



**16<sup>TH</sup>**  
**IWA World Conference**  
**on Anaerobic Digestion**  
Accelerating natural cycles with anaerobic digestion

## Poster presentations

Sunday 23-06-2019 and Monday 24-06-2019

### Microbiology of anaerobic digestion

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**High salinity does not affect acetoclastic methanogenic potential of marine sediments impacted by aquaculture**

P. Aguilar, L. Cabrol, C. Lavergne, R. Chamy, Chile

**The Effect of MNP Size and Concentration on Methane Production by Fresh and Degassed Anaerobic Sludge**

E. Al-Essa, R. Bellomendoza, D.G. Wareham, New Zealand

**Substrate-driven divergence of prokaryotic communities in two EGSB bench-scale reactors**

C.C. Callejas, E. Ripoll, I. Lòpez, L. Borzacconi, Uruguay

**Unifying ammonia inhibitory limits in anaerobic digestion: link with operational conditions and microbial communities**

G. Capson-Tojo, R. Moscoviz, A. Robles, S. Astals, J.-P. Steyer, France

**Evaluation of the anammox microbial community developed in a fish farming effluent treatment system.**

M.L.C. Carra, A. José da Silva, Brazil

**Pulse feeding of anaerobic reactors reduces start-up times and increases achievable loading rates**

F. L. de los Reyes III, P. Shen, J. Yeh, X. He, L. Wang, United States

**Identify the stability of process performance and microbial community in thermophilic anaerobic digestion of cattle manure**

N. Duan, P.G. Kougias, L. Treu, I. Angelidaki, China

**Microbial population dynamics during aerobic anaerobic alternation for sludge reduction**

H. Feng, L P Sun, W Z Guo, China

**Effect of substrate/inoculum ratio and consecutive feeding upon methane yield and microbial community during the anaerobic digestion of OFMSW**

B. Ornelas Ferreira, J. Calabria-Araujo, L. dos Santos, A. Zerbini, A. Martins, C. Leal, L. Lobato, C.A.L. Chernicharo, Brazil

**1,3-Propanediol production from glycerol by biofilms in two UASB reactors**

L.F. Florencio dos Santos, S. Veras, P. Rojas, L. Florencio, M.T. Kato and J. Luis Sanz

**Identification of pathogenic and dairy-spoiling *Clostridium* consortia in lab-scale anaerobic digesters fed with agricultural biomass**

A. Fontana, M. Soldano, P. Bellassi, C. Fabbri, F. Gallucci†, F. Cappa, Italy

**Bioaugmentation alleviates ammonia inhibition during protein-rich substrate biomethanation**

I. A. Fotidis, H. Tian, E. Mancini, L. Treu, I. Angelidaki, Denmark

**Continuous Production of Biohydrogen and Biomethane from Tequila Vinasse: Enhancing the Hydrogenic Stage by Lactate Pre-fermentation**

O. García Depraect, R. Muñoz, J. B. van Lier, E. R. Rene, E. León Becerril, Mexico

**Selective predation of bacterial cell by anaerobic protists**

Y. Hirakata, M. Hatamoto, T. Watari, M. Oshiki, N. Araki, T. Yamaguchi, Japan

**Growth rate heterogeneity in *Desulfovibrio vulgaris* decreases in response to a reduction in pH as observed in real-time**

C. Keating, Y. Song, R. Gonzalez-Cabaleiro, C. Quince, G. Collins, H. Yin, W. Sloan, United Kingdom

**Effect of a radical feedstock change on the biogas microbial community**

J. Klang, U. Szewzyk, D. Bock, S. Theuerl, Germany

**Comparison of microbial community in two-phase anaerobic digestion system with and without recirculation**

L. Li, Y. Qin, Z. Kong, J. Wu, K. Kubota, Y. Li, Japan

**Anaerobic digestion of food waste: the influence of trace elements addition on microbial community structure and methane production**

A. Martins, J. Calabria-Araujo, B. Ferreira, C.A.L. Chernicharo, Brazil

**Microbial reduction of antimony by anaerobic microorganisms**

I. Moreno-Andrade, J. Carrillo-Reyes, J.A. Field, R. Sierra-Alvarez, Mexico

**Microorganisms Involved in the LAS Degradation using Ethanol and Alcohol Ethoxylated as Co-substrates in FBR**

F. Motteran, B. M. Nadai, J. K. Braga, E. L. Silva, M. B. A. Varesche, Brazil

**Novel syntrophic bacteria involved in short-chain fatty acid degradation in full-scale anaerobic digesters**

L. Hao, M.S. Dueholm, T.Y. Michaelsen, G. Dottorini, C. Singleton, R.H. Kirkegaard, M. Albertsen, P.H. Nielsen, Denmark

**Production of ethanol from CO by *Clostridium autoethanogenum* is enhanced in co-culture with *Clostridium kluyveri***

M. Diender, I. Parera-Olm, J.J. Koehorst, M. Gelderloos, P.J. Schaap, A.J.M. Stams, D.Z. Sousa, The Netherlands

**Microbial communities in anaerobic digestion process fed by different kinds of volatile fatty acids using 16s rRNA metagenomics approach**

P. Prommeenate, W. Chetruengchai, K. Kusonmano, W. Kittichotirat, S. Cheevadhanara,, K. Kuroda, M. Hatamoto, T. Yamaguchi, B. Suraraksa, Thailand

**Microbial indicators of co-digesters working with manure as basis substrate in “unhealthy” situations**

L. Regueiro, J.M. Lema, M. Carballa, Spain

**Thermal hydrolysis affects the microbiome structure and composition in sewage sludge anaerobic reactors**

G. H. R. Braz, A. Taboada-Santos, N. Fernandez-González, M. Carballa, J. M. Lema, Spain

**Effects of different carbon sources on the AGS microbial composition**

S. L. S. Rollemberg, A. R. M. Barros, A. N. de Barros, L. Q. Oliveira, J. P. M. Lima, V. N.S.A Lira, A. F. dos Santos, C. C. B. F. Batista, P. I. M. Firmino, A. B. dos Santos, Brazil

**Lipid hydrolysis assessment – opening our eyes to a remaining blind spot in AD**

P. Van Gaelen, B. Raes, D. Springael, I. Smets, Belgium

**Methane Production Correlates with Bacterial Community Shift During PHB Bioplastic Anaerobic Co-Digestion**

K. Venkiteshwaran, N. Benn, S. Seyedi, D. Zitomer, United States

**Effect of the conformation of microbial diversity in the production of hydrogen via dark fermentation**

M. A. Vesga, R. Chamy, M. C. Scippacasse, L. Fuentes, C. Etchebehere, E. Tapia, Uruguay

**Size-fractionated sludge induced differentiation of metabolic characteristics and microbial community structure in phenol anaerobic degradation**

J. Wang, B.T. Wu, C.H. He, Z.H. Hu, W. Wang, China

**Co-digestion of syngas with different wastewater for optimum volatile fatty acid generation**

C. Liu, W. Wang, China

**Continuous biomethanation of organic fraction of municipal solid waste under extreme ammonia levels**

M. Yan, H. Tian, B. Khoshnevisan, P. Tsapekos, I. A. Fotidis, I. Angelidaki, Denmark

**Insights in the role of active bacterial, archaeal, and eukaryal populations in raw microalgae biomass degradation in an anaerobic membrane bioreactor**

N. Zamorano-López, R. Serna-García, X. Fonoll, S. Shrestha, D. Aguado, L. Borrás, A. Seco, L. Raskin, Spain

**Impact of temperature on degradation of glucose and their links to microbial community structure**

J. Zhao, Y. Li, J. Krooneman, G.J.W. Euverink, The Netherlands

**Enhancement of anaerobic digestion using syntrophic propionate oxidizing bacteria from different sources of seed sludge**

B. Suraraksa, N. Boonapatcharoen, Thailand

**Thermophilic anaerobic digestion: Effect of start-up strategies on performance and microbial community**

J.G Shin, H.M Jang, Y.M Kim, Republic of Korea

**Which is the cause of the slow lipid degradation under cold anaerobic conditions?**

R. Bashiri, T. P. Curtis, I. D. Ofițeru, United Kingdom

**Mining anaerobic digestion data with Deep-omics, a new digital environmental engineering platform for omics data**

C Midoux, G Perréal, O Chapleur, M Predhumeau, O Rué, Y Fayolle, M Mariadassou, P Dabert, V Loux, T Bouchez, N Raidelet, [A Bize](#), France

**Lactate transformation in acetogenic and methanogenic steps of anaerobic digestion.**

[A. Detman](#), D. Mielecki, A. Sikora, Poland

**A list of the key enzymes useful in searching for metabolic pathways of anaerobic digestion**

[A. Sikora](#), A. Detman, Poland

**Effect of membrane physicochemical properties on Initial Deposition of Anaerobes Isolated from Anaerobic Membrane Bio-Reactor**

[Y. Yang](#), A.D. Grossman, R. Bernstein, M. Herzberg, G. Oron, Israël

**Volatile fatty acids production from sewage sludge in co-digestion with the organic fraction of municipal solid waste**

[C. Fernando-Foncillas](#), H. Uellendahl, Denmark

**Microbial acclimation towards substrate overloading via recurring solids retention time reduction**

[A.F. Mohidin](#), T.C.A. Ng, A.A. Cokro, Y. Lu, S. Wuertz, Singapore

**Genome-centric metagenomics in biogas reactors fed with Long Chain Fatty Acids Panagiotis**

G. Kougias, L. Treu, S. Campanaro, Xinyu Zhu, I. Angelidaki, Greece

**Quantification of anionic surfactant in freshwater reservoir – phylogenetic analysis of anaerobic sediment**

L.O. Pires,, [I.C.S. Duarte](#), M.B.A. Varesche, Brazil

## **Sulfur Cycle Technologie**

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**Influence of the metals in the sulfidogenesis**

[M.P. Cunha](#) , A.F. Maluf Braga, R.B. Costa, R.P. Rodriguez, M. Zaiat, Brazil

**Effect of airflow rate and dosing point on microaerobic sulfide removal**

J.F.L. Brito, C.R.A.A. Dantas, G.A. Garcia Neto, G.A.R. de Queiroz, M.E.R. da Silva, A.B. dos Santos, [P.I.M. Firmino](#), Brazil

**Bio-refining of Coke Oven Gas – The Removal and Recovery of Sulfur**

R. Pugh, R. [Dinsdale](#), C. Laycock, G. Lloyd, United Kingdom

## **Post-treatments anaerobic effluents/digestates**

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**Regulation of hydrogen peroxide dosage in the heterogeneous photo-fenton process used as posttreatment**

K. E. Saldaña-Flores, [V. Alcaraz-Gonzalez](#), L. A. Martins-Ruotolo, E. A. Urquieta-Gonzalez, R. A. Flores-Estrella, Mexico

**Removal of micro and macro pollutants from anaerobically treated effluents by using MBR post-treatment in a sulfatecontaining wastewater**

A. Arias, A. Liñares, M. Martínez, F. Omil, J.M.Garrido, Spain

**Free ammonia effects on a rotating biological contactor: assessment of stable nitrification for anaerobically pretreated effluents**

L. G. Bicelli, M. R. Augusto, T. S. O. Souza, Brazil

**Addition of enzymes on sugar beet pulp anaerobic digestion: impact of dosage**

C. Bougrier, A. Da Costa, D. Dognin, A. Lazuka, G. Quentin, J.A. Cacho Rivero, France

**Preliminary evaluation of *S. obliquus* and *C. vulgaris* growth on winery waste digestate in an integrated anaerobic digestion-microalgae approach**

C. Cavinato, P. Scarponi, F. Battista, N. Frison, D. Bolzonella, Italy

**Integration of self-sustaining smouldering after semi-dry anaerobic digestion for a sustainable digestate management**

A. Ezieke, Y. Liu, A. Serrano, L. Yermán, H. Wyn, D.K. Villa-Gomez, Australia

**White rot fungi pretreatment to advance volatile fatty acid production from solid-state fermentation of solid digestate: Efficiency and mechanisms**

W. Fang, B. Qu, T. Zhang, China

**Thermophilic anaerobic digestion of sewage sludge with addition of pyrolysis oil - long-term reactor performance**

A.K. Hämäläinen, P. Chatterjee, M. Kokko, J. Rintala, Finland

**Nitrification in presence of sulfide an organic matter: Experiences in batch and SBR reactors**

C. Huiliñir, V. Fuentes, L. Hernandez, S. Montalvo, L. Guerrero, Chile

**Improvement of digested sludge quality by post-aeration**

M. Vojtiskova, B. Satkova, J. Bindzar, P. Jenicek, Czech Republic

**Relative head-loss in sand filters applied in the post-treatment of UASB reactor**

B. Linhares, W. Leite, J. Morais, S. Gavazza, L. Florencio, M. Kato, Brazil

**Biologic production of H<sub>2</sub> using citrus wastewater as substrate**

R. Pachiega, S. I. Maintinguer, Brazil

**Post-treatment of the aqueous phase of hydrothermal liquefaction by UV photocatalysis**

D. Quispe-Arpaş, B. E. Bueno, R. Ribeiro, G. Tommaso, Brazil

**Circular Agronomics: producing high-quality organic fertilizers from digestates in an agro-industrial biogas plant**

V. Riau, L. Morey, À. Porta, J. Soler, B. Fernández, Spain

**Characterization of an anaerobic effluent for nitrogen removal propose**

P. A. Sachetto, R. Lima-Coasaca, A. L. Tonetti, L. M. O. Cruz, Brazil

**Maximizing dissolved methane recovery from AnMBR effluents using different capture options**

P. Sanchis-Perucho, A. Robles, F. Durán, J. Ferrer, A. Seco, Spain

**Ozone treatment of dairy manure digestate: effect on biochemical parameters, and micronutrient concentrations**

M. H. Somers, S. Azman, B. Alonso-Fariñas, G. Bollansée, M. Leermakers, L. Appels, Belgium

**Production and removal of volatile fatty acids in a continuously fed reactor using homoacetogens from mixed culture.**

R. Tuffou, J. Massanet-Nicola, R. Dinsdale, A. Guwy, United Kingdom

**Coupled high-rate anaerobic treatment and microalgae growth for digestate valorization**

N. Ulgudur, T.H. Erguder, S.Uludag-Demirer , G.N. Demirer, Turkey

**1,3-Propanediol and Methane production by co-digestion of Crude Glycerol in an integrated biosystem**

C. V. Rodrigues, M. G. Nespeca, I. K. Sakamoto, M. B. A. Varesche, S. I. Maintinguer, Brazil

**Study on Fenton Methodology and Application of Fenton Methodology / Fenton alike Methodology to pre-treat Anaerobical Digestate for Recycling Usage—Chinese Experiences in Treatment on Anaerobical Digestate**

Wu Libin, Wu Ting, China

**Microalgae-bacteria side stream treatment in a WWTP - a pilot scale study**

M. Mantovani, F. Marazzi, M. Bellucci, T. Fantasia, E. Ficara, V. Mezzanotte, Italy

## **Agricultural use of anaerobic effluents**

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**Organic Fertilizer from AD of Coal Industry Wastes**

S. Jin, P.H. Fallgren, M. Peng, F. Peng, L. Chen, Unites States

**Onsite anaerobic digestion of agro-waste and effects of temperature and particle size**

Z. Zhu, U. Yogev, A. Gross, The Netherlands

**Digestate soluble organic matter extracts versus commercial humic substances for biostimulation of hydroponic systems**

F. Guilayn, M. Benbrahim, M. Rouez, M. Crest, D. Patureau, J. Jimenez, France

**Elucidation of the inhibitory effect of anaerobic digester effluent on bacterial plant diseases**

M. Feng, Y. Fukuda, C. Tada, Japan

## **Nutrient removal/recovery linked to AD (anammox, struvite, N/P general)**

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**Deammonification process treating swine manure digestate: influence of C/N ratio**

A. Chini, C. E. Hollas, F. G. Antes, A. C. Bolsan, H. Treichel, A. Kunz, Brazil

**Optimization of biogas production using autotrophic process to remove nitrogen**

D.C.Bon, L.M. de Oliveira Cruz, Brazil

**Achieving efficient sludge management: Full-scale demonstration of partial nitrification/anammox on the COD-rich centrate from sequential thermal hydrolysis and anaerobic digestion**

N. Carlier, R. Jordaens,, B. Bundervoet, J. Colsen, M. Van Tendeloo, S.E. Vlaeminck, The Netherlands

**Improving the nitrogen removal efficiency of the anammox process by the addition of methane**  
E. Castillo Arriagada, N. Saborimanesh, L. Yerushalmi, C. Mulligan, Canada

**Investigation of Recovery Strategies for Mainstream PNA-MBBR under continuous influent and aeration conditions**

H. Chen, L. Peng, H. Wang, Y. Hu, L. Gong, Y. Li, China

**Effects of boron on nitrogen removal, EPS production and bacterial community assembly during the anammox reactor start-up**

C. Zhaorui, H. Chengxing, S. Yikui, R. Hongwei, China

**Enrichment and nutrient removal performance of ANAMMOX bacteria at mesophilic temperature range using different inocula**

T.C. D'Silva, W. Mirza, R.Z. Gaur, B. Hasan, A. Mushir, A.A. Khan, B. Lew, B. Diamantis, India

**Dynamic of nitrous oxide production in continuous reactors containing anammox biomass**

T. D. S. Pereira, R. H. Spindola, N. C. Silveira, G. L. Giglio, E. C. Pires, M. H. R. Z. Damianovic, Brazil

**Enrichment of anammox bacteria for the startup of food waste digestate post-treatment system**

A.D. Pereira, J.S. Fernandes, L.A. Fernandes, C.D. Leal, B.G.P. Carvalho, F.A.C. Warrener, H.M.C. Castro, C.A.L. Chernicharo, J.C. Araújo, Brazil

**Effect of temperature and stirring speed on struvite precipitation using real centrates from sewage sludge anaerobic digesters**

C. González, M.A Camargo-Valero, F. Molina, D. López, C. Peláez, B. Fernández, Colombia

**Removal of ammoniacal nitrogen in simultaneous nitrification and autotrophic denitrification process using elemental sulfur and zeolite in a batch reactor**

L. Guerrero, J. C. Rubio, A. Barahona, S. Montalvo, C. Huiliñir, Chile

**Struvite precipitation as a technology to be integrated in anaerobic tank supernatant– removal efficiency and crystal characterization**

J. Wang, K. Wang, China

**Suppressing nitrite oxidizing bacteria by free ammonia under anaerobic and aerobic conditions**

M. Nanes, W. Leite, J. Morais, S. Gavazza, L. Florencio, M.T. Kato, Brazil

**Ammonium recovery and conversion path by the immobilization of *Scenedesmus obliquus* in alginate beads from biogas slurry**

X. Liu, K. Wang, China

**Hyper-thermophilic anaerobic treatment of black water for recovery of nutrients and energy**

M.J. Moerland, M.H.A. van Eekert, B. Meulman, G. Zeeman, C.J.N. Buisman, The Netherlands

**Nitrogen recovery from an anaerobic co-digestion supernatant using gas-permeable membranes**

G. Noriega-Hevia, J. Serralta, L. Borrás, A. Seco, J. Ferrer, Spain

**Partial Nitritation/Anammox for post-treatment of food waste digestate: Impacts of different aeration strategies on nitrogen removal and microbial community**

A. D. Pereira, H. M. C. Castro, L. A. Fernandes, C. D. Leal, B. P. G. Carvalho, J. S. Fernandes, C. A. L. Chernicharo, J. C. Araújo, Brazil

**Dual acid-gas anaerobic co-digestion of excess sludge and pig slurry combined with hydrodynamic cavitation and ozonation**

E. Zuriaga-Agustí, B. Hernández, I. Pastor, M. Galián, G. Silvestre, J. Carvajo, J.L. Aranda, M. Abellán, C. García, Spain

**Fermentation liquid production from food waste as carbon source for enhancing nitrogen removal in sequencing batch reactors**

S.S. Qi, Z. Hu, China

**The effects of high dissolved oxygen levels on partial nitrification/anammox process**

M.R. Augusto, L.G. Bicelli, T.S.O. Souza, Brazil

**Impact of struvite nucleation rates in the kinetics description using a fluidized bed reactor**

C. Santiviago, J. Peralta, I. López, Uruguay

**rDNA- and rRNA-derived communities present divergent functional traits throughout full-scale landfill leachate treatment process trains**

D. Shu, Y. He, China

**Post-treatment of a high-strength wastewater using a high rate algal pond for nitrogen and phosphorus recovery**

A. F. Torres-Franco, L. L. Barros, S. E. Araújo, F. Passos, C. C. Figueredo, C. R. Mota Filho, Brazil

**How to manage ammonium content in anaerobic digestion of high protein content substrates using a sidestream vacuum stripping?**

F. Vedrenne, N. Baffaleuf, J. Robert, J.A. Cacho Rivero, France

**Autotrophic Denitrification with S<sup>0</sup> as an electron donor: effect of S<sup>0</sup> / NO<sub>3</sub><sup>-</sup> -N ratio on nitrogen conversions**

D. Yanez, C. Huiliñir, S. Montalvo, L. Guerrero, Chile

**Recovery performance of an anaerobic ammonium oxidation reactor during organic carbon shock**

R. Yang, X. Wang, S. Chen, China

**Analysis of the Microbial Community Structure in Different Anaerobic Ammonia Oxidation Denitrification Systems by High-throughput Sequencing**

L. Zhang, W. Lv, S. Li, China

**Recovery of N and P nutrition from anaerobic digestate by natural superabsorbent fiber**

L. Zhang, K. Loh, S. Sarvanantharajah, J. Zhang, Singapore

**Supplementation of PVA/CS and PVA/CS/Fe gel beads as an efficient strategy for anammox biomass granulation in UASB reactors**

J. Wang, J. Liang, L. Sun, China

**Nutrient recovery by struvite precipitation from effluents of an anaerobic residual biomass reactor**

C. Ochoa, O.L. Bayona, A.M. Candela, I.O. Cabeza, M.A. Hernández, Colombia

**Shocking anammox into adaptation to 15 °C: evidence of long-term cold shock response and varied species survival**

V. Kouba, J. Gerlein, A. Benakova, M.A. Lopez, E. Rysava, D. Vejmelkova, J. Bartacek, Czech Republic

**Simultaneous removal of organic matter and nitrogen from diluted domestic sewage**

J. Morais, E. Celestino, W. Leite, S. Gavazza, L. Florencio, M. Kato, Brazil



## **Novel anaerobic high-rate reactors/advanced sludge retention**

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### **ORGANIC WASTE TO BIOENERGY: TECHNOLOGY TRANSLATION FROM LABORATORY TO FIELD**

A.Gangani Rao, T. Anil Kumar, T.A.S. Jayanth, K. Sujana Sekhar, S. Begum, V. Arelli, S. Juntupally, S. Ahuja, D. Kumar Ahuja, India

### **Methane and hydrogen production from molasses via a novel integrated three-stage system**

T.H. Erguder, M. Gazaloğlu, M.C. Akman, E. Koç, U. Gündüz, İ. Eroğlu

### **Enhanced methane yield and COD removal during anaerobic digestion of Tequila vinasses by applying microelectricity**

M.A. Guadalupe Reynoso-Deloyaa, J.N. Acosta-Hernandez, L. García-Sánchez, E. Baltazar Estrada-Arriagac, Mexico

### **The evaluation of an anaerobic filter for domestic waste water at ambient temperatures: kinetic parameters**

L. Guerrero, S. Montalvo, E. Coronado, A. Barahona, R. Chamy, Chile

### **High-rate anaerobic plug flow reactor for co-digestion dairy manure, pressure sterilized animal by-products and cheese whey**

A.Aivasidis, A.Eftaxias, S. Pappas, M.D. Koskinari, A. Koumara, V. Diamantis, Greece

### **Feasibility of the conceptual Thermally Stimulated Biofilm Reactor (TSBR) to treat wastewater under low temperatures**

E. de Lima Neto, E.C. Pires, Brazil

### **Anaerobic moving bed biofilm reactor (AnMBBR) as pre-treatment of a dairy effluent with high levels of solids and fats**

F. Morgan-Sagastume, S. Jacobsson, M. Carlsson, Sweden

### **Dry anaerobic digestion of blue mussels by-products: preliminary study in 60 L batch reactors and perspectives**

M. Mercier-Huat, L. André\*\*, J. Grosmaître, A. Pauss, T. Ribeiro, France

### **Influence of Temperature on the Operation of a Modified Anaerobic Inclining-Baffled Reactor Treating Recycled Paper Mill Effluent**

H.M. Zwain, D.C. Stuckey, I. Dahlan, Iraq

### **Start-up strategies for digesting chicken manure using percolation-recirculation mode of operation**

R. Rajagopal, B. Goyette, S. Adhikary, D. Jérôme, Canada

## **Low-tech solutions for developing countries**

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### **Lighting the anaerobic digestion process in rural areas: nutrients recovery from cattle manure digestate**

J. Jaimes-Estévez, L. Castro, H. Escalante, Colombia

**Quantification of dissolved methane in an UASB reactor treating industrial wastewater using the COD method and a desorption tower**

M. Esparza-Soto, M. Lucero-Chávez, S.V. Ríos-Moreno, C. Fall, Mexico

**Codigestion of solid organic kitchen waste and waste activated sludge at low temperature: calorific value of biogas and methane**

M. Esparza-Soto, S. Alcaraz-Ibarra, M. A. Mier-Quiroga, M. Lucero-Chavez, C. Fall, Mexico

**Life cycle assessment of low-tech anaerobic digesters implemented in smallscale farms in Colombia**

I. Ferrer, L. Castro, H. Escalante, M. Garfí, Spain

**Sell your GC: Simple and accurate BMP measurement with a scale and syringe**

S.D. Hafner, J. R. Mortensen, C. G. Justesen, R. Thorsen, J. M. Triolo, S. Astals, Denmark

**Improvement in process efficiency and biogas productivity using glycerin as a co-substrate in anaerobic digestion of vinasse**

G. Lovato, L.P.P. Batista, M B Preite, J.N. Yamashiro, A.L.S. Becker, M.F.G. Vidal, N. Pezini, R. Albanez, S.M. Ratusznei, J.A.D. Rodrigues, Brazil

**Hydrogen production from coffee pulp by dark fermentation**

R. Miñón-Fuentes, O. Aguilar-Juárez, Mexico

**Effects of toilet paper and food waste in UASB reactors treating domestic wastewater**

D.P.P. Gomes, M. Figueiras, E. Pastich, S. M. Santos, S. Gavazza, Brazil

**COD and ammonium removal during the start-up phase evaluation of two modified septic tanks**

Á.L. Santiago-Díaz, M.L. Salazar-Peláez, D. de los Cobos-Vasconcelos, V. Mugica-Álvarez, Mexico

**Effects of Mn-oxides on biological decolorization of azo dye under aerobic and anaerobic conditions**

A. Shoiful, T. Kindaichi, Y. Aoi, N. Ozaki, A. Ohashi, Japan

**Methane Production from Anaerobic Co-Digestion of Sugarcane Vinasse and Cheese Whey in an AnSBBR**

S.P. Sousa, S.M. Ratusznei, J.A.D. Rodrigues, J.N. de Albuquerque, Brazil

**Win-win wastewater treatment to sustain world: Porous adsorbents from waste waterworks sludge for phenol remediation**

M.A. Tony, Egypt

**Iron sludge as a source of Fenton's reagent for textile wastewater treatment: Insights on hydroxyl free radicals induction sources**

M.A. Tony, Egypt

**Solids Retention Time in Semicontinuous Anaerobic Digestion Reactors of Organic Fraction of Municipal Solid Waste**

A. Valdovinos Lepine, O. González Barceló, Mexico

**Decentralized management of sewage using anaerobic systems and its potential to comply with legislation in a developing country: A case study in Brazil.**

T.C.R. Mesquita, T.F.O. Santos, A.C. Borges, M.L. Calijuri, F.M. Souza, A.Pereira Rosa, Brazil

**Biomethane from fish waste as a source of renewable energy in fishermen communities**

L.S. Cadavid-Rodríguez, M.A. Vargas-Muñoz, J. Plácido, Colombia

**Technological Innovation of an Anaerobic Reactor Dual Chamber for Municipal Wastewater Treatment**

A. Galindo Montero, E. Pimienta Serrano, J. Pérez Montiel J, Colombia

**Biological treatment of soybean molasses in two different low-cost reactors**

A. Sarti, B.S. de Mello, G.H.R. da Silva, B.C.G. Rodrigues, Brazil

**Microbial indicators in the Anaerobic Digestion of kitchen waste**

M.J.Q. Silva, M.S.A. Moncada, H. Escalante, Colombia

## **Biogas upgrading and management**

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**Biogas Upgrading coupled with PHB Accumulation in Nostoc muscorum: Effect of Volatile Fatty Acids (VFAs) Addition**

R. Ángeles, J. Gutiérrez, E. Arnáiza, R. Muñoz, R. Lebrero, Spain

**CoSin project, towards renewable gas and energy storage in WWTPs**

N. Basset, D. Olivares, A. Romero, P. Gómez, N. De Arespacochaga, J. Guilera, T. Andreu, I. Mallol, M. Latorre, Spain

**Impact of biomethane use in dual fuel engines**

A. Cabria, V. Mendez, A. Rodriguez-Abalde, D. Meana, Spain

**Application of biochar in anaerobic digestion: effects on hydrogen sulfide**

A. Rosales, C. Palma, R. Labatut, A. Carvajal, Chile

**Application of Taguchi orthogonal arrays to optimise the removal of CO<sub>2</sub> from biogas using amine scrubbing solutions**

A. Claramunt Ortega, Adrian Gonzalez, M. Nistor, M.K. De Kreuk, The Netherlands

**Evaluation of biogas production in anaerobic sludge blanket reactors as from the codigestion of high rate algal ponds biomass**

L. V. Castro, C. C. Moreira, M. P. Freitas, A.F. Torres, F. Passos, C. R. Mota Filho, Brazil

**Biomethane generation in an AnSBBR treating acidified cassava wastewater**

K.U. Devens, A.P. Trevisan, T.U. Tonello, G. Biasotto, L.C.L. Rossi, J.R.F. Santos, E.B. Lied, S. D. Gomes, Brazil

**Techno-economic feasibility of fermentative hydrogen production from ethylene glycol at ambient temperature**

A. Elreedy, M. Fujii, A. Tawfik, Japan

**Hydrogen enrichment as a bioaugmentation tool to alleviate ammonia inhibition on anaerobic digestion of phenol**

B.T. Wu, C.H. He, Z.H. Hu, W. Wang, China

**Biogas production and upgrading in a microalgae-based system treating agricultural runoff: a pilot-scale study**

D. Marín, R. Lebrero, R. Muñoz, R. Díez-Montero, J. García, I. Ferrer, Spain

**Iron and nickel nanoparticles concentration for hydrogen production optimization with *Clostridium butyricum***

A. G. L. Moura, C. A. B. S. Rabelo, E. L. Silva, M. B. A. Varesche, Brazil

**Microbial consortia competition: a key factor affecting the biological methanation performance**

E. Olaya, M. Figueroa, A. Rodríguez-Abalde, Spain

**Microalgae use as a photosynthetic biogas upgrading method**

L. Pérez, M. Figueroa, N. Muñoz, A. Rodríguez-Abalde, Spain

**Enzymatic saccharification of sugarcane bagasse for hydrogen production in dark fermentation**

C.A.B.S. Rabelo, B. S. Dionizio, D.H.F. de Souza, M B.A. Varesche, Brazil

**Optimized production of H<sub>2</sub> and ethanol by a novel strain *Thermanaerobacterium***

V. Silva, C.A.B.S. Rabelo, I.K. Sakamoto, E.L. Silva, M.B.A. Varesche, Brazil

**CONTINUOUS MULTIPLE TUBE REACTOR EVALUATE IN THE BIOHYDROGEN PRODUCTION**

A.P. TREVISAN, E.B. LIED, K.U. DEVENS, T.U. TONELLO, G. BIASOTTO, L.C.L. ROSSI, J.R. FERNANDES, S.D. GOMES, Brazil

**Increase in membrane performances for biogas upgrading**

A. Bertrandias, S. Valentin, A. Trueba, S. Kulkarni, V. Grabié, France

**Biogas production integrated to the concept of biorefinery for lignocellulosic biomass**

M.P.C. Volpi, B.S. Moreas, B.V.M. Lima, D.H. Silva, G.P. Freitas, L.M.G. Souza, Brazil

**Anaerobic Biorrosion of metals: Turning a problem to opportunity for CO<sub>2</sub> utilization to products and biogas upgrading**

I. Vyrides, C.G. Samanides, A. Kyprianou, G. Chrysanthou, M. Andronikou, Cyprus

**Biogas production from palm oil mill effluent and its utilization in Thailand**

W. Yoochatchaval, A. Prothirusmee, Thailand

**Enrichment of sulfate reducing bacteria in anaerobic digestion system for a high rate desulfurization**

T. Kim, Y. Yun, Republic of Korea

**HYDROGEN PRODUCTION USING SUGARCANE VINASSE: pH EFFECTS ON DARK FERMENTATION**

E.R. Lovatel, L.L. Beal, B. Pertile, A.P. Sausen, A.P. Torres, M.P. Souza

**Evaluation of trace metals influence on methane production from domestic sewage using Plackett-Burman design**

J.A. da Silva, A F.M. Braga, M. Zaiat, F.G. Feroso, G.H.R. Silva, Brazil

**Biological methanation of hydrogen and carbon dioxide: long-term lab pilot experiments**  
Y. Rafrafi, V. Contreras, S. Palmade, V. Guerré, M. Spérandio, X. Lefebvre, C. Dumas, France

**Kinetic analysis of the mechanism of inhibition by excess of substrate in the anaerobic digestion of OFMSW**

H. Vílchez Pérez, S. González-Martínez, Mexico

**Ex-situ biogas upgrading in continuous stirred tank reactor (CSTRs)**

R. Wahid, D.G. Mulat, S.J. Horn, Norway

**Acute effects of the reduction degree of graphene oxide on methane production**

J.I. Bueno-López, F.J. Cervantes, J.R. Rangel-Mendez, Mexico

**Does the inoculum matter for ex-situ biomethanation? Assessment of various microbiomes**

W. Logrono, P. Kluge, H. Harms, S. Kleinsteuber, M. Nikolausz, Germany

**Bioconversion of sugarcane-derived to value-added compounds in a compartmentalized thermophilic anaerobic fixed-bed reactor**

L.A. Soares, E.L. Silva, M.B.A. Varesche, Brazil

## **Anaerobic biotransformation of micro-pollutants**

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**Sulfamethoxazole and Ciprofloxacin removal in anaerobic structured bed reactor: effect of substrate and hydraulic retention time**

R.B. Carneiro, C.A. Sabatini, C. M. Mukaeda, A.J. Santos-Neto, M. Zaiat, Brazil

**Effect of airflow rate on microaerobic emerging micropollutants removal**

J.G.S. Nascimento, M.H.P. Araújo, M.E.R. da Silva, A. B. dos Santos, P.I.M. Firmino, Brazil

**4-Nonylphenol removal in Anaerobic Fluidized Bed Reactor in up scale**

H.S. Dornelles, E.L. Silva, M.B.A Varesche, Brazil

**Inhibition of chlortetracycline on anaerobic digestion and its fate during anaerobic digestion of swine manure**

C. Lee, J.Y. Kim, M. Ju, Republic of South Korea

**Azithromycin removal from a high-strength wastewater in a lab-scale UASB reactor**

M.D.P. Martínez-Polanco, M.C Bustos-López, J.D Valderrama-Rincón, M.C Díaz -Báez, Colombia

**Monitoring of metabolites production in anaerobic digestion by *C. acetobulylicum* and *C. beijerinckii* using a synthetic residue**

J. Martins, G. Mockaitis, A.J. Silva, Brazil

**Mass spectrometry analysis of by-products and intermediary metabolites from LAS under aerobic and anaerobic degradation**

F. Motteran, M.B.A. Varesche, P. A. Lara-Martin, Brazil

**Microbial diversity enhances azo dye decolorization in processes using intermittent aeration**

J.M.S. Oliveira, I.K. Sakamoto, E. Foresti, Brazil

**Effect of mercury on anaerobic digestion process**

A.N. Rollinson, I. Kartalis, J. Beyer, Y. Ismawati, T. Radu, United Kingdom

**INFLUENCE OF THE ANTIBIOTICS IN THE DEGRADATION PROCESSES OF THE ORGANIC MATTER IN AN EXPANDED GRANULAR SLUDGE BED REACTOR**

D.C. Rodriguez, G.A. Peñuela, Colombia

**EFFECT OF CARBAMAZEPINE AND DICLOFENAC ON THE BEHAVIOR OF AN ANAEROBIC REACTOR OF EXPANDED GRANULAR SLUDGE BED (EGSB)**

E.S.Baquero, D.C. Rodriguez, G.A. Penuela, Colombia

**Anaerobic and microaerobic benzene biodegradation: Effect of intermediates**

J. P. S. Siqueira, A.M. Pereira, P.I.M. Firmino, A.B. dos Santos, Brazil

**Biotransformation of Soluble Microbial Products (SMPs) in an Anaerobic Baffled Reactor (ABR)**

Y.N.A. Soh, C. Kunacheva, R.D. Webster, D.C. Stuckey, Singapore

**ANAEROBIC NAPHTHALENE MINERALIZATION COUPLED TO SULPHATE REDUCTION**

A. Yadu, B.P. Sahariah, J. Anandkumar, India

**Synchronous microbial vanadium (V) reduction and denitrification in groundwater using hydrogen as the sole electron donor**

Y.F. Jiang, B.G. Zhang, China

**Towards biological removal of volatile siloxanes in biogas by endogenous microbiota**

A.E. Ortiz-Ardila, R. Labatut, Chile

**Dissipation of PAHs, Nonylphenols and pharmaceuticals during anaerobic digestion of organic waste in urban, agricultural and territorial settings**

N.Sertillanges, D.Patureau, S.Houot, C.S.Haudin, M.Bourdat-Deschamps, France

**How continuous electrical stimulation affects the chloramphenicol-reducing biocathode resistome**

M. Qi, B. Liang, A. Wang, China

## **Bio-electrochemical systems/ Micro fuel cells**

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**Bioelectrochemical assisted Anaerobic Digestion of sewage sludge piloting under real operating conditions**

M. Aliaguilla, D. Molognoni, P. Bosch-Jimenez, F. Andrés, S. García, M.S. Romero-Guiza, X. Tomàs, P. Icaran, V. Monsalvo, E. Borràs, Spain

**Effect of the anolyte pH, catholyte concentration and anodic potential on H<sub>2</sub> production in MEC**

R. Cardeña, G. Buitrón, Mexico

**Phosphate migration in a dual chamber Microbial Electrolysis Cell: nutrient removal from digestates**

M. Cerrillo, A. Austrich, L. Burgos, A. Bonmatí, Spain

**Electricity production using new shade macrophytes in constructed wetlands-microbial fuel cells**

O. Guadarrama-Pérez, K.Y. Bahena-Rabadanb, E. Baltazar Estrada-Arriagaa, Mexico

**Evaluation of relationship between ATP concentration as anode microbial activity and process performance in MFCs**

K. Kubota, T. Watanabe, Japan

**A capacitive fluidised bioelectrochemical reactor for enhanced energy recovery**

I.S. Michie, R.M. Dinsdale, A.J. Guwy, United Kingdom

**Sustainable Wastewater Treatment Coupled to Energy Recovery with Microbial Electrochemical Technologies: The WE-MET Project**

F. Aulenta, C. Cruz Viggì, C. Pastore, D. Montecchio, B. Erable, A. Bergel, M. Zeppilli, M. Villano, M. Majone, G. Lyberatos, I. Ntaikou, K. Papadopoulou, G. Antonopoulou, A. Tremouli, S. Da Silva, H. Chouchane, A.S. Masmoudi, A. Cherif, Greece

**Independent and synergistic effects of magnetite addition and external voltage on anaerobic digestion of dairy effluent**

G. Baek, J. Kim, C. Lee, Republic of Korea

**Automatic control for hydrogen production in Microbial Electrolytic Cells**

G. Rodríguez-Valenzuela, V. Alcaraz-González, R.A. Flores-Estrella, Mexico

**Utilization of electric voltage for upgrading of methane production from phenol and supporting methanogenic granules**

A. Mostafa, S. Im, S. Kim, D.-H. Kim, Republic of Korea

**Microbial desalination cell operating with anoxic biocathode for carbon and nitrate removal, bioelectricity production and water desalination**

S. Perazzoli, J.P. de Santana Neto, H.M. Soares, Brazil

**Contribution analysis of electrochemical and bioelectrochemical methane production in a bioelectrochemical anaerobic digestion reactor**

J.-G. Park, H.-J. Kwon, H.-B. Jun<sup>†</sup>, Republic of Korea

**Increase of Methylophilic Methanogens in Bulk Sludge of Bio-electrochemical Anaerobic Digestion**

B. Lee, H.-B. Jun<sup>†</sup>, Republic of Korea

**Identification of Methanol Production in Cu Catalyzed Bio-electrochemical Anaerobic Digestion**

H.-R. Park, H.-B. Jun<sup>†</sup>, Republic of Korea

**Power generation with a batch type Microbial Fuel Cell using a hydrogenotrophic methanogen as cathodic catalyst**

M. Umetsu, Y. Fukuda, H. Takahashi, C. Tada, Japan

**Evaluation of methane production in a bio-electrochemical anaerobic digestion reactor according to increased loading rate**

W.-Q. Shi, H.-B. Jun<sup>†</sup>, Republic of Korea

## Environmental Management and policy

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### **P-graph Based Waste Treatment Optimisation for Sustainable Recovery**

Y.V. Fan, J.J. Klemeš, Czech Republic

### **Industrial symbiosis for biogas production, nutrient recirculation and reduced carbon footprint**

F. Ometto, N. Svensson, A. Karlsson, X. Truong, C. Svedin, J. Ejlertsson, Sweden

### **Agricultural biogas plants as a part of decentralized renewable energy production in Finland**

E. Winquist, P. Rikkonen, V. Varho, Finland

### **Methane emission from high-solid cattle manure during storage at various temperatures**

S. Im, A. Mostafa, D.-H. Kim, Republic of Korea

## Granular sludge bed technologies

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### **Enhanced anaerobic digestion of LCFA (long chain fatty acid) rich wastewater by low strength ultrasonication: performance, beta-oxidation enzymes and microbial community**

J. Park, S.G. Shin, S. Cho, Republic of Korea

### **Long-term performance stability and nutrient removal of aerobic granules treating UASB effluent**

A.A. Khan, M.N. Hasan, M. Owaes, R.Z. Gaur, S.S. Afsar, S. Ahmad, A. Khursheed, Anwar.A. Khan, B. Lew, A.A. Kazmi, India

### **Incidence of acetate oxidation and homoacetogenesis on methane formation: kinetic assessment using specific activities.**

I. López, E. Ripoll, L. Borzacconi, Uruguay

### **Effect of volatile fatty acids and chitosan to enhance efficiency of anaerobic granular sludge in treating palm oil mill effluent**

B. Suraraksa, N. Hudayah, Thailand

### **Development of UASB–DHS system for Treatment of Industrial Wastewater containing Water-Soluble Polymer**

T. Watari, Y. Sakai, D. Tanikawa, Y. Hirakata, M. Hatamoto, F. Yoneyama, O. Wakisaka, T. Yamaguchi, Japan

### **Degradation of 2-propanol by granular anaerobic sludge: from laboratory to industrial application**

M. Izquierdo, J.M. Peña-roja, P. San-Valero, N. Vermorel, A. Waalkens, C. Gabaldón, Spain

### **A Size-Driven Life Cycle Model for Anaerobic Granular Sludge Formation and Maintenance in Upflow Anaerobic Bioreactors**

S. Mills, A.C. Trego, U.Z. Ijaz, G. Collins, Ireland

### **Primary screening of inoculum for on-site treatment of groundwater contaminated with gasoline components**

A.-M. Wang, C.-S. Hwu, C.-H. Wu, Taiwan



**Characteristics and performance of membrane bioreactors on treating tomato paste processing wastewater**

K.Z. Su, H. Zhou, T. Shu, China

**Anaerobic granular sludge as a microbial platform for the conversion of gaseous substrates at moderate pressures**

J.I. Alves, M. Lopes, A.L. Arantes, I. Belo, D.Z. Sousa, M.M. Alves, Portugal