angeles Bustamante[1], María J. Lopez[2], Raul Moral[1], [1]*Universidad Miguel Hernández, Spain,[2]Universidad Almeria, Spain,[3]3 Estación Experimental Agropecuaria INTA, Argentina*

[P2.041]

Ferric iron-dosed anaerobic biological treatment of concentrated wastewater for recovery of phosphorus and ammonium

Carley Shingleton, Rifat Anwar, Lian-Shin Lin*, *West Virginia University, USA*

[P2.042]

Bovine manure biochar as a sustainable stabilizer of acid substrate anaerobic digestion

Glen Madrigal[1], Oscar Mendieta[2], Jaime Jaimes-Estevez*[3], [1]*Union Peruvian University, Peru,[2]Corporacion Colombiana de Investigación Agropecuaria, Colombia,[3]Industrial University of Santander, Colombia*

[P2.043]

Development of novel biotech procedure to promote plastic degradation in soil by means *Lumbricus tererstris* action

Zbigniew Emil Blesa Marco[1], Jose Antonio Saez Tovar*[1], Jesus Salinas[2], Encarnacion Martinez Sabater[1], Luciano Orden[1], Francisco Javier Andreu-Rodriguez[1], Victor Carpena[2], Maria Angeles Bustamante[1], Maria J. Lopez[2], Raul Moral[1], [1]*Universidad Miguel Hernández, Spain,[2]Universidad Almeria, Spain*

[P2.044]

Production of sustainable soil amendment products from the hydrothermal carbonisation of pig manure

Andrew Ross*[1], Donato Scrinzi[2], Aaron Brown[1], Meredith Stevens[1], Luca Fiori[2], Gianni Andreottola[2], [1]*University of Leeds, UK,[2]University of Trento, Italy*

[P2.045]

Catalytic one-pot ethanolysis of corncob into ethyl levulinate: Process multivariate optimisation

Andrew Ross*[1], Omar Aboelazayem[2], Alison Tomlin[1], Valerie Dupont[1], [1]*University of Leeds, UK,[2]Teesside University, UK*

[P2.046]

Fate of micropollutants during hydrothermal carbonisation of sewage sludge

Lara Carvalho*, Ali Ahmad Shahnawazi, Sebastian Schwede, *Mälardalen University Sweden, Sweden*

[P2.047]

Pectin-based edible coatings preparation derived from sugar beet pulp through biorefinery context and application for the shelf life extension of shrimp

Mirva Sarafidou*, Matina Tsokri, Evmorfia Athanasopoulou, Theofania Tsironi, Apostolis Koutinas, *Agricultural University of Athens, Greece*

[P2.048]

Biological production of poly(3-hydroxybutyrate-co-3-hydroxyvalerate) (PHBV) copolymer by type II methanotroph

Ok kyung Lee*, Eun yeol Lee, *Kyung Hee University - Global Campus, Republic of Korea*

[P2.049]

Combined chemical and biological recirculation of post-consumerbioplastics for the production of poly(3-hydroxybutyrate)

Chrysanthi Argeiti*, Eirini Sfyri, Konstantina Iliopoulou, Dimitris Ladakis, Apostolis Koutinas, *Agricultural University of Athens, Greece*

[P2.050]

Hydrolases and oxygenases in the process of hardwood pulp saccharification

Ivan Zorov*[1,2], Margarita Semenova[2], Aidar Satrutdinov[2], Arkady Sinitsyn[1,2], Alexandra Rozhkova[2], [1]*Lomonosov Moscow State University Department of Chemistry, Russia,*[2]*FSI Federal Research Centre Fundamentals of Biotechnology of the Russian Academy of Sciences, Russia*

[P2.051]

Development of a combined technoeconomic analysis and life-cycle analysis tool for calculating the carbon abatement cost of on-farm anaerobic digestion systems

Jorge Diaz Huerta*, Richard O'Shea, David Wall, Jerry Murphy, *University College Cork, Ireland*

[P2.052]

Hydrothermal carbonization coupled with anaerobic digestion of waste activated sludge for energy and nutrient recovery

Ali Ahmad Shahnawazi*, Lara Carvalho, Sebastian Schwede, Jan Skvaril, *Mälardalen University Sweden, Sweden*

[P2.053]

Enhanced polyhydroxyalkanoates production via cathodic electrofermentation

Olga Vittou*, Olga Psaki, Dimitris Ladakis, Chrysanthi Pateraki, Apostolis Koutinas, *Agricultural University of Athens, Greece*

[P2.054]

Pelletization and gasification of agricultural wastes (barely straw) for syngas production

Rajan Jaiswal*, Britt Margrethe Emilie Moldestad, Rajan Kumar Thapa, *University of South-Eastern Norway - Campus Porsgrunn, Norway*

[P2.055]

Biotechnological production of poly(3-hydroxybutyrate) and application in bio-based films for packaging applications

Olga Psaki*, Katiana Filippi, Dimitrios Ladakis, Apostolis Koutinas, *Agricultural University of Athens, Greece*

[P2.056]

Sustainable and efficient biopolymer production from lignocellulosic residues

Katiana Filippi*[1], Eleni - Anna Kouvelioti[1], Anestis Vlysidis[2], Chrysanthi Argeiti[1], Eleni Stylianou[1], Olga Psaki[1], Apostolis Koutinas[1], [1]*Agricultural University of Athens Department of Food Science and Human Nutrition, Greece,*[2]*National Technical University of Athens School of Chemical Engineering, Greece*

[P2.057]

Assessment of the pyrolysis and densification of Jatropha Curcas wastes: Optimization using response surface methodology (RSM)

Michelle Romero*[1], Andres Chico-Proano[2,3], Valeria Ramirez[1], Vicente Sebastian Espinoza[1,4], Ricardo A. Narvaez C[7], [1]*Instituto de Investigación Geológico y Energético, Ecuador,*[2]*Sargent Centre for Process Systems Engineering, Department of Chemical Engineering, University College London (UCL), UK,*[3]*Departamento de Ingeniería Química, Escuela Politécnica Nacional, Ecuador*

[P2.058]

Sustainability assessment of poly(lactic acid) (PLA) end of life options (EoL)

Dimitrios Ladakis*[1], Sofia-Maria Ioannidou[1], Apostolis Koutinas[1], Ioannis Kookos[2], Ricardo Rebolledo[3], María Teresa Moreira[3], [1]*Agricultural University of Athens Department of Food Science and Human Nutrition, Greece,*[2]*University of Patras*

Department of Chemical Engineering, Greece,[3]University of Santiago de Compostela Department of Chemical Engineering, Spain

[P2.059]

Extraction of lipids and bioactive compounds from grass-clover pulp using $scCO_2$ coupled to biorefining processes

Damian Lopez Fetzer*[1], Morten Ambye-Jensen[1], Jose Coelho[2], [1]*Aarhus University, Denmark,*[2]*University of Lisbon, Portugal*

[P2.060]

Upcycling green biorefinery sidestreams: Use of alfalfa pulp as substrate for *Pleurotus ostreatus*

Fa Zhou*, Timothy John Hobley, Peter Ruhdal Jensen, *National Food Institute, Technical University of Denmark, Denmark*

[P2.061]

Beyond waste in agriculture: An application based on potatoes

Jhoan Chavez-Suazo*, Jianbing Li, *University of Northern British Columbia, Canada*

[P2.062]

Valorization of lignocellulosic food residues: Dilute acid & enzymatic hydrolysis for glucose production

Christos Chatzidoukas, Androniki Mpoura, Vasilis Parisis*, Erasmia Pantazopoulou, Olga Tsave, *Aristotle University of Thessaloniki School of Chemical Engineering, Greece*

[P2.063]

Circularity approaches for the valorization of residual lignocellulosic biomass

Jaime Mesa[1], Arturo Gonzalez-Quiroga[1], Sumesh Sukumara[2], Samir Meramo*[2], [1]*University of the North, Colombia,*[2]*Novo Nordisk Foundation Center for Biosustainability, Denmark*

[P2.064]

Comparative study between biotreatments for mixtures of urban sludge with black liquor from the paper industry: Composting vs vermicomposting

Jorge De Haro*[1], María del Valle Palenzuela[2], Alejandro Rodríguez[3], [1]*Department of Inorganic Chemistry and Chemical Engineering, Universidad de Córdoba, Spain,*[2]*Department of Molecular Biology and Biochemical Engineering, Universidad Pablo de Olavide, Spain,*[3]*Department of Inorganic Chemistry and Chemical Engineering, Universidad de Córdoba., Spain*

[P2.065]

The collagen and glycosaminoglycnas isolated from Salmo salar skin

Beata Kaczmarek-Szczepanska*[1], Lidia Zasada[2], [1]*Nicolaus Copernicus University, Poland,*[2]*Nicolaus Copernicus University in Torun, Poland*

[P2.067]

Coal phase-out through ammonia and biomass co-firing in a pilot-scale fluidized bed reactor: A numerical study

Joao Cardoso[1,2], Valter Silva*[2,3], Jose Chavando[2,3], Daniela Eusebio[2], Luis Tarelho[3], [1]*Instituto Superior Técnico, University of Lisbon, Portugal,*[2]*Polytechnic Institute of Portalegre, Portugal,*[3]*University of Aveiro Centre for Environmental and Marine Studies, Portugal*

[P2.068]

Fe2+ and Ni2+ supplementation in a two-stage anaerobic system exert a significant positive effect on biogas production and microbial communities

Karina Salazar-Batres*[1], Philippe Constant[2], Audrey-Anne Durand[3], Ivan Moreno-Andrade[4], [1]*Laboratory for Research on Advanced Processes for Water Treatment, Unidad Académica Juriquilla, Instituto de Ingeniería, Universidad Nacional Autónoma de México, Mexico,*[2]*Centre Armand-Frappier Santé-Biotechnologie, Institut national de la recherche scientifique, Canada,*[3]*Centre Armand-Frappier Santé-Biotechnologie, Institut national de la recherche scientifique, Canada,*[4]*Laboratory for Research on Advanced Processes for Water Treatment, Unidad Académica Juriquilla, Mexico*

[P2.069]

The role of post-pyrolytic chemical modification on the contaminant content and ecotoxicity of biochars produced from various feedstocks

Patrycja Krasucka[1], Monika Hawryluk-Sidoruk[1], Wenyan Duan[2], Patryk Oleszczuk*[1], Bo Pan[2], [1]*Faculty of Chemistry, Department of Radiochemistry and Environmental Chemistry, Maria Curie-Sklodowska University, Poland,*[2]*Faculty of Environmental Science & Engineering, Kunming University of Science &Technology, China*

[P2.070]

Directional difference in shifting recirculation ratio to start up two-phase anaerobic digestion for hythane production

Yu Qin*[1], Aijun Zhu[2], Yu-You Li[2], [1]*Tohoku University Graduate School of Engineering School of Engineering Department of Applied Chemistry, Japan,*[2]*Tohoku University, Japan*

[P2.071]

Chemical and biological transformations of metal-based nanoparticles

Izabela Josko*[1], Mikolaj Feculak[1], Monika Raczkiewicz[2], Iwona Ostolska[2], Patryk Oleszczuk[2], [1]*University of Life Sciences in Lublin, Poland,*[2]*Maria Curie-Sklodowska University in Lublin Faculty of Chemistry Department of Interfacial Phenomena, Poland*

[P2.072]

Potential of *Rugulopteryx okamurae* macroalga for PHA production

Agustin Romero-Vargas*[1], Luis Alberto Fdez-Guelfo[2], Ana Blandino[1], Ana Belen Diaz[1], [1]*Department of Chemical Engineering and Food Technology, Faculty of Science, University of Cádiz - International Campus of Excellence (ceiA3), Spain,*[2]*Department of Environmental Technologies, Faculty of Marine and Environmental Sciences, University of Cádiz - International Campus of Excellence (ceiA3), Spain*

[P2.073]

Analysis of the effect of two inoculum sources on the anaerobic digestion of date fruits

Adel Alkhrainig*, *Brunel University Department of Mechanical Aerospace and Civil Engineering, UK*

[P2.074]

Valorisation of fly ashes from lignocellulose waste combustion in a cellulose biofactory: Efficient carbonaceous adsorbents for VOCs removal

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[P2.075]

Development of a *Pseudomonas putida* strain mediated by redox balance to enhance 2-pyrone-4, 6-dicarboxylic acid production

Siseon Lee*, Jeong Chan Joo, *The Catholic University of Korea, Republic of Korea*

[P2.078]

Isolation of new microalgal strains from the Gulf of Patras (Greece) and investigation of their potential biotechnological applications

Panagiotis Dritsas*[1], Elias Asimakis[2], George Tsiamis[2], George Aggelis[1], [1]*University of Patras - Department of Biology, Greece,*[2]*University of Patras - Department of Sustainable Agriculture, Greece*

[P2.079]

Fermenting sewage sludge to volatile fatty acids by integrated electrochemical pretreatment-anaerobic digestion: An efficient approach towards carbon fixation

Yunkai Tan*, Tianwei Hao, *Department of Civil and Environmental Engineering, Faculty of Science and Technology, University of Macau, Macao*

[P2.080]

Biosorption of toxic metals by Sargassum from the Mexican Caribbean

Ilse Elbjorn-Flores*, Carolina Munoz-Torres, Marina Vega-Gonzalez, *Centro de Geociencias, UNAM, Mexico*

[P2.081]

Effect of eukaryotes on membrane fouling in MBR under starvation condition

Yuya Takimoto*[1], Miwa Toru[1], Masashi Hatamoto[1], Takahiro Watari[1], Takashi Yamaguchi[2], [1]*Nagaoka University of Technology, Japan,*[2]*Nagaoka University, Japan*

[P2.082]

Extracellular secretion of recombinant DyP-type peroxidases from *Pseudomonas putida* for lignin valorization

Minsik Kang*[1,2], Siseon Lee[1], Jung-Hoon Bae[1], Jung-Hoon Sohn[1,2], Bong Hyun Sung[1,2], [1]*Korea Research Institute of Bioscience and Biotechnology (KRIBB), Republic of Korea,*[2]*Korea University of Science and Technology (UST), Republic of Korea*

[P2.083]

Effect of salinity type in wastewater from salmon industry on *Chlorella vulgaris* cells to improve the biorefinery process and its benefits

Cynthia Urrutia*[1], David Silva[1], Maria Eugenia Gonzalez[2], Erwin Yanez[3], [1]*Universidad de Los Lagos, Chile,*[2]*Universidad de La Frontera, Chile,*[3]*Universidad Austral, Chile*

[P2.084]

A circular approach to the utilization of brewer's spent grain by biological processing with *Thermomyces lanuginosus*

Andela Zeko-Pivac*, Ana Bucic-Kojic, Mirela Planinic, Marina Tisma, *Faculty of Food Technology Osijek, Josip Juraj Strossmayer University of Osijek, Croatia*

[P2.085]

Municipal solid waste management challenges: A case study of Nashik, Maharashtra, India

Ramesh Dod*[1], Vijendra Kumar[1], Ashutosh Date[2], [1]*Dr. Vishwanath Karad MIT WPU, Pune, India,*[2]*M.Tech Student Civil& Environment Technology, SPPU, Pune, India*

[P2.086]

Characterisation, biomodification and valorisation of brewers' spent grain for the production of bio-based products

Marina Tisma, Andela Zeko-Pivac, Mirela Planinic*, *Josip Juraj Strossmayer University of Osijek, Faculty of Food Technology Osijek, Croatia*

[P2.087]

Solid waste management during Ashadi and Kartiki Ekadashi festivals: A case study of Alandi, Maharashtra

Ramesh Dod*[1], Sampatrao Manjare[2], Basavaraj Kothavale[3], [1]*School of Civil Engineering, Dr. Vishwanath Karad MIT WPU, Pune, India,*[2]*BITS PILANI, India,*[3]*School of Mechanical Engineering, Dr Vishwanath Karad MIT WPU, Pune, India*

[P2.088]

Effect of process parameters on biodiesel production from edible and waste oils by Burkholderia *cepacia* lipase

Marta Ostojcic, Blanka Bilic Rajs, Marina Tisma, Sandra Budzaki*, Ivica Strelec, *Josip Juraj Strossmayer University of Osijek, Faculty of Food Technology Osijek, Croatia*

[P2.089]

A comparative analysis of biomass decomposition techniques applied in AspenPlus® models for biomass gasification

Richard Ochieng*[1], Alejandro Ceron[2], Alar Konist[3], Shiplu Sarker[4], [1]*Norwegian University of Science and Technology, Norway,*[2]*Tallinn University of Technology, Estonia,*[3]*Tallin University of Technology, Estonia,*[4]*Norwegian University of Science and Technology - Gjovik Campus, Norway*

[P2.090]

Evaluating the effect of hydrothermal pretreatment on biomethane yield of waste algal biomass

Subodh Kumar*, Ram Chandra, Anushree Malik, Virendra Kumar Vijay, Ashish Misra, *Indian Institute of Technology Delhi, India*

[P2.091]

Biomass reduction and radiocesium leaching performances of radioactively contaminated grass using anaerobic treatment: Effects of pretreatment

Jiang Wu*, Takuro Kobayashi, Hidetoshi Kuramochi, *National Institute for Environmental Studies, Japan*

[P2.092]

Changes in the chemical composition of biologically treated grape pomace by *Trametes versicolor* under solid-state fermentation conditions

Gordana Selo*, Mirela Planinic, Marina Tisma, Daliborka Koceva Komlenic, Ana Susak, Ana Bucic-Kojic, *Josip Juraj Strossmayer University of Osijek, Faculty of Food Technology Osijek, Croatia*

[P2.093]

Performance comparison of the sugarcane vinasse anaerobic treatment in ultra-filtration AnMBR and in UASB

Beatriz Egerland Bueno*[1,2], Victor Garcia[2], Gustavo Dacanal[3], Jules van Lier[2], [1]*University of Sao Paulo Sao Carlos School of Engineering, Brazil,*[2]*Delft University of Technology Faculty of Civil Engineering and Geosciences, The Netherlands,*[3]*University of Sao Paulo Faculty of Animal Science and Food Engineering, Brazil*

[P2.094]

Direct fermentation of paper sludge followed by bipolar membrane electrodialysis and hydrogenolysis for efficient bioethanol production

Harifara Rabemanolontsoa*[1], Eka Triwahyuni[2], Haruo Kawamoto[1], [1]*Kyoto University, Japan,*[2]*Indonesian Institute of Sciences, Indonesia*

[P2.095]

Banana DNA derivatives for liquid crystalline biosensors

Dorota Weglowska, Rafal Weglowski, Anna Spadlo*, *Military University of Technology, Poland*

[P2.096]

Valorisation of Mediterranean mussel processing waste through extraction of biomaterials for environmental decontamination

Martina Carcagni*[1], Federica Mancarella[1], Paola Semeraro[1], Francesco Milano[2], Maura Cesaria[3], Ludovico Valli[1], Livia Giotta[1], [1]*University of Salento Department of Biological and Environmental Sciences and Technologies, Italy,*[2]*Institute of Sciences of Food Production National Research Council Lecce Branch, Italy*

[P2.097]

Innovative methodologies for the extraction of biologically active molecules from shrimp wastes

Federica Mancarella*[1], Martina Carcagni[1], Paola Semeraro[1], Francesco Milano[2], Serena Perrone[1], Francesco Messa[1], Maria Giulia Lionetto[1], Maria Elena Giordano[1], Maria Gabriella Chieffo[3], Ludovico Valli[1], Livia Giotta[1], [1]*University of Salento Department of Biological and Environmental Sciences and Technologies, Italy,*[2]*Institute of Sciences of Food Production National Research Council Lecce Branch, Italy,*[3]*Entropya s.r.l, Italy*

[P2.098]

Biopolymer from biological fish waste for photonic applications

Anna Spadlo[1], Rafal Weglowski[1], Dorota Weglowska[1], Bartosz Bartosewicz[1], Malwina Liszewska[1], Adrian Chlanda[2], Noureddine Bennis*[1], [1]*Military University of Technology, Poland,*[2]*Łukasiewicz - Institute of Microelectronics and Photonics, Poland*

[P2.099]

Identifying most promising substrates for biofuel production by ATR-FTIR difference spectroscopy

Martina Carcagni*[1], Paola Semeraro[1], Adelfia Tala[1], Francesco Milano[2], Maria Tufariello[2], Federica Mancarella[1], Pietro Alifano[1], Ludovico Valli[1], Antonio Ficarella[3], Livia Giotta[1], [1]*University of Salento Department of Biological and Environmental Sciences and Technologies, Italy,*[2]*Institute of Sciences of Food Production National Research Council Lecce Branch, Italy,*[3]*University of Salento Department of Engineering Innovation, Italy*

[P2.100]

Nutrient element recovery potential during hydrothermal conversion of 3 different feedstocks in the TORWASH process

Gero C. Becker*, Ekaterina Ovsyannikova, Andrea Kruse, *University of Hohenheim Institute of Agricultural Engineering, Germany*

[P2.101]

Use of vermicomposting as post-treatment process to improve commercial compost

Miguel A. Mira Urios[1], Jose Antonio Saez*[1], Encarnacion Martínez Sabater[1], Luciano Orden[2], Maria Dolores Perez-Murcia[1], Maria Angeles Bustamante[1], Ana García Randez[1], Raul Moral[1], [1]*Universidad Miguel Hernández, Spain,*[2]*Estación experimental Agropecuaria INTA, Argentina*

[P2.102]

Cultivation of marine microalgae, native of the ionian sea, in open raceway pond - production of high-value compounds

Stefania Patsialou*[1,2], Panagiotis Dritsas[3], George Aggelis[3], Athanasia G. Tekerlekopoulou[1], Dimitris V. Vayenas[2], [1]*University of Patras, Department of Sustainable Agriculture, School of Agricultural Sciences, Greece,*[2]*University of Patras, Department of Chemical Engineering, Greece,*[3]*University of Patras, Department of Biology, School of Natural Sciences, Greece*

[P2.103]

Valorisation of feather waste into keratin peptides with anti-*E.coli* activity via keratinolysis assisted with instant catapult steam explosion

Xiaojie Qin*[1], Xiong Xu[2], Yujie Guo[2], Qingshan Shen[2], Jiqian Liu[2], Chuan Yang[2], Elinor L.Scott[1], Johannes H.Bitter[1], Chunhui Zhang[2], [1]*Wageningen University & Research, The Netherlands,*[2]*Chinese Academy of Agricultural Sciences, China*

[P2.104]

Contribution of photosynthetic and heterotrophic communities of microalgal-bacterial aggregates for the prevalence of antibiotic resistance during wastewater treatment

Lizeth Guisa*, *Autonomous National University of Mexico - Juriquilla Campus, Mexico*

[P2.105]

Hydrogen production from cheese whey through the carbohydrates and lactate-acetate pathway

Daniel Pedraza*, German Buitron, Gloria Moreno, *National Autonomus University of Mexico, Mexico*

[P2.106]

Volatile fatty acids production from bioplastics: A new opportunity to create a closed-loop bioplastics supply chain

Octavio Garcia Depraect*[1], Requel Lebrero[1], Leonardo J. Martínez Mendoza[1], Rosa Aragao Borner[2], Tim Borner[2,3], Raúl Muñoz[1], [1]*University of Valladolid, Spain,*[2]*Nestlé Research Center, Switzerland,*[3]*HES-SO Valais Wallis, Switzerland*

[P2.107]

Alginate lyase and laminarinase production via solid-state fermentation of the brown seaweed *Dictyota dichotoma*

Cristina Agabo-García, Brayan Daniel Bohorquez, Ana Blandino*, *University of Cádiz, Spain*

[P2.108]

In-situ selenium (Se) remediation and recovery using zero-valent iron (ZVI) combined with magnetic separation

Zhongli Wang*, Helena Gomes, Racheal Gomes, *University of Nottingham, UK*

[P2.109]

Local perceptions of waste management system in the open markets of Amman and Sfax

Nikolaos S. Trevlopoulos[1], Georgios Lanaras-Mamounis[1], Thomas A. Tsalis[1], Achilleas Kalogiannis*[1], Amal Zayen[2], Sonia Khoufi[2], Sami Sayadi[3], Ghada Kassab[4], Ioannis E. Nikolaou[1], [1]*Democritus University of Thrace, Greece,*[2]*Centre of Biotechnology of Sfax, Tunisia,*[3]*College of Arts and Sciences, Qatar,*[4]*The University of Jordan, Jordan*

[P2.110]

Different ratios of Canna indica and maize–vermicompost as an organic amendment to improve soil fertility and plant growth: A case study from Southwest China

Syed Turab Raza*[1], Zhen Chen[1], Zulfiqar Ali[2], Eldon.R Rene[3], [1]*Yunnan University, China,*[2]*University of the Punjab, Pakistan,*[3]*IHE Delft Institute for Water Education, The Netherlands*

[P2.111]

Bioethanol and carboxylic acids *in situ* co-production via anaerobic fermentation: pH as driving factor

Silvia Greses*[1], Cristina Gonzalez-Fernandez[2,3,4], [1]*Instituto IMDEA Energía, Spain,*[2]*Instituto IMDEA Energía, Spain,*[3]*University of Valladolid, Spain,*[4]*Institute of Sustainable Processes, Spain*

[P2.112]

Simultaneous enzyme production, Levan-type FOS synthesis and sugar by-products elimination using a recombinant *Pichia pastoris* strain expressing a levansucrase-endolevanase fusion enzyme

Maria Rodriguez*[1], Angela Avila[2], Luis Caspeta[1], Agustin Lopez[1], [1]*Instituto de Biotecnologia, UNAM, Mexico,*[2]*Universidad Juárez Autónoma de Tabasco, Mexico*

[P2.115]

Decolorization of a mixture of dyes from different classes with the use of bioreactor with immobilized mycelium of *Pleurotus ostreatus*

Wioletta Przystas*, *Silesian University of Technology, Poland*

[P2.116]

Use of specific post-harvest biomass processing to optimize the chemical composition and enhance the digestibility of brown macroalgae

Deepak Pandey*[1], Geir Næss[1], António J.M. Fonseca[2], Margarida R.G. Maia Maia[2], Ana R.J Cabrita[2], Prabhat Khanal[1], [1]*Nord University - Steinkjer, Norway,*[2]*University of Porto Institute of Biomedical Sciences Abel Salazar, Portugal*

[P2.117]

Case study of a combined digestate and distillers wash biorefinery

Krishna P. Sangam*[1], Gero C. Becker[1], Pablo J. Arauzo[1], Elisabeth Schröder[2], Andrea Kruse[1], [1]*University of Hohenheim Institute of Agricultural Engineering, Germany,*[2]*Karlsruhe Institute of Technology North Campus, Germany*

[P2.118]

Assessment of the nutrimental content of a low-cost medium for PHB production by B. megaterium

Andrea M. Rivas-Castillo[1,2], Arturo F. Angeles-Padilla[2], Brandon D. Pérez-García[1,2], Norma G. Rojas-Avelizapa*[1], [1]*Centro de Investigación en Ciencia Aplicada y Tecnología Avanzada del IPN, Unidad Querétaro, Mexico,*[2]*Universidad Tecnológica de la Zona Metropolitana del Valle de México, Mexico*

[P2.119]

UV-Mutation of *Clostridium cochlearium* enhancing biobutanol production; its possibility for industrial scale.

Yanisa Laoong-u-thai*, *Burapha University, Thailand,Prince of Songkla University, Thailand*

[P2.120]

Improvement of biodiesel production from spent coffee grounds in supercritical ethanol by pre-extraction of unsaponifiable matter

Ruengwit Sawangkeaw*[1], Wirasinee Supang[1], Nutthakit Charoendee[1], Somkiat Ngamprasertsith[1], Winatta Sakdasri[2], [1]*Chulalongkorn University, Thailand,*[2]*King Mongkut's Institute of Technology Ladkrabang, Thailand*

[P2.121]

Upgrading dry acid pretreatment with post-hydrolysis for maximum co-production of bio-ethanol, xylose and lignin from wheat straw

Hanqi Gu*[1,2], Jie Bao[3], [1]*Hebei Normal University for Nationalities, China,*[2]*Key Laboratory of Botany （Hebei Normal University for Nationalities） State Ethnic Affairs Commission, China,*[3]*East China University of Science and Technology State Key Laboratory of Bioreactor Engineering, China*

[P2.122]

Production of biostimulant and biopesticide from green waste through solid-state fermentation: A scale-up from 0.5L to 22L bioreactor

Golafarin Ghoreishi*, Raquel Barrena, Xavier Font, *Autonomous University of Barcelona Chemical Biological and Environmental Engineering Department, Spain*

[P2.123]

Grape waste to mcl-PHA: a Better Plastics process

Bruno Serafim*[1,2], Cristiana Torres[1,2], Filomena Freitas[1,2], Rui Santos[3], João Bordado[3], Maria Reis[1,2], [1]*UCIBIO – Applied Molecular Biosciences Unit, Portugal,*[2]*Associate Laboratory i4HB - Institute for Health and Bioeconomy, Portugal,*[3]*CERENA – Centre for Natural Resources and Environment, Portugal*

[P2.124]

Co-culture of Alginolytic Enterobacter hormaechi subsp. Xianfangenesis SW2 and Solventogenic Clostridium acetobutylicum DSM 792 for Enhanced ABE Production and Improved Utilization of Seaweeds as Biomass

Rajathirajan Siva Dharshini*, Mohandass Ramya, *SRM Institute of Science and Technology, India*

[P2.125]

A phosphate-controlled autolysis system for PHA recovery from *Cupriavidus necator* H16

Alejandro Salinas*[1,2,3], Callum McGregor[1], Victor Irorere[1], Mara Cea[2,3], Katalin Kovács[1], [1]*BBSRC/EPSRC Synthetic Biology Research Centre (SBRC), Biodiscovery Institute, School of Life Sciences, The University of Nottingham, UK,*[2]*Chemical Engineering Department, Universidad de La Frontera, Chile,*[3]*Scientific and Technological Bioresources Nucleus BIOREN-UFRO, Universidad de La Frontera, Chile*

[P2.126]

Unlocking the Secrets of Synthetic Metabolism: Exploring the Revolutionary Potential of Isolated Hydrogen Producers and Metabolically Engineered Cells for Biofuel and Biochemical Production

Thamonwan Woraruthai[1], Wachirawit Chinantuya[2], Juthamas Joroensuk[1], Parisa Ghofrani-Isfahani[3], Panagiotis Tsapekos[3], Irini Angelidaki[3], Pimchai Chaiyen[1], Thanyaporn Wongnate*[1], [1]*Vidyasirimedhi Institute of Science and Technology, Thailand,*[2]*Mahidol University Faculty of Science, Thailand,*[3]*Technical University of Denmark Library, Denmark*

[P2.127]

Catalytic production of biodiesel-based plasticizer over transition metal-supported Al_2O_3

Wonjin Jeon, Deog-Keun Kim*, *Korea Institute of Energy Research, Republic of Korea*

[P2.128]

Low-grade waste fats neutralization and soapstock oil recovery for biodiesel production

Deog-Keun Kim*, Joon-Pyo Lee, Jin-Suk Lee, *Korea Institute of Energy Research, Republic of Korea*

[P2.129]

Bioaugmentation of the lignin-degrading anaerobic microbial consortia in the anaerobic digester

Ibrahim Cem Ozsefil*[1], Ibrahim Halil Miraloglu[1], Emine Gozde Ozbayram[2], Bahar Ince[1], Orhan Ince[3], [1]*Boğaziçi University, Turkey,*[2]*Istanbul University, Turkey,*[3]*Istanbul Technical University, Turkey*

[P2.130]

New life for bioplastic waste: Recycling, valorization and enhanced biodegradation

Agata Gallipoli, *Water Research Institute National Research Council, Italy*

[P2.131]

The hidden potential of urban organic waste in generating marketable carboxylic acids without chemicals addition

Agata Gallipoli, *Water Research Institute National Research Council, Italy*

Volatile fatty acids production from cheese whey by anaerobic digestion: Effects of pH and temperature

Da Silva Lacerda, Viviane; Riaño, Berta; García-González, María Cruz; Molinuevo-Salces, Beatriz

Cheese whey (CW) is the main by-product in the dairy industries. The use of CW to develop new bioproducts is a highly valued alternative for a proper valorization of CW. The high demand of volatile fatty acids (VFA) arouse interest in the development of new techniques for their sustainable production. The aim of this study was to investigate the effects of temperature and pH on the production and composition of VFA, generated from CW anaerobic digestion (AD). The AD was conducted in batch with CW as a substrate and anaerobic sludge as an inoculum (1/1, VS proportion). Three temperatures (10ºC, 20ºC and 38ºC) and two pHs (5.5 and 10) were evaluated. The pH was adjusted every day. The highest production of VFA was obtained at 38ºC and pH 5.5, with 3318 mg VFA-COD L^{-1}. However, at pH 10, a higher VFA production was obtained with temperatures of 10ºC and 20ºC, with 813 and 2763 mg VFA-COD L^{-1}, respectively. Regarding VFA composition, at 10ºC for both pHs, the VFA production was totally composed by acetic acid. Under basic conditions (pH 10), for temperatures of 20ºC and 38ºC, the production of AGVs was mainly composed of acetic acid, 80% and 86% respectively. However, under acid conditions (pH 5.5), a greater variety of VFA was observed. Thus, for 20ºC there was a higher production of butyric acid and for 38ºC there was a higher production of propionic acid. In conclusion, CW has a high potential to produce VFA and when the appropriate conditions are used, its performance is enhanced. When mesophilic (38ºC) and acidic conditions (pH 5.5) are used in the anaerobic digestion of CW, a highest production of VFA and an appreciable variability in its composition are observed. Under basic conditions (pH 10) the production is lower and mostly composed of acetic acid.

APPLE POMACE AS A RESOURCE FOR VOLATILE FATTY ACIDS PRODUCTION: EFFECT OF pH UNDER SEMI-CONTINUOUS OPERATION

Riaño, Berta; García-González, María Cruz; Molinuevo-Salces, Beatriz

More than 3.5 million tons of apple pomace (AP) are generated in the world during apple processing. New alternatives for AP valorisation could solve an environmental issue and be an economic chance to exploit zero-cost organic waste. The use of biological fermentation of AP for the production of volatile fatty acids (VFA), which are traditionally obtained via petrochemical routes, is evaluated under semi-continuous operation in this study. Two reactors at pH values of 5.5 (R1) and 10.0 (R2) were compared in terms of VFA production and composition during 83 days. The temperature was 37ºC, the hydraulic retention time was 8 days and the organic loading rate was 3 g VS L^{-1} d^{-1}. Methane was not detected in any case. For pH 5.5, the VFA concentration ranged between 1.3 and 6.1 g COD L^{-1}, with an average value of 3.4 g COD L^{-1}. The VFA profile was dominated by butyric (38%) and propionic (33%) acids. At pH 10, two stages can be distinguished. During the first stage (until day 23) the VFA concentration reached 10.9 g COD L^{-1}, with acetic and propionic acids representing 86% and 14 % of total individual VFA, respectively. In the second stage (after day 23), the concentration of VFA decreased to 1.6 g COD L^{-1}, being acetic acid 98% of total VFA. Our results evidenced that apple pomace is a promising feedstock for VFAs production under acidic conditions, which could be correlated to the high carbohydrate content of the apple pomace, that represented 50 % of TS. The VFA yield attained at pH 5.5 (1.1 ± 0.4 g COD g VS_{fed}^{-1}) was in the range of that obtained by previous authors and the results agreed with Bolzonella et al. (2018), who concluded that acidic conditions favour VFAs accumulation to a greater degree than alkaline conditions.

APPLE POMACE AS A RESOURCE FOR VOLATILE FATTY ACIDS PRODUCTION: EFFECT OF pH UNDER SEMI-CONTINUOUS OPERATION

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INTRODUCTION

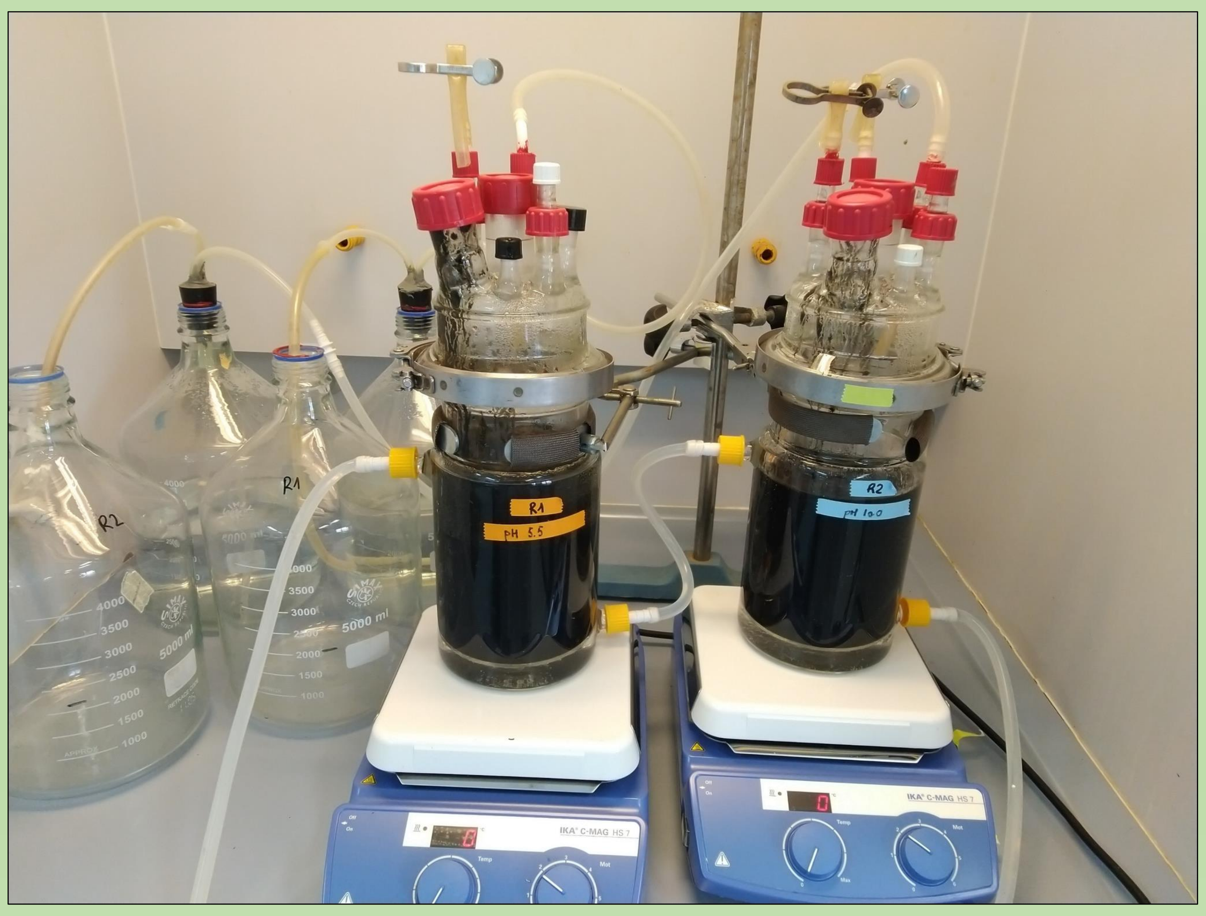
- More than 3.5 million tons of apple pomace (AP) (**Fig. 1**) are generated in the world during apple processing.
- New alternatives for AP valorisation could solve an environmental issue and be an economic chance to exploit zero-cost organic waste.
- The use of biological fermentation of AP for the production of volatile fatty acids (VFA), which are traditionally obtained via petrochemical routes, is evaluated under semi-continuous operation in this study.

Fig. 1. Apple pomace used in this study

MATERIALS AND METHODS

- Two reactors at pH values of 5.5 (R1) and 10.0 (R2) were compared in terms of VFA production and composition during 83 days (**Fig. 2**).
- The volume of the reactors was 1 L.
- The operation was carried out at a temperature of 37 ºC, with an hydraulic retention time of 8 days and an organic loading rate of 3 g VS L^{-1} d^{-1} .

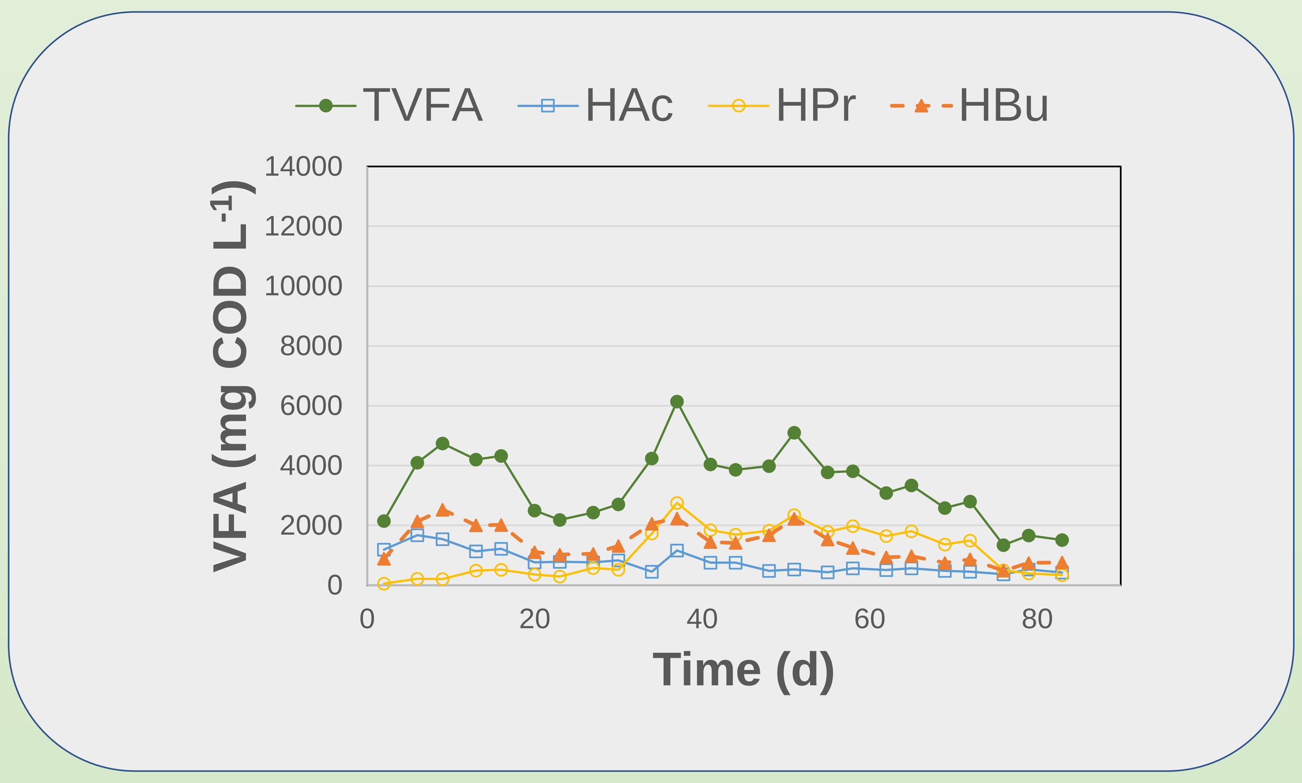
Fig. 2. Lab reactors



RESULTS

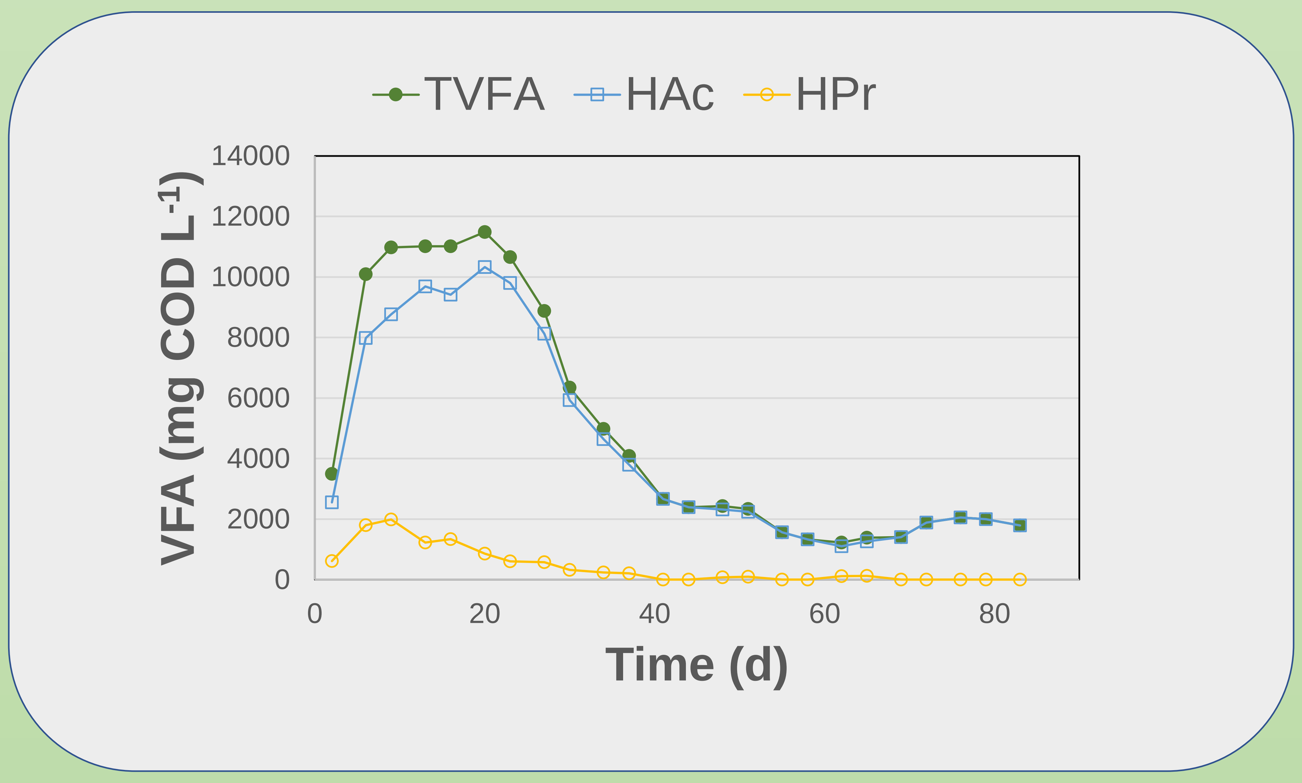
- At pH 5.5 (**Fig. 3**), the VFA concentration ranged between 1.3 and 6.1 g COD L^{-1} , with an average value of 3.4 g COD L^{-1}. The VFA profile was dominated by butyric (38%) and propionic (33%) acids. The VFA yield attained was 1.1 ± 0.4 g COD g VS_{fed}^{-1}.

Fig. 3. VFA production at pH 5.5



- At pH 10 (**Fig. 4**), two stages can be distinguished. During the first stage (until day 23), the VFA concentration reached 10.9 g COD L^{-1},with acetic and propionic acids representing 86% and 14 % of total individual VFA. In the second stage (after day 23), the concentration of VFA decreased to 1.6 g COD L^{-1}, being acetic acid 98% of total VFA. In this second stage, the VFA yield from day 41 was 0.62 ± 0.12 g COD g VS_{fed}^{-1}.

Fig. 4. VFA production at pH 10.0



CONCLUSIONS

Results showed a great potential of apple pomace for the VFA production under acidic conditions, presenting a more stable process and slightly higher VFA yields compared with alkaline conditions.

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VOLATILE FATTY ACIDS PRODUCTION FROM CHEESE WHEY BY ANAEROBIC DIGESTION: EFFECTS OF PH AND TEMPERATURE

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INTRODUCTION

The cheese industry generates an average of 9 L of cheese whey (CW) for every 1 kg of cheese (Guimaraes et al., 2010). Cheese whey contains mostly sugars (lactose), fat and proteins.

Anaerobic digestion, with the purpose of producing methane, is separate into four steps: hydrolysis, acetogenesis, acidogenesis, and methanogenesis. By suppressing methanogenesis and favoring acidogenesis, other types of products with high added value can be produced, such as volatile fatty acids (VFA).

The aim of this research was to evaluate the influence of temperature and pH to produce VFAs using CW as a substrate.

MATERIAL AND METHODS

Figure 1. Reactors

The experiments were conducted in 1 liter reactors (**Figure 1**) with a mixture substrate/inoculum 1:1, (in VS proportions).

The assays were performed in batch under two different conditions of pH, acidic (pH 5.5) and basic (pH 10), and three different conditions of temperature: psychrophilic (10°C), mesophilic (38°C), and room temperature (20°C).

The reactors were below constant mixing and the pH was adjusting every day by using 1M NaOH and 1M HCl.

The temperature was maintained on the reactor glass jacket by circulation water. The reactors were connected to a thermostat water bath by heating immersion circulator.

The anaerobic digestion was carried out for 7 days.

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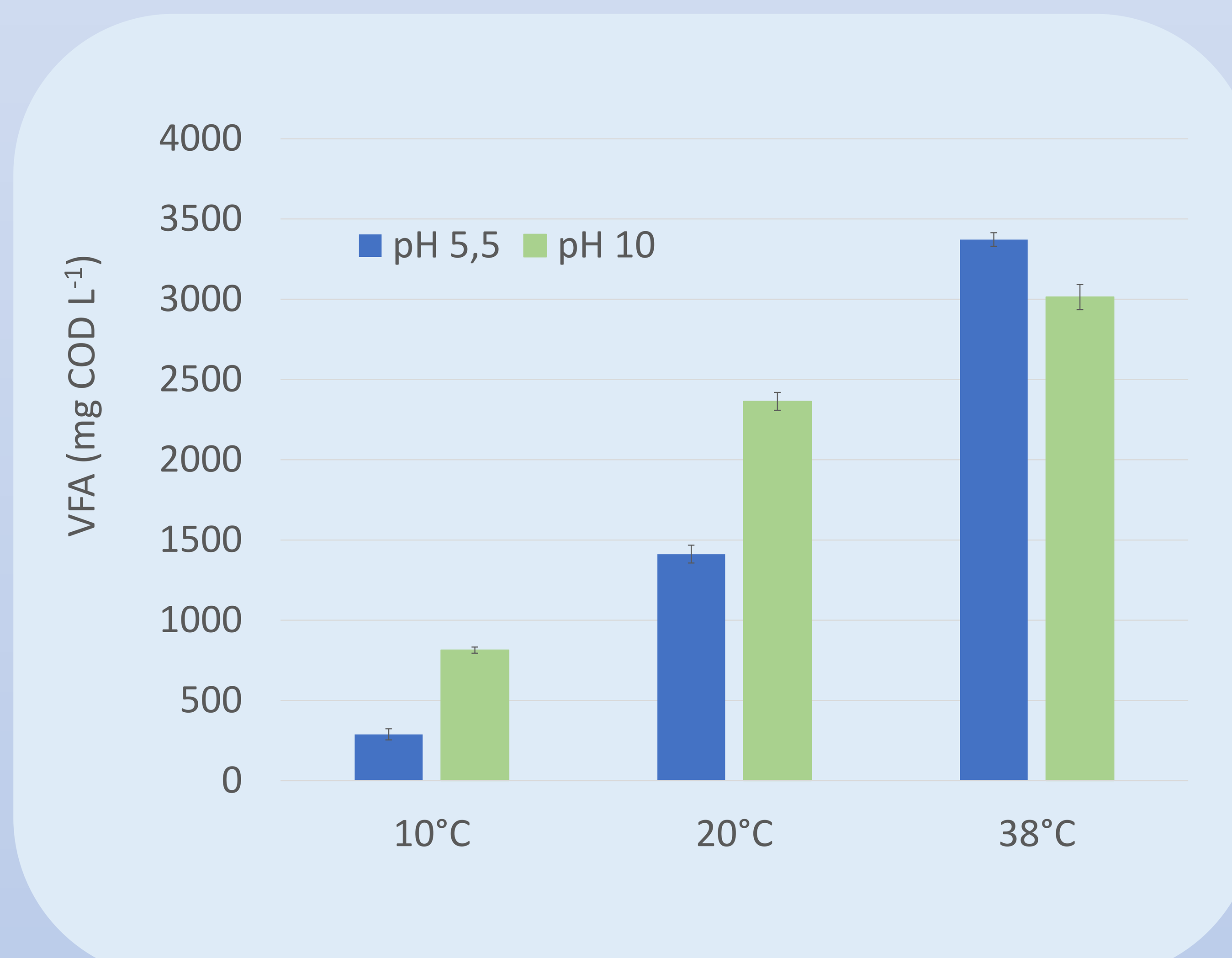
RESULTS AND DISCUSSION

The effects of pH and temperature are described in **Figure 2**. The highest production of VFA was 3372 mg COD L^{-1} in acidic conditions (pH 5.5) at 38°C.

Under basic conditions, VFA production is increased, if compared to acidic conditions, when temperatures of 10°C and 20°C are used. At psychrophilic conditions (10°C) the highest production was obtained at pH 10, with 814 mg COD L^{-1}. At 20°C, the highest VFA production was 2763 mg COD L^{-1} at pH 10. Therefore, at lower temperatures acidogenesis occurs better when the pH is alkaline.

Figure 2. Production of VFA at different temperatures and pH



The VFA composition was affected by pH and temperature, since by altering fermentation conditions, different metabolic routes are promoted (Zheng et al., 2015). At 10ºC, for both pH, the only VFA produced was acetic acid. At 20ºC under alkaline conditions and mesophilic temperature the predominant fermentation product was acetic acid (Yuan et al., 2011), while in acidic conditions and mesophilic temperature the primary fermentation product was butyric acid, with 1248 mg COD L^{-1}.

CONCLUSIONS

- The highest production of VFA was obtained at a temperature of 38°C, with a concentration of 3372 mg COD L^{-1}.
- At lower temperatures (i.e. 10 ºC and 20ºC) VFA production is higher when the pH is alkaline.
- The highest variety of VFA occurs under acidic conditions.
- Under psychrophilic conditions the only VFA produced is acetic acid.
- At pH 5.5 and mesophilic conditions the main VFA is butyric acid.

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