

DATOS DE IDENTIFICACIÓN Y CONTACTO

NOMBRE: ROSARIO SOLERA DEL RIO

CATEGORÍA LABORAL:

Catedrática de Universidad

FORMACIÓN ACADÉMICA

Lda. en Ciencias Biológicas; Doctora Ingeniera Química

INSTITUCIÓN UNIVERSIDAD DE CÁDIZ

EXPERIENCIA DOCENTE

FECHA DE ANTIGÜEDAD EN LA INSTITUCIÓN: 30 años

TITULACIONES EN LAS QUE HA IMPARTIDO OCENCIA EN LA UCA: Ingeniería Técnica industrial especialidad en Química industrial, Ingeniería en Obras Públicas, especialidad en Construcciones Civiles. Ingeniería Industrial. Licenciaturas: Química, Ciencias del Mar, Ciencias Ambientales, Enología. Grado en Ciencias Ambientales. Máster: Gestión Integral del Agua; Agroalimentación; Viticultura en Climas Cálidos

Nº DE QUINQUENIOS DOCENTES: 6

TUTORIZACIÓN DE TRABAJO FIN DE GRADO, FIN DE MÁSTER Y PROYECTOS FIN DE CARRERA

40 TRABAJOS TUTORIZADOS

EXPERIENCIA INVESTIGADORA

LÍNEAS DE INVESTIGACIÓN:

Grupo Tecnología del Medio Ambiente (TEP-181). Tratamiento biológico de aguas residuales de alta carga orgánica, de residuos y lodos

Nº DE SEXENIOS: 5 (31-12-2020)

ORCID

0000-0003-4476-5120

PROYECTOS (2015-2023)

1. Coproducción de hidrógeno y metano mediante codigestión anaerobia de biosólidos y vinazas de vino. Ministerio de Economía y Competitividad. Retos de la Sociedad. CTM2015-64810-R 2016-2020. €166.000,00- MR: Montserrat Pérez García and Rosario Solera Del Rio.
2. REcovery and REcycling of nutrients TURNing wasteWATER into added-value products for a circular economy in agriculture (**Water2REturn**) CIRC-02-2016-17. Proposal number: 730398-2 (2018-2022). 7129123.00 €. MR UCA: Montserrat Pérez García and Rosario Solera Del Rio.. Inicio: 17/01/2017; Duración: 1095 días
3. Integración de la biorrefinería anaerobia en el tratamiento de codigestión de biosólidos y residuos agroalimentarios. Proyectos de I+D+i en el Marco del Programa Operativo FEDER Andalucía 2014-2020 (ref.: sol-201800107460-tra) 80.750,00 (14.250,00€+ IVA). Garcia Morales J.L., 2019-2022.
4. Gestión de residuos agroalimentarios y lodos en el marco fertilizantes mediante codigestión

anaerobia en el marco de la economía circular: producción de energía y planta piloto. Proyectos de I+D+i en el Marco del Programa Operativo FEDER Andalucía 2014-2020 Junta de Andalucía.-Retos (P18-RT-1348). 102268.0€+ IVA. Rosario Solera y Montserrat Perez Garcia,. 2020-2024

5. Biorrefinería de matadero: de residuos a energía y productos de alto valor añadido (BioREF-TPAD). PID2021-123174OB-I00, 217.800,00€+IVA, MR: Montserrat Perez Garcia, Rosario Solera Rio, Convocatoria de Proyectos Estatal de Generación de Conocimiento. 2022 -2026

PUBLICACIONES

1. Sillero, L., Solera, R., Perez, M. Improvement of the anaerobic digestion of sewage sludge by co-digestion with wine vinasse and poultry manure: Effect of different hydraulic retention times, *Fuel*, 2022, 321, 124104
2. Miriam Tena; Montserrat Perez; Rosario Solera (2021) Benefits in the valorization of sewage sludge and wine vinasse via a two-stage acidogenic-thermophilic and methanogenic-mesophilic system based on the Circular Economy concept. July 2021M *Fuel* 296(37):120654.
3. Miriam Tena, Luz S.Buller, William Sganzerla, Mauro Berni, TâniaForster-Carneiro, RosarioSolera, Montserrat Perez (2022) Techno-economic evaluation of bioenergy production from anaerobic digestion of by-products from ethanol flex plants. *Fuel*, 309, 1 February 2022, 122171. <https://doi.org/10.1016/j.fuel.2021.122171>.
4. V. Ripoll, C. Agabo-García, R. Solera, M. Perez (2022) Anaerobic digestion of effluents and supernatant sludge from slaughterhouse industry in anaerobic sequential batch reactors. *Biomass Conversion and Biorefinery*, 2022.
5. Sillero L., Solera, R., Perez, M. (2022) Anaerobic co-digestion of sewage sludge, wine vinasse and poultry manure for bio-hydrogen production. *International Journal of Hydrogen Energy*. Volume 47, Issue 6, 19 January 2022, Pages 3667-3678. <https://doi.org/10.1016/j.ijhydene.2021.11.032>
6. Sillero L., Solera, R., Perez, M. (2022) Biochemical assays of potential methane to test biogas production from dark fermentation of sewage sludge and agricultural residues. *International Journal of Hydrogen Energy*. Volume 47, Issue 27, 29 March 2022, Pages 13289-13299. <https://doi.org/10.1016/j.ijhydene.2022.02.080>
7. M. Tena, M. Perez, R. Solera. (2021). Effect of hydraulic retention time on the methanogenic step of a two-stage anaerobic digestion system from sewage sludge and wine vinasse: Microbial and kinetic evaluation. *Fuel*, 296. <https://doi.org/10.1016/j.fuel.2021.120674>
8. M.Tena, M. Pérez, R. Solera. (2019). Effects of several inocula on the biochemicalhydrogen potential of sludge-vinasse co-digestion. *Fuel* 285, 116180. <https://doi.org/10.1016/j.fuel.2019.116180>
9. Vanessa Ripoll, Cristina Agabo-García, Rosario Solera, Montserrat Perez. (2020). Modelling of the anaerobic semi-continuous co-digestion of sewage sludge and wine distillery wastewater. *Environ. Sci. Water Res. Technol.*, 6, 1880–1889. <https://doi.org/10.1039/d0ew00275e>
10. V. Morales, C. Agabo-García, M. Pérez, R. Solera. (2020). Improvement of biomethane potential of sewage sludge anaerobic co-digestion by addition of "Sherry-wine" distillery wastewater. *Journal of Cleaner Production*, 115713. <https://doi.org/10.1016/j.jclepro.2019.119667>
11. Miriam Tena, Beatriz Luque, Montserrat Perez, Rosario Solera. (2020). Enhanced hydrogen production from sewage sludge by cofermentation with wine vinasse. *International Journal of Hydrogen Energy*, 45 (32), 15977-15984. <https://doi.org/10.1016/j.ijhydene.2020.04.075>
12. Cristina Agabo-García, Montserrat Pérez, Rosario Solera. (2020). Adaptation of thermophilic sludge-inoculum to co-digestion with Sherry-wine distillery wastewater. *Biomass and Bioenergy*, 139, 105628. <https://doi.org/10.1016/j.biombioe.2020.105628>
13. S. Zahedi, C. Martín, R. Solera, and M. Pérez. (2020). Evaluating the Effectiveness of Adding Chicken Manure in the Anaerobic Mesophilic Codigestion of Sewage Sludge and Wine Distillery Wastewater: Kinetic Modeling and Economic Approach. *Energy&Fuels*, 34, 10, 12626-12633. <https://doi.org/10.1021/acs.energyfuels.0c01852>
14. C. Agabo-García, R. Solera, M. Pérez. (2020). First approaches to valorize fat, oil and grease (FOG) as anaerobic co-substrate with slaughterhouse wastewater: Biomethane potential, settling capacity and microbial dynamics. *Chemosphere*, vol. 259, 127474. <https://doi.org/10.1016/j.chemosphere.2020.127474>
15. Miriam Tena; Montserrat Perez; Rosario Solera (2021) Effect of hydraulic retention time on the methanogenic step of a two-stage anaerobic digestion system from sewage sludge and wine vinasse: Microbial and kinetic evaluation, *Fuel*, 296, 15 2021, 120674, <https://doi.org/10.1016/j.fuel.2021.120674>
16. Miriam Tena; Montserrat Perez; Rosario Solera (2021) Effect of hydraulic retention time on hydrogen production from sewage sludge and wine vinasse in a thermophilic acidogenic CSTR: A promising approach for hydrogen production within the biorefinery concept.

- International Journal of Hydrogen Energy, 46, 11, 11, 7810-7820.
<https://doi.org/10.1016/j.ijhydene.2020.11.258>
17. Miriam Tena; Montserrat Perez; Rosario Solera (2021) Benefits in the valorization of sewage sludge and wine vinasse via a two-stage acidogenic-thermophilic and methanogenic-mesophilic system based on the Circular Economy concept. 2021M Fuel 296(37):120654; 10.1016/j.fuel.2021.120654
 18. Miriam Tena, Luz S.Buller, William Sganzerla, Mauro Berni, Tânia Forster-Carneiro, Rosario Solera, Montserrat Perez (2022) Techno-economic evaluation of bioenergy production from anaerobic digestion of by-products from ethanol flex plants. Fuel, 309, 1, 122171, <https://doi.org/10.1016/j.fuel.2021.122171>
 19. V. Ripoll, C. Agabo-García, R. Solera, M. Perez (2022) Anaerobic digestion of slaughterhouse waste in batch and anaerobic sequential batch reactors, Biomass Conversion and Biorefinery, 2022, <https://doi.org/10.1007/s13399-021-02179-1>
 20. V. Ripoll, R. Solera, M. Perez (2022) Kinetic modelling of anaerobic co-digestion of sewage sludge and Sherry-wine distillery wastewater. Effect of substrate composition in batch bioreactor, Fuel, Vol. 239 – 2022. [https:// DOI:10.1016/J.FUEL.2022.125524](https://doi.org/10.1016/J.FUEL.2022.125524)
 21. Sillero L., Solera, R., Perez, M. (2022) Anaerobic co-digestion of sewage sludge, wine vinasse and poultry manure for bio-hydrogen production. International Journal of Hydrogen Energy. 47, 6, 19 3667-3678. <https://doi.org/10.1016/j.ijhydene.2021.11.032>
 22. Sillero L., Solera, R., Perez, M. (2022) Biochemical assays of potential methane to test biogas production from dark fermentation of sewage sludge and agricultural residues. International Journal of Hydrogen Energy. 47, 27, 29, 13289-13299. <https://doi.org/10.1016/j.ijhydene.2022.02.080>
 23. Sillero, L., Solera, R., Perez, M.Improvement of the anaerobic digestion of sewage sludge by co-digestion with wine vinasse and poultry manure: Effect of different hydraulic retention times Fuel, 2022, 321, 124104, <https://doi.org/10.1016/j.fuel.2022.124104>
 24. C. Agabo-García, M. Perez, R. Solera (2022) Anaerobic sequential batch reactor for co-digestion of slaughterhouse residues: wastewater and activated sludge. Energy Journal, 255, 15, 2022, 124575
 25. William Gustavo Sganzerla, Leonor Sillero, Tânia Forster-Carneiro, Rosario Solera & Montserrat Perez (2022) Determination of anaerobic co-fermentation of brewery wastewater and brewer's spent grains for bio-hydrogen production: BioEnergy Research. BioEnergy Research (2022). <https://doi.org/10.1007/s12155-022-10486-2>
 26. Leonor Sillero, William G. Sganzerla, Montserrat Pérez, Rosario Solera, Tania Forster (2022) A bibliometric analysis of the hydrogen production from dark fermentation, International Journal of Hydrogen Energy. Vol. 47, 64, 29 July 2022, 27397-27420. <https://doi.org/10.1016/j.ijhydene.2022.06.083>
 27. Leonor Sillero, Rosario Solera, Montserrat Perez (2023) Thermophilic-mesophilic temperature phase anaerobic codigestion (TPAD) of sewage sludge, wine vinasse and poultry manure: effect of hydraulic retention time on mesophilic-methanogenic stage. Chemical Engineering Journal, Volume 451, Part 2, 1 January 2023, 138478, <https://doi.org/10.1016/j.cej.2022.138478>
 28. Leonor Sillero, Rosario Solera, Montserrat Perez (2023) Temperature-phased enhanced the single-stage anaerobic co-digestion of sewage sludge, wine vinasse and poultry manure: perspectives for the circular economy.Fuel. Vol. 331, 2, 1 2023, 125761. <https://doi.org/10.1016/j.fuel.2022.125761>
 29. Leonor Sillero, Rosario Solera, Montserrat Perez (2023) Techno-economic analysis of single-stage and temperature-phase anaerobic co-digestion of sewage sludge, wine vinasse, and poultry manure, Journal of Environmental Management, 326 (2023), 116419. DOI: 10.1016/j.jenvman.2022.116419.
 30. Leonor Sillero, Rosario Solera, Montserrat Perez, Effect of the hydraulic retention time on the acidogenic fermentation of sewage sludge, wine vinasse and poultry manure for biohydrogen production in a biorefinery concept. Biomass&Bioenergy, <https://doi.org/10.1016/j.biombioe.2022.106643>
 31. Effect of temperature on biohydrogen and biomethane production using a biochemical potential test with different mixtures of sewage sludge, vinasse and poultry manure, Journal of Cleaner Production, Vol. 382. <https://doi.org/10.1016/j.jclepro.2022.135237>
 32. Determination of Anaerobic Co-fermentation of Brewery Wastewater and Brewer's Spent Grains for Bio-hydrogen Production, Bioenergy Research, Vol. 16, Núm. 2, pp. 1073-1083. 10.1007/s12155-022-10486-2.
 33. Application of Anaerobic Co-digestion of Brewery by-Products for Biomethane and Bioenergy Production in a Biorefinery Concept, Bioenergy Research. <https://doi.org/10.1007/s12155-023-10605-7>.
 34. Anaerobic co-digestion of sewage sludge and wine vinasse mixtures in single-stage and sequential-temperature processes, Fuel, Vol. 348 <https://doi.org/10.1016/j.fuel.2023.128531> .

CONGRESOS

1. L. Sillero, R. Solera, M. Perez, **Beneficios de la codigestión anaerobia de lodos, vinaza y estiércol avícola en el marco de la economía circular**. VII Jornadas de la Red Española de Compostaje, LUGAR: Salamanca el 5-7 de Octubre de 2022.
2. L. Sillero, R. Solera, M. Perez. **Gestión de residuos agroalimentarios y lodos en el marco de la economía circular: producción de energía y fertilizantes mediante codigestión anaerobia**, META 2022, Junio 2022.
3. R. Solera. **Gestión de residuos agroalimentarios y lodos en economía circular**. 2nd International Workshop Waste 2 Energy, held on-line on 8th and 9th November 2021. Campinas (Brasil). Oral.
4. L. Sillero, M. Tena, M. Pérez, R. Solera. **Effect of operating temperature on yield and methane production in the anaerobic codigestion process of sludge: vinasse: poultry manure**. International Congress Smallwat21v. 17-18 June 2021. ISBN: 978-989-331964.
5. L. Sillero, M. Tena, M. Pérez, R. Solera. **Description and operation of the anaerobic digestion unit (energy unit) in the water2return prototype**. International Congress Smallwat21v. 17-18 June 2021. ISBN: 978-989-331964.
6. M.Tena, L. Sillero, M. Pérez, R. Solera. **Improving hydrogen production from co-fermentation of sewage sludge with agro-food waste**. International Congress Smallwat21v. 17-18 June 2021. ISBN: 978-989-331964.
7. M.Tena, L. Sillero, M. Pérez, R. Solera. **Obtaining fertilizers from anaerobic codigestion of sewage sludge and wine vinasse**. International Congress Smallwat21v. 17-18 June 2021. ISBN: 978-989-331964.
8. Solera, R. Montañés and M. Perez. **Improve methane production from sewage sludge by enzymatic pre-treatments**. SMICE, Rome 23-25 May 2018.
9. Solera, M. Perez **Co-digestion of sewage sludge with agro-waste to boost biogas production**. SMICE, Rome 23-25 May 2018.
10. Leonor Sillero, Míriam Tena, Rocío A. López, Montserrat Pérez y Rosario Solera. **Mejora del tratamiento de lodos mediante codigestión anaerobia con residuos agroalimentarios (vinaza de vino y gallinaza)**. IX Jornadas de Lodos de EDAR. 24 Noviembre de 2021. Barcelona.
11. Míriam Tena, Leonor Sillero, Rocío A. López, Montserrat Pérez y Rosario Solera. **mejora de la producción de hidrógeno a partir de la cofermentación de lodos de depuradora con residuos agroalimentarios..** IX Jornadas de Lodos de EDAR. 24 Noviembre de 2021. Barcelona.
12. Rocío A. López, Míriam Tena, Leonor Sillero, Montserrat Pérez y Rosario Solera. **Estudio de la codigestion de lodos con vinazas y residuos de pescado para la producción de hidrógeno en condiciones termofílicas**. Jornadas de Lodos de EDAR. 24 Noviembre de 2021, Barcelona.

ACTIVIDADES DE TRANSFERENCIA

CONTRATOS

Technical follow-up and scientific advice on the operation of the slurry treatment facilities of the company GUASCOR SEVICIOS in Hornillos de Eresma and Turégano (Castilla y León), Altorricón (Aragón), Alcarrás, Santa María de Corco and Masies de Voltregá (Catalonia). 01/04 / 2007- 01/04/2008.

Valuation of waste from the Jerez region by thermophilic anaerobic digestion. Institute of Promotion and Development of the City of Jerez. City Council of Jerez. 2007-2008.

Diagnosis of the situation of the refrigeration circuit of the ctlb regarding fouling by macrofouling Los Barrios Thermal Power Plant. ENDESA. 2007-2008.

Energy recovery of olive processing by-products: optimization of the joint biomethanization process with WWTP sludge Duration: 15/07/14 a 15/09/2015

Amount: 43752.31 +IVA€. Number of researchers: 8 Principal Investigator: Prof. Dr. D. José Luis García Morales

PATENTES

Researcher (p.o. of signature): Montero Cordon, B .; Solera del Río, R .; García-Morales, J.L Romero García, L.I .; Sales Márquez, D.

TITLE: Procedure for conditioning high-solids samples for quantification

APPLICATION NO .: P200600276

CREACIÓN DE EMPRESA DE BASE TECNOLÓGICA

DENOMINATION / SOCIAL REASON: BIOVALORA, S.L. NIF / CIF B72140866

CONSTITUTION DATE: 04/23/2009

ADDRESS: AVDA. ILLUSTRATION, EDIF. ASTARTÉ, Nº 6 - PLANT 3, 11011-CÁDIZ

INCENTIVES GRANTED: CAMPUS INCENTIVE

INNOVATION AND DEVELOPMENT AGENCY OF ANDALUCÍA IDEA- INNOVATION, SCIENCE AND ENTERPRISE COUNSELING. PARTICIPATORY LOAN OF € 142,405.80.

PREMIOS

Premio a la transferencia tecnológica (PTT) (3)

II Call for ideas and Projects of a Technology-Based or Cultural / Creative Company atrÉBT! ® (2008 Edition). PARTICIPANT: GRUPO PROMOTOR DE LA EBT BIOVALORA, S.L. ENTITY: Vice-Rector for Research, Technological Development and Innovation - O.T.R.I. from the University of Cádiz and Andalusia Innovation and Development Agency (IDEA).

CEPSA foundation chair awards 2019, 2020 and 2022 for the best scientific publications in the field of energy, oil and the environment. CEPSA-University of Cadiz

PARTICIPACIÓN EN SOCIEDADES Y REDES DE INVESTIGACIÓN

- Member of the European Federation of Biotechnology (Section of Environmental Biotechnology): 2002-NEWS
 - Member of the Spanish Society of Microbiology (SEM): 2006-present
 - Member of the Spanish Composting Network (REC): 2008-present
-