

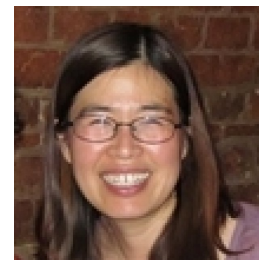
Jin Mi Triolo

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Employment

1996-2003: Researcher in environmental technology, specialised in waste and wastewater quality, employed by Daegu Metropolitan, South Korea.

2010: Research Assistant, employed by University of Southern Denmark

2010- 2013: Ph.D student in Engineering at University of Southern Denmark

2013- 2014: Research Officer, employed by University of Southern Denmark

2014- 2015 : Postdoc researcher, employed by University of Southern Denmark

2015- 2017 : Assistant Professor, employed by University of Southern Denmark

2017- current: Associate Professor, employed by University of Southern Denmark

Research Experience & Expertise

Jin Mi Triolo (JMT) is a specialist in biomass conversion for high value products through biochemical treatment, aerobic and anaerobic bioremediation for environmental health and bioenergy production. JMT benefits from approx.

- AD process and co-digestion optimisation for biogas production
- NIR, Non-destructive analysis of methane potential and recalcitrant organic matters
- Multivariate Data Analysis (Chemometrics), PLS modelling
- Wastewater and sludge treatment process technology
- Pretreatment, pre-storage technology for biogas production
- Carbon value chain analysis
- Biorefinery and Bioeconomy

Publications

Edwiges , T, Frare, LM, Alino, JHL, Triolo, JM, Flotats , X & Mendoca Costa, MSSD 2020, 'Methane potential of fruit and vegetable waste: an evaluation of the semicontinuous anaerobic mono-digestion', *Environmental Technology*, vol. 41, no. 7, pp. 921-930. <https://doi.org/10.1080/09593330.2018.1515262>

Sieborg, MU, Jønson, BD, Ashraf, MT, Yde, L & Triolo, JM 2020, 'Biomethanation in a thermophilic biotrickling filter using cattle manure as nutrient media', *Bioresource Technology Reports*, vol. 9, 100391. <https://doi.org/10.1016/j.biteb.2020.100391>

G. Justesen, C, Astals, S, Mortensen, JR, Thorsen, R, Koch , K, Weinrich, S, Triolo, JM & Hafner, SD 2019, 'Development and Validation of a Low-Cost Gas Density Method for Measuring Biochemical Methane Potential (BMP)', *Water*, vol. 11, no. 12, 2431. <https://doi.org/10.3390/w11122431>

Vazifehkoran, AH & Triolo, JM 2019, 'A novel mathematical modelling of waste biomass decomposition to facilitate rapid methane potential prediction', *Journal of Cleaner Production*, vol. 220, pp. 1222-1230. <https://doi.org/10.1016/j.jclepro.2019.01.161>

Vazifehkoran, AH, Roda-Serrat, MC, El-Houri, R & Triolo, JM 2019, 'Co-storage as an alternative pre-treatment strategy to increase biodegradability of garden grass.', 16th IWA World Conference on Anaerobic Digestion, Delft, Netherlands, 23/06/2019 - 27/06/2019.

L.D'Avila, J.A. Bastos, L. Schmoeller, , Triolo, JM & T. Edwiges 2019, 'Co-storage of wheat straw with alkaline or acidic waste can increase methane production', 16th IWA World Conference on Anaerobic Digestion, Delft, Netherlands, 23/06/2019 - 27/06/2019.

Hafner, S, J.R. Mortensen, C.G. Justesen, R. Thorsen, , Triolo, JM & S. Astals 2019, 'Sell your GC: Simple and accurate BMP measurement with a scale and syringe', 16th IWA World Conference on Anaerobic Digestion, Delft, Netherlands, 23/06/2019 - 27/06/2019.

Triolo, JM, Ashraf, MT, Sieborg, MU, Jønson, BD, Yde, L & Schmidt, JE 2019, 'Thermophilic BioMethanation in a Trickle Bed Reactor using Cattle Manure as Nutrient Media', International Environmental Engineering Conference & 4th International Conference on Biological Waste as Resource 2019, Busan, Korea, Republic of, 10/12/2019 - 13/12/2019.

Alino, J, Bastos, J, Frare, LM, Somer, JG, Edwiges, T & Triolo, JM 2018, 'Improvement of anaerobic digestion of grass clippings through alkali pretreatment', Latin American workshop and symposium on anaerobic digestion, Medellín, Colombia, 21/10/2018 - 24/10/2018.

Rennuit, C, Triolo, JM, Eriksen, S, Jimenez, J, Carrere, H & Hafner, S 2018, 'Comparison of pre- and inter-stage aerobic treatment of wastewater sludge: effects on biogas production and COD removal', *Bioresource Technology*, vol. 247, pp. 332-339. <https://doi.org/10.1016/j.biortech.2017.08.128>

Huang, J, Bruun, S, Glæsner, N & Triolo, JM 2018, 'Characterization of the available P of various digestates using Fourier transform mid-infrared photoacoustic spectroscopy', 6th Symposium on Phosphorus in Soils and Plants, Leuven, Belgium, 10/09/2018 - 13/09/2018.

Edwiges, T, Frare, L, Mayer, B, Lins, L, Triolo, JM, Flotats, X & Costa, MSSDM 2018, 'Influence of chemical composition on biochemical methane potential of fruit and vegetable waste', *Waste Management*, vol. 71, pp. 618-625. <https://doi.org/10.1016/j.wasman.2017.05.030>

Vazifekhoran, AH, Shin, SG & Triolo, JM 2018, 'Use of tannery wastewater as an alternative substrate and a pre-treatment medium for biogas production', *Bioresource Technology*, vol. 258, pp. 64-69. <https://doi.org/10.1016/j.biortech.2018.02.116>

Nguyen, QV, Jensen, LS, Bol, R, Wu, D, Triolo, JM, Vazifekhoran, AH & Bruun, S 2017, 'Biogas digester hydraulic retention time affects oxygen consumption patterns and greenhouse gas emissions after application of digestate to soil', *Journal of Environmental Quality*, vol. 46, no. 5, pp. 1114-1122. <https://doi.org/10.2134/jeq2017.03.0117>

Larsen, SU, Hjort-Gregersen, K, Triolo, JM & Vazifekhoran, AH 2017, 'Co-ensiling of straw with sugar beet leaves increases the methane yield from straw', The International Conference Progress in Biogas IV, Stuttgart, Germany, 08/03/2017 - 11/03/2017.

Larsen, SU, Hjort-Gregersen, K, Vazifekhoran, AH & Triolo, JM 2017, 'Co-ensiling of straw with sugar beet leaves increases the methane yield from straw', *Bioresource Technology*, vol. 245, no. A, pp. 106-115. <https://doi.org/10.1016/j.biortech.2017.08.117>

Vazifekhoran, AH, Shin, SG, Sommer, SG & Triolo, JM 2017, 'Industrial wastewater for biogas production: Use of tannery wastewater as an alternative substrate and a pre-treatment medium'.

Fitamo, TM, Triolo, JM, Boldrin, A & Scheutz, C 2017, 'Rapid biochemical methane potential prediction of urban organic waste with near-infrared reflectance spectroscopy', *Water Research*, vol. 119, pp. 242-251. <https://doi.org/10.1016/j.watres.2017.04.051>

Moraes, BDS, Petersen, SO, Zaiat, M, Sommer, SG & Triolo, JM 2017, 'Reduction in greenhouse gas emissions from vinasse through anaerobic digestion', *Applied Energy*, vol. 189, pp. 21-30. <https://doi.org/10.1016/j.apenergy.2016.12.009>

Edwiges, T, Sarolli, M & Triolo, JM 2017, Renewable energy in Brazil: a study about the potential for biogas production. in *Europe-Korea Conference on Science and Technology (EKC) 2017 proceedings*. Europe-Korea Conference on Science and Technology, Stockholm, Sweden, 26/07/2017.

Triolo, JM 2017, 'Sam-ensileringskoncept for mere biogas fra halm og KOD m.v.', Paper presented at Dansk Bioøkonomi konference 2017, Saksøbing, Denmark, 11/10/2017 - 11/10/2017.

Kim, MS, Na, J-G, Lee, M-K, Ryu, H, Chang, Y-K, Triolo, JM, Yun, Y-M & Kim, D-H 2016, 'More value from food waste: Lactic acid and biogas recovery', *Water Research*, vol. 96, pp. 208-216. <https://doi.org/10.1016/j.watres.2016.03.064>

Sommer, SG, Hamelin, L, Olesen, JE, Montes, F, Wei, J, Qing, C & Triolo, JM 2016, Agricultural Waste biomass. in E Iakovou, D Bochtis, D Vlachos & D Aidonis (eds), *Supply Chain Management for Sustainable Food Networks*. Wiley, pp. 67-106. <https://doi.org/10.1002/9781118937495.ch3>

Vazifekhoran, AH & Triolo, JM 2016, Anaerobic co-digestion of pig manure and organic waste materials as affected by different hydraulic retention time. in I Körner (ed.), *RAMIRAN 2015: Proceedings of the 16th International Conference Rural-Urban Symbiosis*. TuTech Verlag, pp. 527-530, 16th International Conference on Rural-Urban Symbiosis, Hamburg, Germany, 08/09/2015.

Vazifekhoran, AH, Triolo, JM & Larsen, SU 2016, 'Assessment of methane production from biologically and chemically pretreated straw', International Conference on Agricultural Engineering, Aarhus, Denmark, 26/06/2016 - 29/06/2016.

Vazifekhoran, AH, Triolo, JM, Larsen, SU, Stefanek, K & Sommer, SG 2016, 'Assessment of variability of biogas production of sugar beet silage as affected by movement and loss of the produced alcohols and organic acids', *Energies*, vol. 9, 368. <https://doi.org/10.3390/en9050368>

Triolo, JM, Vazifekhoran, AH & Larsen, SU 2016, 'Co-ensiling as an effective biological pretreatment of lignocellulosic straw to boost biogas production', 9th Europe-Korea Conference on Science and Technology, Berlin, Germany, 27/07/2016 - 30/07/2016.

Kim, M-S, Jang, S, Kim, D-H & Triolo, JM 2016, 'Effect of the accuracy of pH control on hydrogen fermentation and microbial community using carbohydrate-rich food waste', 1st International Conference on Bioresource and Technology for Bioenergy, Bioproducts & Environmental Sustainability, Sitges, Spain, 23/10/2016 - 26/10/2016.

Nguyen, QV, Vazifekhoran, AH, Wu, D, Jensen, LS, Bol, R, Petersen, SO, Triolo, JM, Glud, RN, Larsen, M & Bruun, S 2016, 'Effects of hydraulic retention time of anaerobic co-digestion of pig slurry with agro-industrial waste on nitrous oxide emission after soil application'.

Petersen, SO, Olsen, AB, Elsgaard, L, Triolo, JM & Sommer, SG 2016, 'Estimation of methane emissions from slurry pits under pig and cattle confinements', *PLoS One*, vol. 11, no. 8. <https://doi.org/10.1371/journal.pone.0160968>

Triolo, JM, Sommer, SG & Pedersen, L 2016, 'Influence of freezing/thawing and drying/milling on Biochemical Methane Potential', *Environmental Engineering and Management Journal*, vol. 15, no. 7, pp. 1533-1536. <https://doi.org/10.30638/eemj.2016.165>

Triolo, JM, Moraes, BDS, Petersen, SO, Zaiat, M & Sommer, SG 2016, 'Integrated Bioethanol biorefinery chain: Sequential biochemical conversion to produce bioethanol and biogas production'.

Triolo, JM & Vazifekhoran, AH 2016, Lignocellulose as a key parameter on energy recovery and methane emission potential: Effect of anaerobic digestion retention time. in W Clarke, R Cossu, L Diaz, T Matsuto, M Nelles, R Stegmann & J Liu (eds), *6th International Symposium on Energy from Biomass and waste, Venice, Italy 14- 17 2016*. CISA, 6th International Symposium on Energy from Biomass and Waste, Venice, Italy, 14/11/2016.

Boldrin, A, Baral, KR, Fitamo, TM, Vazifehkhoran, AH, Jensen, IG, Kjærgaard, I, Lyng, K-A, Nguyen, QV, Nielsen, LS & Triolo, JM 2016, 'Optimised biogas production from the co-digestion of sugar beet with pig slurry: integrating energy, GHG and economic accounting Energy', *Energy*, vol. 112, pp. 606-617. <https://doi.org/10.1016/j.energy.2016.06.068>

de Souza Moraes, B, Triolo, JM, Pulido Lecona, V, Zaiat, M & Sommer, SG 2015, 'Biogas production within the bioethanol production chain: use of co-substrates for anaerobic digestion of sugar beet vinasse', *Bioresource Technology*, vol. 190, pp. 227-234. <https://doi.org/10.1016/j.biortech.2015.04.089>

Thi Thien Thu, C, Nguyen, TX, Triolo, JM, Pedersen, L, Le, VD, Le, PD & Sommer, SG 2015, 'Biogas Production from Vietnamese Animal Manure, Plant Residues and Organic Waste: Influence of Biomass Composition on Methane Yield', *Asian-Australasian Journal of Animal Sciences*, vol. 28, no. 2, pp. 280-289. <https://doi.org/10.5713/ajas.14.0312>

Vazifehkhoran, AH & Triolo, JM 2015, Anaerobic co-digestion of pig manure and organic waste materials as affected by different hydraulic retention time. in H Menzi & T Misselbrook (eds), *Book of abstracts: RAMIRAN 2015: 16th International Conference Rural-Urban Symbiosis.*, TD-0_16, TuTech Innovation, pp. 144, 16th International Conference on Rural-Urban Symbiosis, Hamburg, Germany, 08/09/2015.

Vazifehkhoran, AH & Triolo, JM 2015, Anaerobic co-digestion of pig manure and organic waste materials as affected by different hydraulic retention time. in I Körner (ed.), *RAMIRAN 2015 - 16th International Conference Rural-Urban Symbiosis: Abstract book.*, TD-O_16, TuTech Innovation, pp. 144, 16th International Conference on Rural-Urban Symbiosis, Hamburg, Germany, 08/09/2015.

Fitamo, TM, Boldrin, A, Baral, KR, Vazifehkhoran, AH, Jensen, IG, Kjærgaard, I, Lyng, K-A, Van Nguyen, Q, Nielsen, LS & Triolo, JM 2015, Integration of energy, GHG and economic accounting to optimize biogas production based on co-digestion. in *DTU's Sustain Conference 2015: Book of abstracts.*, E-23, DTU Sustain Conference 2015, Lyngby, Denmark, 17/12/2015.

Bekiaris, G, Triolo, JM, Peltre, C, Pedersen, L, Jensen, LS & Bruun, S 2015, 'Rapid estimation of the biochemical methane potential of plant biomasses using Fourier transform mid-infrared photoacoustic spectroscopy', *Bioresource Technology*, vol. 197, pp. 475-481. <https://doi.org/10.1016/j.biortech.2015.08.050>

Hafner, S, Rennuit, C, Triolo, JM & Richards, BK 2015, 'Validation of a simple gravimetric method for measuring biogas production in laboratory experiments', *Biomass & Bioenergy*, vol. 83, no. December, pp. 297-301. <https://doi.org/10.1016/j.biombioe.2015.10.003>

Pham, CH, Triolo, JM & Sommer, SG 2014, 'Predicting Methane Production in Simple and Unheated Biogas Digesters at low temperatures', *Applied Energy*, vol. 136, pp. 1-6. <https://doi.org/10.1016/j.apenergy.2014.08.057>

Triolo, JM 2014, *Græsplænen skal i biogasanlægget.*

Triolo, JM 2014, 'Nyslået græs kan bruges i biogasanlæg', *Jydske Vestkysten*, no. Business, pp. 1.

Thygesen, O, Triolo, JM & Sommer, SG 2014, 'Anaerobic digestion of pig manure fibers from full-scale commercial manure separation units', *Biosystems Engineering*, vol. 123, pp. 91-96.

Thygesen, O, Triolo, JM & Sommer, SG 2014, 'Anaerobic digestion of pig manure fibres from commercial pig slurry separation units', *Biosystems Engineering*, vol. 123, pp. 91-96. <https://doi.org/10.1016/j.biosystemseng.2014.05.006>

de Souza Moraes, B, Triolo, JM, Pulido Lecona, V, Sommer, SG & Zaiat, M 2014, Biogas Production from Vinasse: Effects of By-Products of Livestock and Sugar-Beet Production as Co-Substrates. in *Proceedings of the 22nd European Biomass Conference and Exhibition, Hamburg, Germany.* European Biomass Conference and Exhibition, 22nd European Biomass Conference and Exhibition, Hamburg, Germany, 23/06/2014.

de Souza Moraes, B, Triolo, JM, Zaiat, M, Petersen, SO & Sommer, SG 2014, 'Effect of anaerobic digestion of vinasse on mitigation of greenhouse gas emission', XI Simposio Latinoamericano de Digestión Anaerobia, La Habana, Cuba, 24/11/2014 - 27/11/2014.

Vazifekhoran, AH, Triolo, JM, Larsen, SU, Stefanek, K & Sommer, SG 2014, 'Effect of ensilaging on biochemical methane potential (BMP) and physiochemical characteristics of sugar beet root pulp for biogas production', Progress in Biogas III, Stuttgart, Germany, 10/09/2014 - 11/09/2014.

Triolo, JM, Birkmose, TS, Stefanek, K, Vazifekhoran, AH & Sommer, SG 2014, 'Integration of crop residues as alternative co-substrate to Danish biogas plants: Influence of ensilage', Progress in Biogas III, Stuttgart, Germany, 10/09/2014 - 11/09/2014.

Triolo, JM, Kim, MS, Kim, SH, Nielsen, PH, Park, JM & Sommer, SG 2014, 'Korean-Danish joint research cooperation – Sharing experiences on environmentally friendly bioenergy production', 7th EU-Korea Conference on Science and Technology, Vienna, Austria, 22/07/2014 - 25/07/2014.

Triolo, JM, Ward, AJ, Pedersen, L, Løkke, MM, Qu, H & Sommer, SG 2014, 'Near Infrared Reflectance Spectroscopy for rapid determination of Biochemical Methane Potential of plant biomass', *Applied Energy*, vol. 116, pp. 52-57. <https://doi.org/10.1016/j.apenergy.2013.11.006>

Thygesen, O, Sommer, SG, Shin, SG & Triolo, JM 2014, 'Residual biochemical methane potential of concentrated digestate from full-scale biogas plants', *Fuel*, vol. 132, pp. 44-46. <https://doi.org/10.1016/j.fuel.2014.04.062>

Terradas-III, G, Cuong, PH, Triolo, JM, Martí-Herrero, J & Sommer, SG 2014, 'Thermic model to predict biogas production in unheated fixed-dome digesters buried in the ground', *Environmental Science & Technology (Washington)*, vol. 48, no. 6, pp. 3253–3262. <https://doi.org/10.1021/es403215w>

Triolo, JM 2013, *Novel mathematical algorithms to predict energy potential and biodegradability of carbon sources for biogas production*. Syddansk Universitet. Det Tekniske Fakultet, Odense.

Sommer, SG, Astrup, T, Boldrin, A, Bruun, S, Jensen, LS, Petersen, SO, Abildgaard, L & Triolo, JM 2013, 'Biogas from beet pulp and source separated household waste- Energy production and Greenhouse gas Reduction'.

Triolo, JM, Ward, AJ, Pedersen, L & Sommer, SG 2013, Characteristics of animal slurry as a key biomass for biogas production in Denmark. in MD Matovic (ed.), *Biomass Now - Sustainable Growth and Use*. InTech - Open Access Publisher, INTECH, pp. 307-326.

Petersen, NF, Triolo, JM, Bruun, S, Lærke, PE & Liu, N 2013, 'Elefantgræs i biogasanlæg', *Forskning i Bioenergi*, vol. 43, pp. 10-11.

Thygesen, O, Triolo, JM & Johnsen, T 2013, 'Energy generation from mechanically separated pig slurry: Incineration and biogas', Ramiran 2013, Paris, France, 03/06/2013 - 05/06/2013.

Thygesen, O, Triolo, JM & Johnsen, T 2013, Energy generation from mechanically separated pig slurry: Incineration and biogas. in *Proceedings. RAMIRAN 2013. 15th International Conference, Versailles, 2013*. RAMIRAN, pp. S7.18, Ramiran 2013, Paris, France, 03/06/2013.

Triolo, JM, Ward, AJ, Pedersen, L, Løkke, MM, Qu, H & Sommer, SG 2013, Near Infrared Reflectance Spectroscopy for rapid determination of Biochemical Methane Potential of plant biomass. in *ICNIRS 2013 - 16th International Conference on Near Infrared Spectroscopy, La Grande-Motte*. ICNIRS, ICNIRS 2013, La Grande-Motte, France, 02/06/2013.

Sommer, SG & Triolo, JM 2013, Online measurement of methane potentials and anaerobic degradability in biogas production and green house gas emission. in *2013 Korean-Danish Strategic Research Cooperation Workshop, Seoul South Korea* . Korean-Danish Strategic Research Cooperation .

Triolo, JM, Ward, AJ, Pedersen, L, Løkke, MM, Qu, H & Sommer, SG 2013, Rapid determination of Biochemical Methane Potential (BMP) in anaerobic digestion using Near Infrared Reflectance Spectroscopy (NIRS). in *EU-Korea Conference on Science and Technology (EKC), Brighton*. EKC.

Pham , HC, Triolo, JM, Cu , TTT, Pedersen, L & Sommer, SG 2013, 'Validation and Recommendation of Methods to Measure Biogas Production Potential of Animal Manure', *Asian-Australasian Journal of Animal Sciences*, vol. 26, no. 6, pp. 864-873. <https://doi.org/10.5713%2Fajas.2012.12623>

Triolo, JM, Pedersen, L, Qu, H & Sommer, SG 2012, Potential of plant waste for biomethane production: Characteristic biomethane production potential and anaerobic digestibility. in *Fourth International Symposium On Energy From Biomass and Waste, San Servolo, Venice (Italy)*. International Symposium On Energy From Biomass and Waste, San Servolo, Venice (Italy), Italy, 12/11/2012.

Triolo, JM, Pedersen, L, Qu, H & Sommer, SG 2012, 'Biochemical methane potential and anaerobic biodegradability of non-herbaceous and herbaceous phytomass in biogas production.', *Bioresource Technology*, vol. 125, no. 226-232.

Thygesen, O, Triolo, JM & Sommer, SG 2012, 'Indicators of physical properties and plant nutrient content of animal slurry and separated slurry.', *Biological Engineering Transactions*, vol. 5, pp. 123-135 .

Cuong, PH, Triolo, JM, Pedersen, L & Sommer, SG 2012, Methane productivity and algorithms for psychrophilic simple biogas digester. in *Fourth International Symposium On Energy From Biomass and Waste, San Servolo, Venice (Italy)*.

Cuong, PH, Triolo, JM, Thi Thien Thu, C, Pedersen, L & Sommer, SG 2012, Validation and recommendation of methods to measure biogas production potential. in *The 15th AAAP Animal Science Congress, Thailand*. AAAP, AAAP Animal Science Congress, Thailand, 26/11/2012.

Thygesen, O, Johnsen, T, Triolo, JM & Sommer, SG 2011, 'Physical properties, fuel characteristics and P-fertilizer production related to animal slurry and products from separation of animal slurry', njf seminar 443, Falköping, Sweden, 29/11/2011 - 30/11/2011.

Triolo, JM, Sommer, SG, Møller, HB, Weisbjerg, MR & Xinyan, J 2011, 'Influence of lignocellulose on biochemical methane potential and biodegradability for animal manure and energy crop', I. International Conference on Biogas Microbiology, Leipzig, Germany, 14/09/2011 - 16/11/2011.

Triolo, JM, Sommer, SG, Møller, HB, Weisbjerg, MR & Jiang, X 2011, 'A new algorithm to characterize biodegradability of biomass during anaerobic digestion: Influence of lignin concentration on methane production potential', *Bioresource Technology*, vol. 102, no. 9395-9402.

Triolo, JM, Sommer, SG, Møller, HB, Weisbjerg, MR & Jiang, X 2011, 'Influence of lignin on biochemical methane potential of biomass for biogas production', *Current Opinion in Biotechnology*, vol. 22, no. Supplement 1, pp. 146.

Triolo, JM, Sommer, SG & Møller, HB 2011, 'Ny metode til bestemmelse af gaspotentialet i biomasse', *Forskning i Bioenergi*, vol. 8, no. 35, pp. 6-7.