

CURRICULUM VITAE ABREVIADO (CVA)

Part A. PERSONAL INFORMATION

First name	Maria Jose		
Family name	López López		
Gender (*)	Female	Birth date (dd/mm/yyyy)	20/07/1967
Social Security, Passport, ID number			
e-mail	mllopez@ual.es	URL Web	
Open Researcher and Contributor ID (ORCID) (*)	0000-0002-3153-3227		

(*) *Mandatory*

A.1. Current position

Position	Catedrática de Universidad		
Initial date	14/03/2023		
Institution	Universidad de Almería		
Department/Center	Biology and Geology	CIAIMBITAL	
Country	Spain	Teleph. number	+34950015890
Key words	Microbiology, Composting, Biofertilizers, Biopesticides, Lignocellulose-degrading enzymes		

A.2. Previous positions (research activity interruptions, indicate total months)

Period	Position/Institution/Country/Interruption cause
1990-1996	Investigador/Universidad de Granada/Spain/-
1996-2002	Associate Professor/Universidad de Almeria/Spain
2002-2023	Profesora Titular Universidad/ Universidad de Almeria/Spain

A.3. Education

PhD, Licensed, Graduate	University/Country	Year
Licensed Pharmacy	Universidad de Granada, Spain	1990
Master in Environmental Biotechnology	Universidad de Granada, Spain	1991
PhD Pharmacy	Universidad de Granada, Spain	1996

(Include all the necessary rows)

Part B. CV SUMMARY (*max. 5000 characters, including spaces*)

Her research activity has been focused on two main lines: the biotechnological valorization of organic wastes by composting and other bioconversions to value-added microbial products; and the bioremediation/biodegradation of recalcitrant molecules. Her pre- and post-doctoral research involved the production of microbial exopolysaccharides from lignocellulosic wastes and olive mill wastewaters (OMW).

For the last 25 years, composting was the core of her research having three different targets: the design of efficient composting processes; the analysis and isolation of the microbiome involved in the process; and the production of compost and derivatives with improved functionalities in comparison to counterpart products available on the market. One of the outputs of this activity was obtaining a large collection of microorganisms that were characterized for recalcitrant molecules biodegradation (lignocellulose or pesticides), biological control, and plant-growth promotion, whose use for biorefinery, bioremediation and agronomic applications were further validated. That collection was enlarged in parallel research in which other habitats were screened for the selection of the microorganisms according to the target application.



The composting process was analysed at pilot and industrial scales for a large set of raw materials. The studies included the analysis of the factors that influence suitable organic matter biotransformation, pathogens removal, depletion of pollutants, as well as the determination of the role of the microorganisms either native or inoculated in such processes through the application of omics. In addition, process monitoring and compost quality predicting indicators were identified. These studies helped her to gain high expertise on composting processes, laying the basis for many collaborations with companies. They included, among others, providing services for the optimization of composting processes at an industrial scale and implementing composting as the main flexible destiny for dead-end organic waste streams within biorefinery models.

The studies of lignocellulolytic microorganisms focused on both their capability to act as bioremediating agents and their application for biorefinery processes. They were applied for 2nd generation bioethanol production, enzymes production after immobilization on carriers, the removal of pesticides and ink on effluents, and the improvement of bioremediation of soil polluted with OMW. Recently, these microorganisms are being used for the biodegradation of fossil-based plastics obtaining promising results when these microorganisms are used in consortia and in combination with insects that feed on plastics.

Concerning the functionalities of compost and derivatives as biopesticide, biostimulants and/or biofertilizer, improved compost having such functionalities have been developed by inoculation of beneficial microorganisms and a new liquid product called hydrocompost has been produced from compost. Also, a wide range of plant growth-promoting microorganisms with potential use as inoculants has been selected and tested for agricultural application in different formulations, which have aroused the interest of numerous companies in the agricultural sector.

She has published 80 papers (68 papers with impact factor, of which 34 Q1), 2 books, 7 book chapters and 3 patents. She has participated in 34 research projects and/or research contracts, being the principal investigator of four national projects, one USDA project and three European projects. Currently she is the coordinator of a BBI-JU H2020 project. As the main responsible for projects, she has obtained a total financial support of around 1.700.000€.

She has participated as an invited speaker in 17 workshops or webinars addressed to the productive sector and periodically participates in activities such as The European Researchers' Night, the Week of Science, and Pint of Science, all addressed to the general public.

She has supervised 8 doctoral theses plus four to be completed within next two years, as well as 72 graduate and master's degree projects. For 13 of the pre or post-doctorate students, she was responsible for research contracts covering a total of 22 years. Since 2020, she is the responsible for the BIO-175 Research group of the Junta de Andalucía. She has also completed two stays as a visiting researcher at the University of Edinburgh and at the US Department of Agriculture (Peoria, Illinois). She is senior editor of the Journal of Industrial Microbiology and Biotechnology and a member of the editorial board of Enzyme and Microbial Technology, acting also as a regular reviewer for many Journals. She is an expert panelist of the Agencia Estatal de Investigación and the European Commission. She is a Member of the Spanish Society of Microbiology and the Spanish Composting Network.

Part C. RELEVANT MERITS

C.1. Publications

1. Carpena-Istan, V., Jurado, M. M., Estrella-Gonzalez, M. J., Salinas, J., Martinez-Gallardo, M. R., Toribio, A. J., López-González, J. A., Suárez-Estrella, F., Sáez, J. A., Moral, R., **Lopez, M. J.** (2024). Enhancing earthworm (*Lumbricus terrestris*) tolerance to plastic contamination through gut microbiome fortification with plastic-degrading microorganisms. Journal of Hazardous Materials, 463, 132836.
2. Jiménez, R., Suárez-Estrella, F., Jurado, M.M., López-González, J.A., Estrella-González, M.J., Toribio, A.J., Martínez-Gallardo, M.R., Lerma-Moliz, R., **López, M.J.** 2023. Sustainable approach to the control of airborne phytopathogenic fungi by application of compost extracts. Waste Management, 171, 143-154.
3. Suárez-Estrella, F.*, Jurado, M.M., López-González, J.A., Toribio, A., Martínez-Gallardo, M.R., Estrella-González, M.J., **López, M.J.** 2023. Seed priming by application of



- Microbacterium* spp. strains for control of *Botrytis cinerea* and growth promotion of lettuce plants. *Scientia Horticulturae*, 313, 111901. 4-4238.
4. Lerma-Moliz, R., López-González, J.A., Suárez-Estrella, F., Martínez-Gallardo, M.R., Jurado, M.M., Estrella-González, M.J., Toribio, A.J., Jiménez, R., **López, M.J.** 2023. Mitigation of phytotoxic effect of compost by application of optimized aqueous extraction protocols. *Science of The Total Environment*, 873, 162288..
 5. Toribio, A.J.; Jurado, M.M.; Suárez-Estrella, F.; **Lopez, M.J.**; López-González, J.A.; Moreno, J. 2021. Seed biopriming with cyanobacterial extracts as an eco-friendly strategy to control damping off caused by *Pythium ultimum* in seedbeds. *Microbiological Research*, 248, 126766.
 6. Moreno, J.; López-González, J.A.; Arcos-Nievas, M.A.; Suárez-Estrella, F.; Jurado, M.M.; Estrella-González, M.J.; **Lopez, M.J.** 2021. Revisiting the succession of microbial populations throughout composting: A matter of thermotolerance. *Science of the Total Environment*, 773, 145587.
 7. Estrella-González, M. J., Suárez-Estrella, F., Jurado, M. M., **López, M. J.**, López-González, J. A., Siles-Castellano, A. B., Moreno, J. 2020. Uncovering new indicators to predict stability, maturity and biodiversity of compost on an industrial scale. *Bioresource Technology*, 123557.
 8. Siles-Castellano, A. B., **López, M. J.**, López-González, J. A., Suárez-Estrella, F., Jurado, M. M., Estrella-González, M. J., Moreno, J. 2020. Comparative analysis of phytotoxicity and compost quality in industrial composting facilities processing different organic wastes. *Journal of Cleaner Production*, 252, 119820.
 9. Estrella-González, M. J., López-González, J. A., Suárez-Estrella, F., **López, M. J.**, Jurado, M. M., Siles-Castellano, A. B., Moreno, J. 2020. Evaluating the influence of raw materials on the behavior of nitrogen fractions in composting processes on an industrial scale. *Bioresource Technology*, 303, 122945.
 10. Estrella-González, M.J., Jurado, M.M., Suárez-Estrella, F., **López, M.J.**, López-González, J.A., Moreno, J. 2019. Enzymatic profiles associated with the evolution of the lignocellulosic fraction during industrial-scale composting of anthropogenic waste: Comparative analysis. *Journal of Environmental Management*, 1, 109312.

C.2. Congress

López, M.J., Suárez-Estrella, F., Jurado, M.M., López-González, J.A., Moreno, J. 2019. Aportar funcionalidad agronómica al compost para uso como sustrato o enmienda. XII Jornadas ceiA3 del Grupo de Sustratos de la SECH. Universidad de Almería, 11-12 diciembre 2019. Invited conference.

Moreno, J.; López-González, J.A.; Suárez-Estrella, F.; Jurado, M.M.; Estrella-González, M.J.; **López, M.J.** 2020. La sucesión de poblaciones microbianas durante el compostaje: una cuestión de termotolerancia. REC2020. Compostaje Webinars 2020, 6-27/11/2020. Invited conference.

López, M.J., Suárez-Estrella, F., Jurado, M.M., López-González, J.A., Moreno, J. 2021. Integrating composting within the biorefinery concept: closing the loop. THESSALONIKI 2021 8th International Conference on Sustainable Solid Waste Management. Online, 23-26/06/2021. Oral presentation.

López, M.J., Suárez-Estrella, F., Jurado, M.M., López-González, J.A. 2021. Microorganismos del suelo y funcionalidad del compost. III Simposio de Agricultura Ecológica. Almería, Webinar. 19-27/05/2021. Invited conference.

López, M.J. 2021. Gestión de Residuos Hortícolas Orgánicos: Compost, Vermicompost, Té de Compost, Biochar. ceiA3 Training Network Courses - Bioeconomía: Gestión de Subproductos y Restos Hortícolas. Universidad de Almería, Webinar. 24-28/05/2021. Invited conference.

López, M.J. 2021. Herramientas biotecnológicas para promover la degradación de microplásticos en compostaje y vermicompostaje: El proyecto RECOVER. Webinar Microplásticos en el Ciclo de la Materia Orgánica. 30/11/2021. Invited conference.

C.3. Research projects.

1. AGROPURITECH (PP.PEI.IDF2023030.001). Desarrollo de técnicas de tratamiento y valorización agrícola del purín de porcino intensivo en el este de Andalucía. Acción de Proyectos Estratégicos y Demanda Institucional. IFAPA. IP: M^a Luz Segura Pérez. 1.199.009,60€. Date: 2023-2027. Participation: Principal Researcher
2. OLIFE_RELIFE. Uso del microbioma procedente de balsas abandonadas de alpechin como herramienta biotecnológica para la economía circular y el desarrollo sostenible. 2023-2024. TED2021-129481B-C32. Proyectos de transición ecológica y digital 2021. Ministerio de Ciencia e Innovación. 97.900 €. Role: Principal Investigator
3. Bioactivación de residuos lignocelulósicos en el entorno agrícola almeriense como tratamiento previo al proceso de compostaje. 2021-2022. UAL2020-BIO-B1964. Universidad de Almería. 30.000€. Role: Investigator.
4. Diseño, desarrollo y validación de compost funcionales a partir de lodos de depuradora. Identificación, caracterización e implementación del efecto biopesticida, biofertilizante y bioestimulante en aplicaciones hortícolas y ornamentales. 2020-2021. 189/PC08/3-04.3. Consejería de Economía, Conocimiento, Empresas y Universidad. 49.900 €. Role: Investigator.
5. RECOVER. Developing innovative biotic symbiosis for plastic biodegradation and synthesis to solve their end of life challenges in the agriculture and food industries. 2020-24. H2020-BBI-JTI-2019. Proposal n. 887648. H2020 European Commission. 5.767.400 €. Role: Coordinator.
6. LIFE+REGROW. Reclamation of olive oil waste abandoned lagoons using bio-recovering strategies in a circular economy scenario. 2017-2021. LIFE16 ENV/ES/000331. 1.480.627 €. Role: Principal Investigator.
7. COMMETA. Estudio comparativo del microbioma del compostaje: metagenómica, análisis funcional y vinculación con los parámetros críticos de control del proceso. 2016-2018. AGL2015-64512-R. Ministerio de Economía y Competitividad, Spain. 145.200 €. Role: Investigator
8. AGRIMAX. Agri and food waste valorisation co-ops based on flexible multi-feedstocks biorefinery processing technologies for new high added value applications. 2016-2020. GA 1232273. H2020 European Commission. 14.957.395 €. Role: Principal Investigator.
9. SABANA. Sustainable algae biorefinery for agriculture and aquaculture. 2016-2020. GA 727874. H2020 European Commission. 10.600.000 €. Role: Investigator.
10. Aprovechamiento de subproductos para la producción de bacterias de uso agrícola como agente protector frente a organismos patógenos y mejoradores de la fertilidad de suelos. 2015-2018. RTC-2015-3897-2. Ministerio de Economía y Competitividad, Spain. Role: Investigator.

C.4. Contracts, technological or transfer merits,

1. **Contrato AZCATEC, TECNOLOGÍA E INGENIERÍA S.L.** Mejoras tecnológicas para el aprovechamiento del fósforo de los fertilizantes agrícolas con base en la economía circular: un paso adelante en el Desarrollo Sostenible de Andalucía. **2023**. 56.371 €. **Researcher**
2. **Contrato FERTINAGRO SUR.** Mejoras tecnológicas para el aprovechamiento del fósforo de los fertilizantes agrícolas con base en la economía circular: un paso adelante en el Desarrollo Sostenible de Andalucía. **2023**. 136.367 €. **Principal Researcher**
3. **Contract 401619.** Optimisation of the composting process in an industrial-scale production plant. **2020-21**. UAL-Reciclado Almerienses SL. 13.200 €. **Researcher**
4. **Contrato:** Aislamiento de nuevas bacterias extremófilas promotoras del crecimiento vegetal y antagonistas para su uso como biofertilizantes y agentes de control biológico. Biorizon Biotech S.L. IP: Joaquín Moreno Casco, Universidad de Almería. 01/12/2018-01/12/2019. 24,200 €.
5. **Patente:** Cabulis, U., Kirpluks, M., Stirna, U., Lazzeri, A., Cinelli, P., **López, M.J.**, Moreno, J., Suárez-Estrella, F., Vargas-García, M.C. 2013. Polyurethane rigid and flexible foams as composite obtained from wood origin raw materials and use as support for immobilization of microorganisms that produce ligninolytic enzymes. EP2677030A1.
6. **Patente:** **Lopez, M.J.**, Suárez-Estrella, F., Jurado, M.M., López-González, Juan A., Chiesa, S., Chiesa, A., Process for obtaining concentrated humic liquid fertilizer from composted tomato and corn residues (Hydrocompost). European patent (application). EP4249455