



utad UNIVERSIDADE
DE TRÁS-OS-MONTES
E ALTO DOURO

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32 Integrated Member
29 PhD Students
0.91 PhD/Member



96 Papers
89% Q1+Q2
Productivity 3.0



4 New Projects
25 Projects running
10 International



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	https://cqvr.purpleprofile.pt/
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1. Overview

1.1. CQ-VR Performance in 2024: A Year in Review

The year 2024 marked a period of notable activity and productivity for the CQ-VR. The center comprised 32 integrated researchers, along with a strong cohort of 29 PhD students and 1 Post-Doc student. Demonstrating its commitment to nurturing young researchers, seven PhD students successfully concluded their doctoral studies during the year. The ratio of PhD students to integrated members stood at 0.91 in 2024 (Figure 1), highlighting a robust research environment.

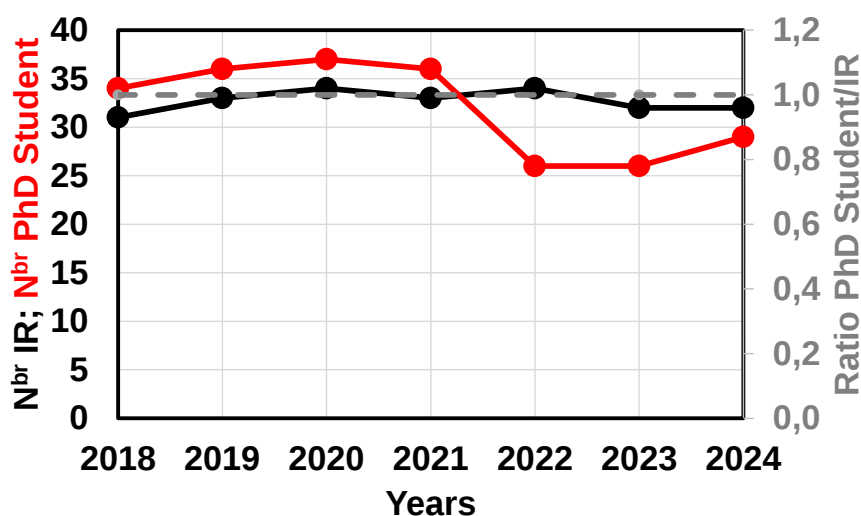


Figure 1 – Number of integrated members and PhD students between 2018 and 2024

Furthermore, 2024 witnessed significant output in terms of scholarly publications. A total of 96 papers were published in journals indexed in the Journal Citation Reports (JCR) (Figure 2). An analysis based on the Web of Science database revealed that 54 of these publications appeared in Q1 journals, 31 in Q2 journals, and 8 in Q3 journals. Additionally, 8 papers were published in newly launched journals, which are currently awaiting their first impact factor. The productivity of CQ-VR members in 2024 reached 3.0 JCR-indexed papers per integrated member, representing a commendable result. However, the report indicates an ongoing need to further increase the number of publications in top-tier journals (Table 1).

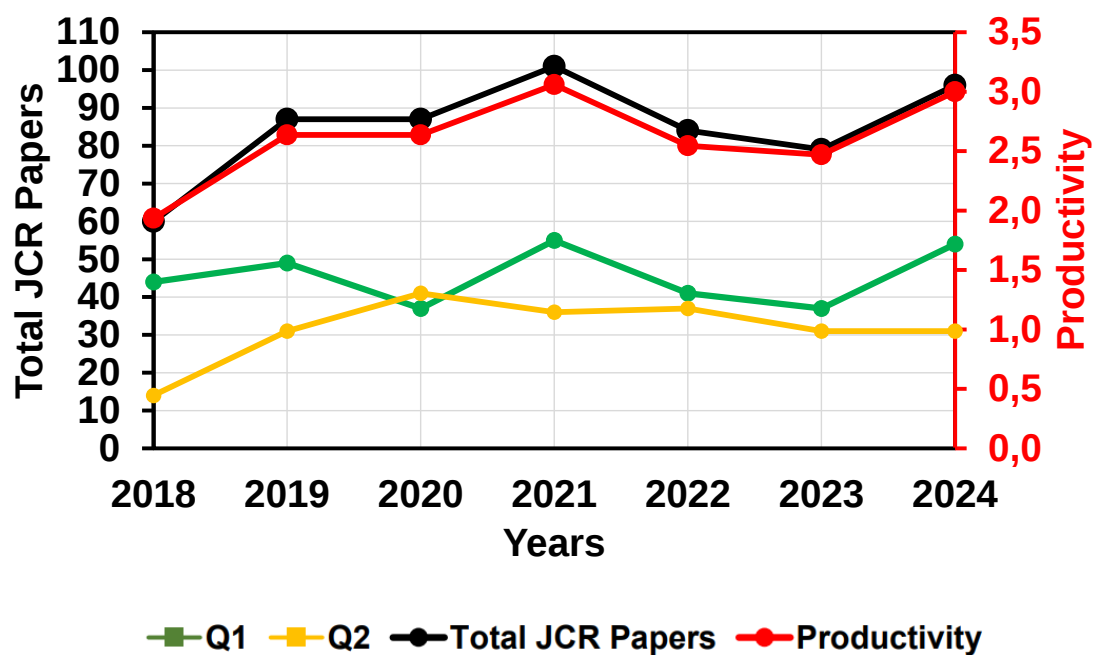


Figure 2 – Total number of papers, papers published in Q1 and Q2 journals, and productivity over the period from 2018 to 2024 (published papers in international refereed journals indexed to the Web of Science database).

Table 1 – Top 10 journals used by the CQ-VR researchers for publishing their work in the 2024 period. Also shown the scientific areas and ranks of the journals according to the Web of Science Journal Citation Reports (JCR).

Rank	Journal	N ^{br} papers	IF	
1	Science of the Total Environment	10	8.2	31/358 ENVIRONMENTAL SCIENCES (top 10%)
2	Applied Sciences	4	2.5	115/231 CHEMISTRY, MULTIDISCIPLINARY; 44/181 ENGINEERING, MULTIDISCIPLINARY
3	Foods	4	4.7	38/173 FOOD SCIENCE & TECHNOLOGY
4	Antioxidants	3	6.0	20/173 FOOD SCIENCE & TECHNOLOGY, 8/72 CHEMISTRY, MEDICINAL
5	Fermentation	3	3.3	72/174 BIOTECHNOLOGY & APPLIED MICROBIOLOGY
6	Materials	2	3.1	208/439 MATERIALS SCIENCE, MULTIDISCIPLINARY
7	Molecules	2	4.2	77/231 CHEMISTRY, MULTIDISCIPLINARY; 88/203 BIOCHEMISTRY & MOLECULAR BIOLOGY
8	Reactions	2	2.2	128/231 CHEMISTRY, MULTIDISCIPLINARY
9	Sustainability	2	3.3	58/91 GREEN & SUSTAINABLE SCIENCE & TECHNOLOGY
10	Water	2	3.0	169/358 ENVIRONMENTAL SCIENCES; 40/128 WATER RESOURCES

The center also demonstrated success in securing new research funding. In 2024, four new projects were approved, including two international and two national initiatives. These new additions contributed to a total of 25 ongoing projects throughout the year, which also included seven projects that reached their conclusion (Figure 3). Notably, CQ-VR members coordinated 8 of these projects, with 4 being international collaborations, resulting in an average of 0.8 projects per researcher and 0.25 projects led by each researcher (Figure 4).

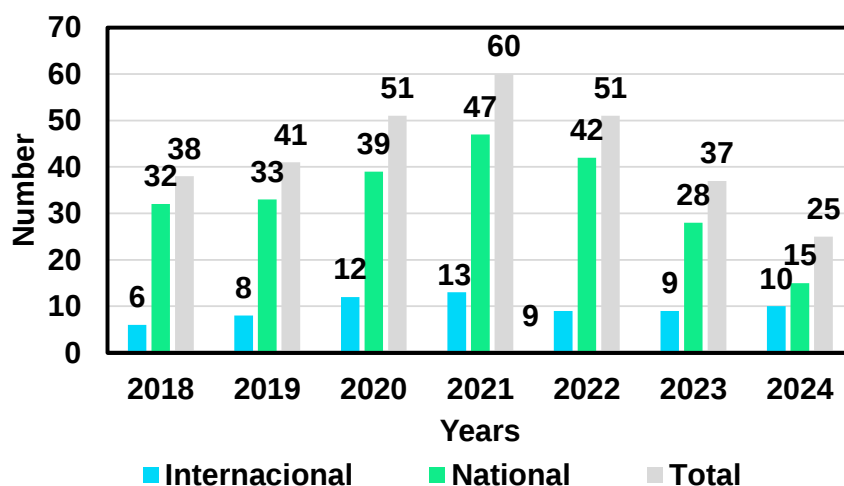


Figure 3 – Number of international and national projects running each year from 2018 to 2024.

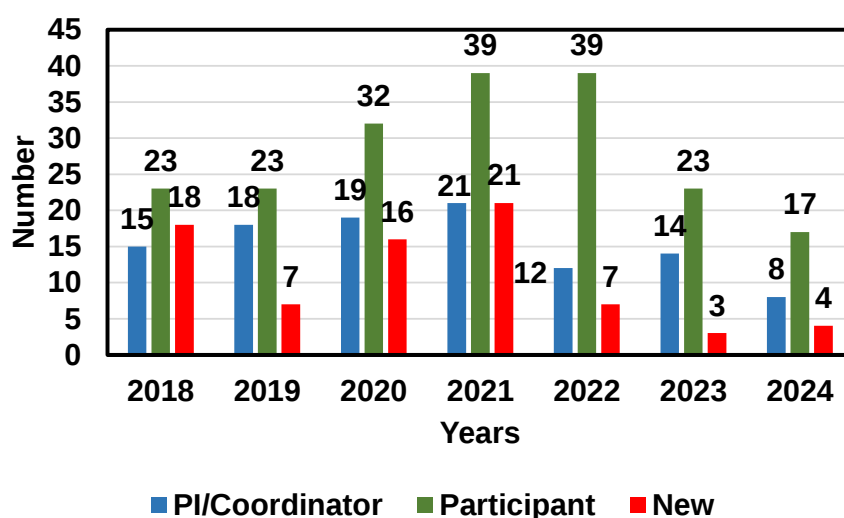


Figure 4 – New projects and type of intervention of the CQ-VR members since 2018 until 2024

It is important to note that 2024 was the final year of the four-year funding cycle provided by the FCT (UIDB/00616/2020 and UIDP/00616/2020), which initially covered the period from 2020 to 2023. This period was extended to include 2024 due to a delay in the evaluation process for the subsequent 2025-2029 funding cycle.

1.2. Who we are

Management Structure

Director

Fernando Hermínio Ferreira Milheiro Nunes



Fernando Nunes
Food Chemistry

Vice-Directors

Paulo Jorge dos Santos Coelho



Paulo Coelho
Photochromism

José Ramiro Afonso Fernandes



Ramiro Fernandes
Materials

Principal Investigators

Applied Chemistry

Organic

Paulo Jorge dos Santos Coelho



Paulo Coelho
Photochromism

Materials Chemistry

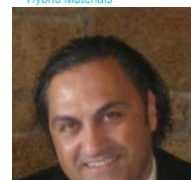
Verónica Cortés de Zea Bermudez



Verónica Bermudez
Hybrid Materials

Environmental Chemistry

José Alcides Silvestre Peres



José A. Peres
Water Treatment

Food Chemistry and Biochemistry

Maria Fernanda Gil Cosme Martins



Fernanda Cosme
Food Technology / Oenology

PhD Members

Alexandra Isabel Martins Paulo da Costa	Luís Filipe da Mota Ribeiro
Alice Maria Correia Vilela	Maria Cristina Fialho Oliveira
Amadeu Duarte da Silva Borges	Maria Manuel Silva Oliveira
Ana Cristina Briga de Sá	Maria do Céu Mendes de Sousa
António Francisco Henrique Inês	Maria Cristina Álvares Pereira Gonçalves
António José Duque Pirra	Maria Fernanda Gil Cosme Martins
Fernando Hermínio Ferreira Milheiro Nunes	Mariana Sofia Peixoto Fernandes
Fernando António Leal Pacheco	Marco Paulo Gomes de Sousa Lucas
Francisco Manuel Pereira Peixoto	Nuno Miguel Cordeiro Cristelo
João Claro Almeida Ribeiro Claro	Patrícia Alexandra Miranda David Barata
João Filipe Coutinho Mendes	Paulo Fernando da Conceição Santos
José Alcides Silvestre Peres	Paulo Jorge dos Santos Coelho
José Miguel Ribeiro	Pedro Manuel de Melo Bandeira Tavares
José Ramiro Afonso Fernandes	Rosa Magalhães Rego
José Virgílio de Sousa Coelho Prata	Sérgio Alves da Silva
Lucinda Vaz dos Reis	Verónica Cortés de Zea Bermudez

Collaborators

Ana Cristina Ribeiro Afonso de Matos Coutinho, Engineering Dep. UTAD
Fernando Glenadel Braga, Chemistry Dep., UTAD
Lisete Sofia Gomes Fernandes, Microscopy Unit, UTAD
Maria Cristina Guiomar Antunes, Chemistry Dep., UTAD
Nuno Filipe Alves Jorge, Chemistry Dep., UTAD
Elisete Maria Rodrigues Correia, Mathematics Dep., UTAD
António Manuel Santos Tomás Jordão, ESAV
Regina Maria Bessa Santos
Alexandre José Jerónimo
Ana Rita Vitorino Queijo
Luís Miguel de Aquino Moreira
Juliana Milheiro
Sandrine Ferreira
Romeu Antonio Videira, Pharmacy College, UP

Technical and Administrative Staff

José Eduardo Borges
Carlos da Costa Matos
Maria Natália Campos Teixeira

1.3. Research Units – What we do

Applied Organic Chemistry

- Design and synthesis of new functional organic molecules.
- Cyanine dyes photosensitizers for photodynamic therapy of cancer, fluorescent NIR probes for biomolecules and dye-sensitized solar cells.
- Calixarene-based architectures and carbon nanomaterials for sensory applications, (photo)catalysis, optoelectronic devices, bioimaging and nanomedicine.
- Heterocyclic photochromic compounds for application in ophthalmic lens coatings.

Materials Chemistry

- Development of new functional materials.
- Oxide materials for electronics, biosensing, and catalysis.
- Hydrophilic carbon nanomaterials for sensors, fuel cells and medical therapies.
- Nanocatalysts and membrane electrode assemblies for (micro)fuel cells.
- Modified carbon-based electrodes for health applications.
- Organic/inorganic (bio)hybrid materials for smart windows, solar concentrators, batteries, fuel cells, optics, biomedicine, and (super)hydrophobic paintings/coatings.
- Alkali-activated composites for the construction industry.

Environmental Chemistry

- Application of advanced oxidation processes for water and wastewater treatment: removal of contaminants of emerging concern and microorganism inactivation.
- Development of new eco-efficient solutions for the management of agro-industrial by-products and the environmental modeling of multiple-use watersheds focused on the interplay between anthropogenic pressures and stream water contamination, as well as catchments affected by natural or man-induced disasters, are also major goals.
- Study of the microbial and biochemical activity of the soil related to global warming, nutrient cycling, and energy expenditure for nutrient acquisition.

Food Chemistry & Biochemistry

- New food formulations, innovative technologies, and processes to improve the production, safety, and quality of wine and foods.
- Improvement and development of new analytical methods for wine and food safety and quality control.
- Chemical and toxicological characterization of food bioactive compounds.
- Biochemical, chemical, and sensory modifications during production, processing and conservation to contribute to a healthier diet.
- Development of functional foods with innovative properties that are free from allergenicity.
- Evaluation of the bioactive compounds' impact on diseases and aging.

Part I - Environmental Chemistry

I.1. Advanced Education

I.1.1. PhD Students

Name	Leonilde Marchão
Supervisors	Marco Lucas; Pedro Tavares
PhD Programme	Agrichains (UTAD)
Starting Date	September 2019
Name	Ana Rita Moura Teixeira
Supervisors	José Alcides Peres; Marco Lucas
PhD Programme	Ciências Químicas e Biológicas (UTAD)
Starting Date	January 2021
Name	Vanessa Almeida
Supervisors	João Coutinho
PhD Programme	Ciências Químicas e Biológicas (UTAD)
Starting Date	November 2021
Name	Miguel Oliveira
Supervisors	Amadeu Borges
PhD Programme	Ciências Químicas e Biológicas (UTAD)
Starting Date	2021
Name	Bruno Miguel Freitas da Silva (Bolsa Projeto Arquimedes)
Supervisors	Fernando António Leal Pacheco; Luís Filipe Sanches Fernandes
PhD Programme	Ciências Agronómicas e Florestais (UTAD)
Starting Date	2022
Name	Rui Bajouco Lopes
Supervisors	João Coutinho
PhD Programme	Ciências Químicas e Biológicas (UTAD)
Starting Date	June 2022
Name	Ana Paula Ferreira da Silva
Supervisors	José Alcides Peres; Hélder Gomes; Jose Luis Díaz de Tuesta
PhD Programme	Ciências Químicas e Biológicas (UTAD)
Starting Date	September 2022

Name	Polyana Pereira
Supervisors	Fernando António Leal Pacheco; Glauco Rolin; Alan Panosso
PhD Programme	Agronomia (Ciência do Solo); Universidade Estadual Paulista Júlio de Mesquita Filho
Starting date	2023

Name	Felipe del Massa Martins
Supervisors	Fernando António Leal Pacheco; Newton La Scala Jr.
PhD Programme	Agronomia (Ciência do Solo); Universidade Estadual Paulista Júlio de Mesquita Filho
Starting date	2023

Name	Cláudia Sofia Moutinho Sebadelhe (Bolsa Fundação Côa)
Supervisors	Fernando António Leal Pacheco; Aureliano Malheiro
PhD Programme	Ciências Agronómicas e Florestais (UTAD)
Starting Date	2024

I.1.2. Postdoctoral Students

Name	Adriana Monteiro da Costa
Supervisor	Fernando António Leal Pacheco; Luís Filipe Sanches Fernandes

I.1.3. Master Thesis Concluded

Name	Sérgio Mateus Chilaule
Title	Produção de ApR por combinação de processos de tratamento terciário de águas residuais urbanas
Master	Engenharia do Ambiente
Date	28 th November, 2024
Supervisors	Marco Lucas; Nuno Jorge

I.2. Projects

I.2.1. European/International

1. **REFLORESTA - Technological and social innovation to improve prevention and accelerate recovery of fire-affected ecosystems and landscapes**
0121_REFLORESTA_6_E, financiado pela União Europeia: € 1.532.242,16 (UTAD, € 152.818,61); **Fernando Pacheco**, September 2023 - September 2026.
2. **LivingSoiLL - Healthy Soil to Permanent Crops Living Labs**
GA 101157502, financiado pela Comissão Europeia: € 11.999.990 (UTAD, € 1.529.415); **Fernando Pacheco**, June 2024 - October 2028.
3. **I-ReWater - Gestão sustentável dos recursos hídricos na agricultura de regadio no espaço SUDOE**
Refª S1/2.5/E0136, financiado pelo Programa INTERREG - SUDOE: € 2.200.000 (UTAD, € 96.000,00); **Fernando Pacheco**, January 2024 - December 2027.
4. **ACACIA-SAT – Sinergias de sentinel, lidar y bioenergía en la conservación de espacios protegidos: detección, estimación y gestión de residuos de acacia**
PID2022 138374OA-I00, financiado pelo Ministerio de Ciencia e Innovación, através Programa Xeracion Coñecemento 2022: € 156.250,00; **Fernando Pacheco**, September 2023 - August 2026.
5. **Seleção de indicadores para avaliação da qualidade do solo em áreas de pastagem degradada**
23085.009071/2023-85. Financiado pela Coordenadoria Regional das Promotorias de Justiça do Meio Ambiente das Bacias dos Rios Paranaíba e Baixo Rio Grande (COEPBRG/MPMG) através do TCT 091/2016 e TCT 021/2020: € 60.000,00; **Fernando Pacheco** (Investigador Responsável), agosto 2023 - novembro 2024.
6. **ENTIRE - Emergence Analysis of Tailings Impacts for a Restored Aquatic Environment**
Funding Entity: Contrato de Prestação de Serviços nº 5500074952/5500074950/5500074953, financiado pela empresa Vale, S.A.: € 752.735,95 (UTAD, € 546.875,00); consórcio entre a UTAD, a Fundação para o Desenvolvimento da UNESP – Universidade Estadual paulista Júlio de Mesquita Filho (São Paulo, Brasil) e a Fundação de Apoio Universitário do IFTM - Instituto Federal do Triângulo Mineiro (Minas Gerais, Brasil), **Fernando Pacheco** (Investigador Responsável), outubro 2020 - julho 2024.

7. Innovative concepts and technologies for ECOlogically sustainable NUTRIent management in agriculture aiming to prevent, mitigate and eliminate pollution in soils, water and air

ECONUTRI, Project number 101081858, HORIZON Innovation Actions: € 5.979,716 (UTAD, € 30.00); **João Coutinho**, November 2022- April 2026.

I.2.2. National

1. Advanced adsorption-oxidation technologies for the removal of emerging contaminants from wastewater by 3D-structured carbon-materials (CATAD3.0)

Ministerio de Ciencia e Innovación (Espanha). Proyectos I+D+i 2020: € 230.200 (UTAD, € 15.600); **J. A. Peres**, June 2021 - June 2024.

2. Vine & Wine Portugal – Driving Sustainable Growth Through Smart Innovation

PRR – Plano de Recuperação e Resiliência e pelos Fundos Europeus NextGeneration EU, no âmbito das Agendas Mobilizadoras para a Reindustrialização. € 41.427.004,64 (UTAD, € 7.875.653,67); Marco S. Lucas, José A. Peres, Fernando Nunes, Alice Vilela, João Coutinho, João Claro, Host Institution: UTAD, September 2022 - September 2025.

I.2.3. Industrial Collaborative Protocols and Technology Transfer

1. Desenvolvimento e Industrialização de um Novo *Pellet* para Consumo nas Caldeiras da Amorim Cork

Protocolo de colaboração com a Amorim Cork, S.A., Referência UTAD: 116-e-CIDE-2022. UTAD: € 36.897,42; Coordenador UTAD: Amadeu Borges.

2. Soil and Plant Laboratory for Chemical, Physical and Biochemical Analysis for research activities and service activities for stockholders in the agri-environmental business; João Coutinho.

3. Serviços de Preparação e Execução de Campanha de Sensibilização e Informação, do Projeto de Investimento "M2E@SGMTSSS - Melhoria da Eficiência Energética na SGMTSSS, Contrato de prestação de serviços com a Secretaria-Geral do Ministério do Trabalho, Solidariedade e Segurança Social. UTAD: € 23370,00; Coordenador UTAD: Amadeu Borges.

4. BioCombus V – Industrial implementation of technology from Patent no. PT103470 in Portugal and its extensions in the countries of Spain, Italy and

Greece. Partners: Versus Business Advisors, MecGreen - Sustainable Engineering, Ueld Metal Solutions, Tecnimira Metalworking (in progress); João Claro.

I.3. Outputs

I.3.1 Patents

1. *Sistema de controlo e atuação para o envelhecimento de vinhos fortificados, tranquilos e de colheita tardia, bebidas espirituosas e vinagres, uso e métodos associados*; Amadeu Duarte Da Silva Borges, Fernando Hermínio Ferreira Milheiro Nunes, Emanuel Soares Peres Correia, Luís Miguel Modesto De Oliveira, Maria Fernanda Gil Cosme Martins. PT116379B, Concedida em 07 de novembro de 2024.

I.3.2. Book Chapters

1. Jorge, N., Teixeira, A.R., **Peres, J.A., & Lucas, M.S. (2024)**. Integration of natural coagulants with heterogeneous photo-Fenton processes for an agro-industrial wastewater treatment. Chapter 19, in *Nature-Based Wastewater Treatment Systems Emerging Approaches with Potential Resource Recovery Options* (Edited by Adarsh Kumar, Saroj Kumar, Sheel Ratna), Routledge Taylor and Francis, ISBN 9781032450216, pp 552. <https://doi.org/10.1201/9781003441144-19>.
2. Pirra, A., & Joukes, V. (2024). Learnvill o exemplo de um pequeno projeto internacional que combina uma aposta na animação turística, na cultura, na educação e no envelhecimento activo para estimular o desenvolvimento rural em contexto aldeia. In *Envelhecimento criativo, participativo e vida activa: animação sociocultural, a gerontologia, a educação comunitária e o turismo como metodologias de intervenção. Intervenção - Associação para a Promoção e Divulgação Cultural*, ISBN 978-989-35023-2-7; 383 pp 231-238.
3. Coutinho, J., Sá, C., Trindade, A. (2024). *Manual de Colheita de Amostras e de Dados no Campo: Sistema de Monitorização Nacional do Solo*. DG Agricultura e Desenvolvimento Rural, Lisboa, Portugal. 50 p. <https://repositorio.utad.pt/entities/publication/b98c1db9-2dc8-4046-bcf8-debd389c95fa>.

I.3.3. Publications in journals of Journal Citation Reports

I.3.3.1. Q1 and Q2 Journals

1. Acuna-Alonso, C., do Valle Junior, R.F., de Melo Silva, M.M.A.P., Pissarra, T.C.T., de Melo, M.C., Valera, C.A., Sanches Fernandes, L.F., **Pacheco, F.A.L., & Álvarez, X. (2024)**. Sediment source fingerprints of natural processes and anthropogenic pressures: A contribution to manage the Paraopeba River basin impacted by the B1 tailings dam collapse. *J. Environ. Manag.*, 356, 120590. Q1. <https://doi.org/10.1016/j.jenvman.2024.120590>.
2. Batoni, A.G., do Valle Junior, R.F., de Melo Silva, M.M.A.P., Fernandes, G.H. de M., Feitosa, T.H.S., Sanches Fernandes, L.F., Rolim, G. de S., Pissarra, T.C.T., Valera, C.A., de Melo, M.C., & **Pacheco, F.A.L. (2024)**. Remote sensing of hazards: The spatio-temporal evolution of land surface temperature over tailings flows and related

- drivers. *Remote Sens. Appl.: Soc. Environ.*, 35, 101237. Q2. <https://doi.org/10.1016/j.rsase.2024.101237>.
3. Bessa Santos, R.M., do Valle Junior, R.F., Abreu Pires de Melo Silva, M.M., Tarlé Pissarra, T.C., de Melo, M.C., Valera, C.A., **Pacheco**, F.A.L., & Sanches Fernandes, L.F. (2024). A framework model to integrate sources and pathways in the assessment of river water pollution. *Environ. Pollut.*, 123661. Q1. <https://doi.org/10.1016/j.envpol.2024.123661>.
 4. **Borges**, A.D.S., Oliveira, M., Teixeira, B.M.M., & Branco, F. (2024). Co-Valorisation Energy Potential of Wastewater Treatment Sludge and Agroforestry Waste. *Environments*, 11(1), 14. Q2. <https://doi.org/10.3390/environments11010014>.
 5. **Borges**, A.D.S., Oliveira, M., & Varandas, B. (2024). Boil-off recovery system for natural gas stations: an approach to increase energy efficiency and reduce greenhouse gases. *Int. J. Environ. Sci. Technol.*, 21, 3141-3152. Q2. <https://doi.org/10.1007/s13762-023-05186-z>.
 6. Chrysanthopoulos S., **Coutinho**, J., Silva, A.C., Brito, L., & Fangueiro, D. (2024). Agro-industrial by-products as alternative additives for the agronomic valorization of pig slurry through pH modification. *J. Clean. Prod.*, 434, 14052. Q1. <https://doi.org/10.1016/j.jclepro.2023.140052>.
 7. Costa, A.M., de Moura, M.S., Navarro, I.F., da Silva, V.C., Pissarra, T.C.T., Valera, C.A., Fernandes, L.F.S., & **Pacheco**, F.A.L. (2024). Ecosystem services potential and soil conservation policies with emphasis on degraded pastures in Brazil. *Geogr. Sustain.*, 5, 660-672. Q1. <https://doi.org/10.1016/j.geosus.2024.07.010>.
 8. Lima, V.H.S., **Pacheco**, F.A.L., Moura, J.P., Pissarra, T.C.T., do Valle Junior, R.F., de Melo Silva, M.M.A.P., Monteiro da Costa, A., Valera, C.A., de Melo, M.C., & Sanches Fernandes, L.F. (2024). Protection of groundwater resources from multi-hazards: An integration of risk assessment and watershed management. *Groundw. Sustain. Dev.*, 27, 101326. Q1. <https://doi.org/10.1016/j.gsd.2024.101326>.
 9. Mukherjee, A., Jha, M.K., Kim, K.-W., & **Pacheco**, F.A.L. (2024). Groundwater resources: challenges and future opportunities. *Sci. Rep.*, 14(1.0). Q1. <https://doi.org/10.1038/s41598-024-79936-5>.
 10. Mendes, R.G., do Valle Junior, R.F., Feitosa, T.H.S., de Melo Silva, M.M.A.P., Fernandes, L.F.S., **Pacheco**, F.A.L., Pissarra, T.C.T., Lana, R.M.Q., de Melo, M.C., & Valera, C.A. (2024). Carbon footprints of tailings dams' disasters: A study in the Brumadinho region (Brazil). *Sci. Total Environ.*, 949, 175026. Q1. <https://doi.org/10.1016/j.scitotenv.2024.175026>.
 11. Moura, M.S., da Silva, V.C., **Pacheco**, F.A.L., Fernandes, L.F.S., Pissarra, T.C.T., & da Costa, A.M. (2024). Beyond land use planning and ecosystem services assessment with the conservation use potential framework: A study in the Upper Rio das Velhas basin, Brazil. *Sci. Total Environ.*, 923, 171437. Q1. <https://doi.org/10.1016/j.scitotenv.2024.171437>.
 12. Moura, J.P., **Pacheco**, F.A.L., do Valle Junior, R.F., de Melo Silva, M.M.A.P., Pissarra, T.C.T., de Melo, M.C., Valera, C.A., Sanches Fernandes, L.F., & Rolim, G. de S. (2024). The Modeling of a River Impacted with Tailings Mudflows Based on the Differentiation of Spatiotemporal Domains and Assessment of Water–Sediment

- Interactions Using Machine Learning Approaches. **Water**, 16, 379. Q2. <https://doi.org/10.3390/w16030379>.
13. Oliveira, M., Teixeira, B. M. M., Toste, R., & **Borges**, A. D. S. (2024). Transforming Wine By-Products into Energy: Evaluating Grape Pomace and Distillation Stillage for Biomass Pellet Production. **Appl. Sci.**, 14(16), 7313. Q1. <https://doi.org/10.3390/app14167313>.
 14. Oliveira Santos, T.D., **Pacheco**, F.A.L., & Fernandes, L.F.S. (2024). A systematic analysis on the efficiency and sustainability of green facades and roofs. **Sci. Total Environ.**, 932, 173107. Q1. <https://doi.org/10.1016/j.scitotenv.2024.173107>.
 15. Parras, R., de Mendonça, G.C., da Costa, L.M., Rocha, J.R., Costa, R.C.A., Valera, C.A., Fernandes, L.F.S., **Pacheco**, F.A.L., & Pissarra, T.C.T. (2024). Land use footprints and policies in Brazil. **Land use policy**, 140, 107121. Q1. <https://doi.org/10.1016/j.landusepol.2024.107121>.
 16. Pereira, P., Fernandes, L.F.S., do Valle Junior, R.F., de Melo Silva, M.M.A.P., **Pacheco**, F.A.L., de Melo, M.C., Valera, C.A., & Pissarra, T.C.T. (2024). Geomorphologic risk zoning to anticipate tailings dams' hazards: A study in the Brumadinho's mining area, Minas Gerais, Brazil. **Sci. Total Environ.**, 912, 169136. Q1. <https://doi.org/10.1016/j.scitotenv.2023.169136>.
 17. Pereira, P., Fernandes, L.F.S., do Valle Junior, R.F., de Melo Silva, M.M.A.P., Valera, C.A., de Melo, M.C., Pissarra, T.C.T., & **Pacheco**, F.A.L. (2024). The water cycle of small catchments impacted with tailings mudflows: A study in the Ferro-Carvão watershed after the breakup of B1 dam in Brumadinho. **Sci. Total Environ.**, 949, 174971. Q1. <https://doi.org/10.1016/j.scitotenv.2024.174971>.
 18. Quintela, A., Ferreira, D., Fabres, S., & **Coutinho**, J. (2024). A Survey of Organic Carbon Stocks in Mineral Soils of *Eucalyptus globulus* Labill. Plantations under Mediterranean Climate Conditions. **Forests**, 15(8), 1335. Q1. <https://doi.org/10.3390/f15081335>.
 19. Souza Rolim, G., **Pacheco**, F.A.L., do Valle Junior, R.F., de Melo Silva, M.M.A.P., Pissarra, T.C.T., de Melo, M.C., Valera, C.A., Fernandes, L.F.S., & Moura, J.P. (2024). A method to describe attenuation of river contamination under peak flows: Can the public water supply from Paraopeba River finally return after the Brumadinho dam disaster? **Sci. Total Environ.**, 949, 174970. Q1. <https://doi.org/10.1016/j.scitotenv.2024.174970>.
 20. Soares de Moura, M., Cordeiro da Silva, V., Ferreira Menezes, A., **Pacheco**, F.A.L., Filipe Sanches Fernandes, L., Cristina Tarlé Pissarra, T., & Monteiro da Costa, A. (2024). Integrating policy, data and technology in pursuing effective management of ecosystem services. **J. Environ. Manag.**, 368, 122157. Q1. <https://doi.org/10.1016/j.jenvman.2024.122157>.
 21. Terêncio, D.P.S., **Pacheco**, F.A.L., do Valle Junior, R.F., de Melo Silva, M.M.A.P., Pissarra, T.C.T., de Melo, M.C., Valera, C.A., & Fernandes, L.F.S. (2024). Attenuation of water contamination in the Paraopeba River after the collapse of B1 tailings dam: Natural wash-off and dredging contributions. **Sci. Total Environ.**, 937, 173407. Q1. <https://doi.org/10.1016/j.scitotenv.2024.173407>.
 22. Tapaça, I.P., Obieze, C.C., Pereira, G.V.M., Fangueiro, D., **Coutinho**, J., Fraga, I., Partelli, F., Ramalho, J.C., Marques, I., & Ribeiro-Barros, A.I. (2024). Irradiance level

and elevation shape the soil microbiome communities of *Coffea arabica* L. **Environ. Microbiome**, 19, 75. Q1. <https://doi.org/10.1186/s40793-024-00619-9>.

23. Teixeira, A.R., Jorge, N., **Lucas**, M.S., & **Peres**, J.A. (2024). Winery and olive mill wastewaters treatment using nitrilotriacetic acid/UV-C/Fenton process: batch and semi-continuous mode, **Environ. Res.**, 240, 117545. Q1. <https://doi.org/10.1016/j.envres.2023.117545>.
24. Teixeira, A.R., Afonso, S., Jorge, N., Oliveira, I.V., Gonçalves, B., **Peres**, J.A., & **Lucas**, M.S. (2024). Valorization of cherry by-products as coagulant-flocculants combined with bentonite clay for olive mill wastewater treatment. **Water**, 16, 1530. Q1. <https://doi.org/10.3390/w16111530>.
25. Valera, C.A., Pissarra, T.C.T., da Costa, A.M., Fernandes, L.F.S., & **Pacheco**, F.A.L. (2024). The soil conservation agenda of Brazil: A review of “edge-to-edge” science contributions. **Sci. Total Environ.**, 954, 176355. Q1. <https://doi.org/10.1016/j.scitotenv.2024.176355>.

I.3.3.2. Q3 and Q4 Journals

1. Teixeira, B.M.M., Oliveira, M., & **Borges**, A.D. (2024). Coniferous Biomass for Energy Valorization: A Thermo-Chemical Properties Analysis. **Sustainability**, 16(17), 7622. Q3. <https://doi.org/10.3390/su16177622>.
2. Oliveira, M., & **Borges**, A.D.S. (2024). Enhancing Energy Efficiency in Integrated Electrolyser Stack and Methanation Reactor Systems Through Pinch Analysis. **Reactions**, 5(4), 984-998. Q3. <https://doi.org/10.3390/reactions5040051>.
3. Sousa, J.R., Singh, A., Ghazaryan, K., Singh, R.K., Trindade, H., & Coutinho, J. (2024). In-vitro Digestibility Organic Materials - Relation with Field Mass Loss Litter Bag Method. **J. Ecol. Eng.**, 25(8), 253-263. Q4. <https://doi.org/10.12911/22998993/189947>.
4. Varandas, B., Oliveira, M., & **Borges**, A. (2024). Analytical and Numerical Thermodynamic Equilibrium Simulations of Steam Methane Reforming: A Comparison Study. **Reactions**, 5(1), 246-259. Q3. <https://doi.org/10.3390/reactions5010011>.

I.3.3.3. New Journals (Impact Factor pending)

1. Araújo Costa, R.C., Bessa Santos, R.M., Sanches Fernandes, L.F., **Pacheco**, F.A.L., Carvalho de Melo, M., Valera, C.A., do Valle Junior, R.F., Abreu Pires de Melo Silva, M.M., & Tarlé Pissarra, T.C. (2024). The modelling of river water contamination by tailings mudflows: The case of phosphorus in the Paraopeba River basin. **Case Stud. Chem. Environ. Eng.**, 9, 100701. <https://doi.org/10.1016/j.cscee.2024.100701>.
2. Júnior, F.A.B., **Pacheco**, F.A.L., do Valle Junior, R.F., de Melo Silva, M.M.A.P., Pissarra, T.C.T., de Melo, M.C., Valera, C.A., Fernandes, L.F.S., & Moura, J.P. (2024). Causality among landscape characteristics, seasonality and stream water quality in the Paraopeba river basin. **Case Stud. Chem. Environ. Eng.**, 10, 100856. <https://doi.org/10.1016/j.cscee.2024.100856>.

3. Lima, V.H.S., Fernandes, L.F.S., Moura, J.P., Oliveira, M.D. de, Akabassi, L., & **Pacheco**, F.A.L. (2024). A framework for analyzing seawater intrusion in coastal areas: An adapted GALDIT model application for Espírito Santo, Brazil. **Case Stud. Chem. Environ. Eng.**, 10, 100887. <https://doi.org/10.1016/j.cscee.2024.100887>.
4. Lima, V.H.S., **Pacheco**, F.A.L., Moura, J.P., Pissarra, T.C.T., do Valle Junior, R.F., de Melo Silva, M.M.A.P., Valera, C.A., de Melo, M.C., & Sanches Fernandes, L.F. (2024). Role of backwater effects on the attenuation of metal spreading in rivers: A study in the Paraopeba River after the B1 tailings dam collapse in Brumadinho. **Case Stud. Chem. Environ. Eng.**, 9, 100740. <https://doi.org/10.1016/j.cscee.2024.100740>.
5. Lima, V.H.S., Moura, J.P., Pissarra, T.C.T., do Valle Junior, R.F., Silva, M.M.A.P. de M., Valera, C.A., De Melo, M.C., Fernandes, L.F.S., Da Costa, A.M., & **Pacheco**, F.A.L. (2024). Groundwater flow and transport of metals under deposits of mine tailings: A case study in Brumadinho, Minas Gerais, Brazil. **Case Stud. Chem. Environ. Eng.**, 9, 100690. <https://doi.org/10.1016/j.cscee.2024.100690>.
6. Varandas, B., Oliveira, M., Andrade, C., & **Borges**, A. (2024). Thermodynamic Equilibrium Analysis of CO₂ Methanation through Equilibrium Constants: A Comparative Simulation Study. **Physchem**, 4(3), 258-271. <https://doi.org/10.3390/physchem4030018>.

I.3.4. Publications in Proceedings

1. Costa, A., Silva, J., Moura, M.V., **Pacheco**, F.A.L., & Fernandes, L.F.S. (2024). *Urban Gardens in Food Security and Sustainability: A Study in the Paulo Freire Occupation, Belo Horizonte, Brazil*. **Centennial Celebration and Congress of the International Union of Soil Sciences**. 19-21 May, Florence, Italy.
2. Costa, A., Fernandes, L.F.S., & **Pacheco**, F.A.L. (2024). *Indicadores físicos de qualidade de solo na avaliação de pastagem degradada do Brasil*. pp 74. **Encontro Anual das Ciências do Solo**, 3-5 julho, Porto, Portugal. ISBN: 978-989-99665-1-2.
3. Silva, S.; Pirra, A., Jorge, N., **Peres**, J.A., & **Lucas**, M.S. (2024). *Enhancing Sustainability in Wine Production: Evaluating Winery Wastewater Treatment using Sequencing Batch Reactors*, **Engineering Proceedings**, 56, 82. <https://doi.org/10.3390/ASEC2023-15522>
4. Silva, S.A., Pirra, A., **Peres**, J.A., & **Lucas**, M.S. (2024). *Coupling biological sequencing batch reactor with advanced oxidation processes for effective removal of polyphenolic compounds*. **6th International Congress on Green Chemistry and Sustainable Engineering** (GreenChem-24), Instituto Superior de Engenharia de Lisboa, 24-26 July, Lisbon, Portugal. ISBN 978-84-09-63049-3.

I.3.5. Oral Presentations at National and International Meetings

1. Baldo, A.P., Silva, A.P.F., Silva, A.S., Diaz de Tuesta, J.L., Marin, P., **Peres**, J.A., & Gomes, H.T. (2024). *Synthesis and Characterization of Activated Carbon, Geopolymers, and Carbon Nanotubes from Waste-Derived Sources*. **XXVIII Encontro Luso-Galego de Química**, Fundación Abanca, 13-15 novembro, Vigo, Espanha.

2. Baldo, A.P., Silva, A.P.F., Silva, A.S., Diaz de Tuesta, J.L., Marin, P., **Peres, J.A.**, & Gomes, H.T. (2024). *Breakthrough Curves of Activated Carbon and Geopolymer for the Adsorption of Sulfamethoxazole, Acetaminophen, and Gallic Acid*. **XXVIII Encontro Luso-Galego de Química**, Fundación Abanca, 13-15 novembro, Vigo, Espanha.
3. **Lucas**, M.S., Silva, S., & **Peres**, J.A. (2024). *Caracterização da água e tratamento de efluentes em ambientes vitivinícolas*. Jornadas Técnicas - Inovação para a sustentabilidade, **Workshop Consórcio Vine&Wine**: Reutilização da água no setor Vine & Wine, Enotécnica, Exponor, 7-8 fevereiro, Leça da Palmeira, Portugal.
4. **Pacheco**, F.A.L. (2024). *Resultados do Projeto ENTIRE – Chuva, vazão, sedimento e qualidade do recurso hídrico – caso de Brumadinho*. Palestra proferida a convite no VII Workshop Internacional de Política de Uso e Governança do Solo e **VI Seminário Nacional Sustentabilidade em Recursos Hídricos**, 5-6 dezembro, São Paulo, Brasil (*Key Speaker*).
5. **Pacheco**, F.A.L. (2024). Apresentação dos Resultados Finais do Projeto ENTIRE, Referentes ao Colapso da Barragem B1 em Brumadinho (Brasil). Palestra proferida a convite no Seminário: **Segurança hídrica, agricultura e degradação ambiental num contexto de alterações climáticas**, UTAD/APRH, 9 abril, Vila Real, Portugal (*Key Speaker*).

I.3.6. Poster Presentations at National and International Meetings

I.3.6.1 International Meetings

1. Martins, R.B., Nunes, M.C., **Peres**, J.A., Barros, A.I.R.N.A., & Raymundo A. (2024). *Alternative flours: apple and acorn gluten free dough and its rheological behavior*. **Iberian Meeting on Rheology** (IBERHEO 2024), Instituto Superior de Agronomia, 4-6 September, Lisbon, Portugal.
2. Li Puma, G., Pedizzi, C., Bertanza, G., O'Shea, K., Moreira, R., & **Lucas**, M.S. (2024). *Photocatalytic oxidation of pharmaceuticals mixtures in water*. **CIPOA – VI Iberoamerican Conference on Advanced Oxidation Technologies**, 7-11 October, Florianópolis, Brasil.
3. Silva, A.P.F., Silva, A.S., Zadra, P., Lopes, P.A., Roman, F.F., Souza, R.P., Diaz de Tuesta, J.L., Pietrobelli, J.M.T.A., Silva, A.M.T., Pereira, A.I., **Peres**, J.A., & Gomes, H.T. (2024). *Intensified filtration process with wet peroxide oxidation for the treatment of sulfamethoxazole-polluted water using carbon nanotube composite polymeric membranes*. **CIPOA – VI Iberoamerican Conference on Advanced Oxidation Technologies**, 7-11 October, Florianópolis, Brasil.
4. Silva, A.P.F., Oliveira, I.A., Diaz de Tuesta, J.L., Macanjo, D., **Peres**, J.A., & Gomes, H.T. (2024). *Mechanical performance of fly ash-based geopolymer concrete as a sustainable alternative to ordinary Portland cement*, **XXVIII Encontro Luso-Galego de Química**, Fundación Abanca, 13-15 novembro, Vigo, Espanha.
5. Silva, S.A., Pirra, A., **Peres**, J.A., & **Lucas**, M.S. (2024). *Coupling biological sequencing batch reactor with advanced oxidation processes for effective removal of polyphenolic compounds*. **6th International Conference on Green Chemistry and Sustainable Engineering** (GreenChem-24), Lisbon, 24-26 July 2024.

6. Teixeira, A.R., Jorge, N., **Lucas, M.S., & Peres, J.A.** (2024). *Winery wastewater treatment by combination of plant-based coagulants and EDDS/photo-Fenton process*. **6th International Conference on Green Chemistry and Sustainable Engineering** (GreenChem-24), Lisbon, 24-26 July **2024**.
7. Teixeira, A.R., Jorge, N., Fernandes, J.R., **Lucas, M.S., & Peres, J.A.** (2024). *Olive washing wastewater treatment by physicochemical and advanced oxidation processes*. **6th International Conference on Green Chemistry and Sustainable Engineering** (GreenChem-24), Lisbon, 24-26 July **2024**.
8. Teixeira, A.R., Carbajo, J., Álvarez-Torrellas, S., Huber, D., **Lucas, M.S., Peres, J.A., & Garcia, J.** (2024). *Solar photocatalysis for winery bio-recalcitrant pollutants removal using 3D structured photocatalyst*. **6th International Conference on Green Chemistry and Sustainable Engineering** (GreenChem-24), Lisbon, 24-26 July **2024**.
9. Teixeira, A.R., Jorge, N., Fernandes, J.R., Lucas, M.S., & Peres, J.A. (2024). *Olive washing wastewater treatment by physicochemical and advanced oxidation processes*. **6th International Conference on Green Chemistry and Sustainable Engineering** (GreenChem-24), Lisbon, 24-26 July **2024**.

I.3.6.2 National Meetings

1. Chilaule, S., Jorge, N., **Lucas, M.S., & Peres, J.A.** (2024). *Produção de ApR por combinação de processos de oxidação avançada de águas residuais municipais*. **Encontro Ciência 2024**, Centro de Congressos da Alfândega, 3-5 julho, Porto, Portugal.
2. Jorge, N., Teixeira, A.R., **Lucas, M.S., & Peres, J.A.** (2024). *Sustainable winery wastewater treatment: combining plant-based coagulation-flocculation and Fenton processes*. **VIII Jornadas de Engenharia Agrónómica**, UTAD, 20 novembro, Vila Real, Portugal.

I.4. Outreach Activities

I.4.1 Participation in Committees of National and International Organizations

1. Marco Lucas, Member of the **Organizing Committee** of International Conference on Catalysis and Chemical Engineering (Catalysis 2024 – Hybrid Edition), Dubai, UAE, March 11-13, **2024**. <https://www.xpertsmeetings.org/catalysis2024/board>.
2. Marco Lucas, Member of the **Organizing Committee** of the 6th International Conference on Green Chemistry and Sustainable Engineering (GreenChem-24), Lisbon, Portugal, July 24-26, **2024**. <https://greenchem-europe.eu/>.
3. Marco Lucas, Member of the **National Scientific Committee** of the 6th Iberoamerican Conference on Advanced Oxidation Technologies (VI CIPOA), Florianópolis, SC, Brasil, October 7 - 11, **2024**. <https://cipoa.org/>.
4. Peres, J.A., Conference **Chair** of the 6th International Conference on Green Chemistry and Sustainable Engineering (GreenChem-24), Lisbon, Portugal, July 24-26, **2024**. <https://greenchem-europe.eu/>.

5. Peres, J.A., Member of **National Scientific Committee** of the 6th Iberoamerican Conference on Advanced Oxidation Technologies (VI CIPOA), Florianópolis SC, Brasil, October 7 - 11, **2024**. <https://cipoa.org/>.
6. Pacheco, F.A.L., Membro da **Comissão Científica do XVI Congresso de Geoquímica dos Países de Língua Portuguesa**, Universidade de Aveiro, Aveiro, Portugal, 29 julho - 2 agosto, **2024**. <https://www.ua.pt/pt/xvicgplp/>.

I.4.2. Participation in Editorial and Special Issues of International Scientific Journals

Associate Editor

Arabian Journal of Geosciences, Associate Editor: Fernando A.L. Pacheco.

EAgri: Journal of the Brazilian Association of Agricultural Engineering, Associate Editor: Fernando A.L. Pacheco.

Frontiers in Environmental Chemistry, Associate Editor: Marco S. Lucas.

Heliyon Environment, Associate Editor: Fernando A.L. Pacheco.

Science of the Total Environment, Associate Editor: Fernando A.L. Pacheco.

Total Environment Advances, Associate Editor: Fernando A.L. Pacheco.

Water, Advisory Board: Fernando A.L. Pacheco.

Water, Editorial Board: Marco S. Lucas.

Sustainability, Section Editor: Fernando A.L. Pacheco.

International Journal of Environmental Research and Public Health, Section Editor: Fernando A.L. Pacheco.

Engenharia Agrícola, Area Editor: Fernando A.L. Pacheco.

Sci., Advisory Board Member: Fernando A.L. Pacheco.

Processes, Editorial Board: José Alcides Peres.

Processes, Editorial Board: Marco S. Lucas.

Discover Catalysis, Editorial Board Member: Marco S. Lucas.

Special Issues Guest Editor

Water, Waste, Green Chemistry and Engineering, Renewable Energies and Environmental Technologies, Environmental Research (Elsevier): José A. Peres, Editorial Board Member of Special Issue.

Advanced Oxidation Processes: Applications and Prospects, Topic Associate Editor: "Catalysts", "IJERPH", "Processes", "Sci", "Water" (MDPI): José A. Peres.

Decontamination of Water and Wastewater via Advanced Oxidation Processes, Guest Editor of Special Issue: International Journal of Environmental Research and Public Health: José A. Peres.

I.4.3. Other Outreach Activities

1. Chemistry/Physics Workshop: The Periodic Table like you've never seen it, July 6, 2024, from 9:00 to 12:30 and from 2:00 to 5:30 pm, integrated into the 3rd Basto and Barroso Science and Technology Meeting; **João Claro**.
2. Support for agro-industries in the region Unpaid technical support in the management of water and effluents from several wineries in the region. Monitoring the operation of the WWTP and the water and effluent cleaning and management systems; **António Pirra**.
3. Participation in Science and Technology Week 2024 Action: SOS water and environment: the wonderful world of WWTPs 15 11/22/2024, UTAD; **António Pirra**.
4. Responsible for the action SOS Water and Environment: the phenomenal functioning of WWTPs!, integrated in the Project *The University goes to School to promote critical thinking*. October 17, 2024. Escola Secundária S. Pedro. Promoted by the webPACT group - Critical and Creative Thinking Group of UTAD: **António Pirra**.

I.5. Awards

1. **Best Contribution Award**: Prémio ASEC 2023 (SciForum). The 4th International Electronic Conference on Applied Sciences. 27 October - 10 November 2023 (online). Jorge, N., Teixeira, A.R., Silva, S., Pirra, A., Peres, J.A., & Lucas, M.S. *Homogeneous vs. heterogeneous photo-Fenton processes in the treatment of winery wastewater*. Prémio atribuído em junho de 2024.
2. **Melhor Comunicação em Poster**: Jorge, N., Teixeira, A.R., Lucas, M.S., & Peres, J.A. *Sustainable winery wastewater treatment: combining plant-based coagulation-flocculation and Fenton processes*. VIII Jornadas de Engenharia Agronómica, UTAD, 20 novembro 2024, Vila Real, Portugal.
3. **Prémio Nacional da Sustentabilidade** (categoria Preservação do Capital Natural) atribuído ao Projeto GREENValue - Valorização da Geração de Recursos em Espaço Natural. Consórcio composto por 7 entidades: Águas do Norte, Resíduos do Nordeste, Universidade de Trás-os-Montes e Alto Douro, Município de Alfândega da Fé e União de Freguesia de Pombal e Vales, de Gebelim e Soeima e de Ferradosa e Sendim da Serra. Competição organizada pelo Jornal de Negócios/Deloitte, 7 de maio 2024, Carcavelos, Portugal. Membros da equipa: J.A. Peres, M. Lucas, N. Jorge.
4. **Prize Internacional**: IAHR Hydro-Environment Innovation and Industry to Green Value Project awarded by the International Association for Hydro-Environment Engineering and Research (IAHR), June 2024, Lisbon, Portugal. Membros da equipa: J.A. Peres, M. Lucas, N. Jorge.

Part II - Food Chemistry and Biochemistry

II.1. Advanced Education

II.1.1. PhD Students

Name	Carlos Martins Gomes
Supervisors	Amélia Maria Lopes da Silva; Fernando M. Nunes
PhD Programme	Chemical and Biological Sciences (UTAD)
Starting Date	December 2019
Name	Catarina Isabel Patrício Sá Marques Gomes
Supervisors	Alice Vilela; Elisete Correia; Lia-Tânia Dinis
PhD Programme	Agrichains (UTAD)
Starting Date	October 2020
Name	João Rafael Rodrigues Siopa
Supervisors	Fernando Hermínio Nunes; Fernanda Cosme; Miguel Ribeiro
PhD Programme	Chemical and Biological Sciences (UTAD)
Starting Date	December 2020
Name	Elisa Costa
Supervisors	Fernando Hermínio Nunes, Fernanda Cosme
PhD Programme	Chemical and Biological Sciences (UTAD)
Starting Date	December 2020
Name	Mónica Isabel Garcia Silva
Supervisors	Francisco Peixoto; Maria Manuel Oliveira
PhD Programme	Chemical and Biological Sciences (UTAD)
Starting Date	September 2021
Name	Tiago José Monteiro Durães
Supervisors	Fernando Hermínio Nunes; Maria Fernanda Cosme
PhD Programme	Chemical and Biological Sciences (UTAD)
Starting Date	October 2021

Name **PINTO, Mário. USC – Universidade de Santiago de Compostela.**
Supervisors Xose Santos Solla (USC), Alice Vilela and Xosé Xerardo (UTAD)
PhD Programme Programa de Doutoramento em Turismo
Starting Date Setembro 2022

Name **Rafael Santos Vilamarim**
Supervisors Miguel Ribeiro; Fernando Hermínio Nunes
PhD Programme Chemical and Biological Sciences (UTAD)
Starting Date September 2023

Name **Mário Joaquim Oliveira Bezerra**
Supervisors Fernando Hermínio Nunes; Fernanda Cosme; Miguel Robeiro
PhD Programme Chemical and Biological Sciences (UTAD)
Starting Date September 2023

Name **Ana Cristina Pereira Aires**
Supervisors Ana Sampaio (CITAB/UTAD); António Inês; Conceição Egas (UC-Biotech_CNC)
PhD Programme Ciências Químicas e Biológicas
Starting Date September 2023

Name **NEVES PINTO, Manuel Maria Gomes Pimentel**
Supervisors Alice Vilela and Elisete Correia (UTAD) and Sofia Catarino (ISA)
PhD Programme Enologia e Viticultura
Starting Date September 2024

II.1.2. PhD Thesis Concluded

Name **Catarina Isabel Patrício Sá Marques Gomes**
Title Emo-Sensory Profile and Chemical Characterization of Wine and Wine Vinegar.
PhD Programme Cadeias de Produção Agrícola - da Mesa ao Campo
Date 29 de fevereiro de 2024
Supervisors Lia Tânia-Dinis; Elisete Correia; Alice Vilela

Name **Carlos Martins Gomes**
Title Search for New Functional Foods: Chemical Profiling of Endemic Thymus Species and in vitro Assessment of Their Bioactivities 2020.
PhD Ciências Químicas e Biológicas
Supervisors Amélia M. Silva (Supervisora principal); Fernando Hermínio Nunes

Name	Daniela Sofia Gonçalves Mendes
Title	SC-Nanophytosomes to address neurodegenerative diseases challenge: a novel concept of mitochondria-targeted therapy.
PhD Programme	Ciência Farmacêuticas – Fitoquímica e Farmacognosia (UP)
Date	janeiro 2024
Supervisors	Romeu Videira (UP), Maria Manuel Oliveira, Paula Andrade(UP)

II.1.3. Master Thesis Concluded

Name	Mafalda de Aguiar Macedo Ferreira dos Santos
Title	Evaluation of PEF on The Quality of Tinta Roriz Variety Wines
Master	Enologia e Viticultura
Date	4th June 2024
Supervisors	Alice Vilela; Elisete Correia

Name	João Filipe Lopes Mota
Title	Perfil emo-sensorial e caraterização química de vinagres de vinho da Região Demarcada do Douro e de Rioja
Master	Engenharia Alimentar
Date	29 February 2024
Supervisors	Alice Vilela, Elisete Correia

Name	Lara Isabel Pereira Dias
Title	Development and validation of a UPLC-ESI-QTOF-MS method for the determination of proanthocyanidins: study of the interaction of protein fining agents with wine proanthocyanidins
Master	Engenharia Alimentar
Date	2024
Supervisors	Fernanda Cosme; Fernando Hermínio Nunes

Name	Pedro Miguel Campos Loureiro da Eira
Title	Comparative study of tartaric stabilization techniques in white wine from Loureiro variety: stabilization by continuous cold and use of oenological additives.
Master	Enologia e Viticultura
Date	2024
Supervisors	Fernanda Cosme; Fernando Hermínio Nunes

Name **Juliana Barros dos Anjos**

Title A influência do tratamento com Doxorubicina e o efeito da prática de exercício físico no stress oxidativo e capacidade antioxidante do miocárdio de ratos com cancro da mama

Master Biochemistry

Date 2024

Supervisors Francisco Peixoto; Paula Oliveira

Name **Hugo António Lopes Ferreira**

Title Análises bioquímicas de diferentes variedades de Castanea sativa em diferentes localizações do interior de Portugal

Master Biochemistry

Date 2024

Supervisors José Gomes Laranjo; Francisco Peixoto

II.2. Projects

II.2.1. European/International

1. Reducing acrylamide exposure of consumers by a cereals supply-chain approach targeting asparagine

Cost action CA21149 - ACRYRED: 2022- 2026. European Union's Framework Programme for Research and Innovation. Rothamsted Research. Fernando M. Nunes (Participant), **Fernanda Cosme** (Coordinator, UTAD), Miguel Ribeiro (Participant).

II.2.2. National

1. Vine & Wine Portugal – Driving Sustainable Growth Through Smart Innovation

PRR – Plano de Recuperação e Resiliência e pelos Fundos Europeus NextGeneration EU, no âmbito das Agendas Mobilizadoras para a Reindustrialização. € 41.427.004,64 (UTAD, € 7.875.653,67); Marco S. Lucas, José A. Peres, Fernando Nunes, António Inês, Alice Vilela, Fernanda Cosme, João Coutinho. Host institution: UTAD, September 2022- September 2025.

2. Decoding the small RNA of edible mushrooms – from its functions in human cancer cells to its potential anticancer effect

FCT.2023.13940.PEX. (2024-2026); UTAD: € 50.000; Miguel Ribeiro (Participant), Fernando Nunes (Participant).

II.3. Outputs

II.3.1 Patents

1. *Sistema de controlo e atuação para o envelhecimento de vinhos fortificados, tranquilos e de colheita tardia, bebidas espirituosas e vinagres, uso e métodos associados*. Amadeu Duarte Da Silva Borges, Fernando Hermínio Ferreira Milheiro Nunes, Emanuel Soares Peres Correia, Luís Miguel Modesto De Oliveira, Maria Fernanda Gil Cosme Martins. PT116379B, Concedida em 07 de novembro de 2024.

II.3.2. Book Chapters

1. **Vilela, A. (2024)**. Temporal Dominance of Sensations (TDS) Applied to Wine Sensory Evaluation. In: Pozo-Bayón, M.Á., Muñoz González, C. (eds) *Wine Analysis and Testing Techniques. Methods and Protocols in Food Science*. Springer, New York, NY. 978-1-0716-3650-3, pp 209-223. https://doi.org/10.1007/978-1-0716-3650-3_15.
2. **Cosme, F., Filipe-Ribeiro, L., & Nunes, F.M. (2024)**. Introductory Chapter: Impact of Climate Change on Grapes and Grape Products. In: *Global Warming and the wine Industry – Challenges, Innovations and Future Prospects*. IntechOpen, Rijeka, Editors Fernanda Cosme, Fernando M. Nunes, & Luís Filipe-Ribeiro. <https://www.intechopen.com/chapters/1186323>.
3. Cosme, F., Ribeiro, M., Filipe-Ribeiro, L., & Nunes, F.M (2024). Review of Mycotoxins in Grapes and Grape Products. In *Global Warming and the wine Industry – Challenges, Innovations and Future Prospects*. IntechOpen, Rijeka, Editors Fernanda Cosme, Fernando M. Nunes, & Luís Filipe-Ribeiro. <https://doi.org/10.5772/intechopen.1005454>.
4. Gonçalves, C., Santos, D., Barbosa, F., Mota, J., Joukes, V., Inês, A. & Saraiva, C. (2024). *Conexão de Sabores: refeições Brasil e Portugal*. ISBN: 978-65-993669-2-5.
5. Pinto, T., Pinto, A., & **Vilela, A. (2024)**. Edible Coatings and Films in Grapevine By-Product Infusions and Freshly Processed Products. In *Research Perspectives of Microbiology and Biotechnology*, Vol.1, 89-128. ISBN 978-81-971580-1-8. <https://doi.org/10.9734/bpi/rpmab/v1/2250G>.

II.3.3. Publications in journals of Journal Citation Reports

II.3.3.1. Q1 and Q2 Journals

1. Afonso, S., Oliveira, I., Ribeiro, C., **Vilela, A.**, Meyer, A.S., & Gonçalves, B. (2024). Exploring the role of biostimulants in sweet cherry (*Prunus avium* L.) fruit quality traits. **Agriculture**, 14(9), 1521. Q1. <https://doi.org/10.3390/agriculture14091521>.

2. Afonso, S.M., Inês, A., & **Vilela**, A. (2024). Bio-Dealcoholization of Wines: Can Yeast Make Lighter Wines? **Fermentation-basel**, 10(1), 36. Q2. <https://doi.org/10.3390/fermentation10010036>.
3. Bacelar, E., Pinto, T., Anjos, R., Morais, M.C., Oliveira, I., **Vilela**, A., & Cosme, F. (2024). Impacts of Climate Change and Mitigation Strategies for Some Abiotic and Biotic Constraints Influencing Fruit Growth and Quality. **Plants**, 13, 1942. Q1. <https://doi.org/10.3390/plants13141942>.
4. Badiche-El Hilali, F., Medeiros-Fonseca, B., Silva, J., Silvestre-Ferreira, A.C., Pires, M.J., Gil da Costa, R.M., **Peixoto**, F., Oliveira, P.A., & Valero, D. (2024). The Effect of Lemon Juice (*Citrus limon* L.) Treated with Melatonin on the Health Status and Treatment of K14HPV16 Mice. **Antioxidants**, 23(5). Q1. <https://doi.org/10.3390/antiox13050588>.
5. Bezerra, M., **Ribeiro**, M., **Cosme**, F., & **Nunes**, F.M. (2024). Overview of the distinctive characteristics of strawberry, raspberry, and blueberry in berries, berry wines, and berry spirits. **Compr. Rev. Food Sci. Food Saf.**, 23(3), e13354. Q1. <https://doi.org/10.1111/1541-4337.13354>.
6. Bezerra, M., **Cosme**, F., & Nunes, F.M. (2024). Production and Characterization of Red Fruit Spirits Made from Red Raspberries, Blueberries, and Strawberries. **Foods**, 13(8), 1187. Q1. <https://doi.org/10.3390/foods13081187>.
7. Carvalho, T.B., Oliveira, M., Gomes, A.M., Monteiro, M.J., Pintado, M., Komora, N., Durães, T., Nunes, F.M., **Cosme**, F., Patarata, L., Barbosa, J.B., & Teixeira, P. (2024). Clean labelling sodium nitrite at pilot scale: In-situ reduction of nitrate from plant sources and its effects on the overall quality and safety of restructured cooked ham. **Meat Sci.**, 216, 109572. Q1. <https://doi.org/10.1016/j.meatsci.2024.109572>.
8. Cosme, F., Filipe-Ribeiro, L., Coixão, A., Bezerra, M., & Nunes, F.M. (2024). Efficiency of alginic acid, sodium carboxymethylcellulose, and potassium polyaspartate as calcium tartrate stabilizers in wines. **Foods**, 13, 1880. Q1. <https://doi.org/10.3390/foods13121880>.
9. Cosme, F., Oliveira, R., Filipe-Ribeiro, L., & Nunes, F.M. (2024). Wine Volatilome as Affected by Tartaric Stabilization Treatments: Cold Stabilization, Carboxymethylcellulose and Metatartaric Acid. **Foods**, 13, 2734. Q1. <https://doi.org/10.3390/foods13172734>.
10. Ferreira, C., Ribeiro, C., & Nunes, F.M. (2024). Effect of storage conditions on phenolic composition, vitamin C and antioxidant activity of 'Golden Delicious' and 'Red Delicious' apples. **Postharvest Biol. Technol.**, 210, 112754. Q1. <https://doi.org/10.1016/j.postharvbio.2023.112754>.

11. Fernandes, L., Fernandes, J.R., **Nunes**, F.M., & Tavares, P. (2024). Effect of drying temperature and storage time on the crispiness of homemade apple snacks. **J. Sci. Food Agric.**, 104, 916-931. Q2. <https://doi.org/10.1002/jsfa.12980>.
12. Ferreira, C., Ribeiro, C., & **Nunes**, F.M. (2024). Effect of storage conditions on the volatilome, biochemical composition and quality of Golden Delicious and Red Delicious apple (*Malus domestica*) varieties. **Molecules**, 29(13), 2954. Q2. <https://doi.org/10.3390/molecules29132954>.
13. Gonçalves, B., Aires, A., Oliveira, I., Baltazar, M., **Cosme**, F., Afonso, S., Pinto, T., Anjos, M.R., Inês, A., Morais, M.C., Vilela, A., & Silva, A.P. (2024). From Orchard to Wellness: Unveiling the Health Effects of Sweet Cherry. **Nutrients**, 16(21), 3660. Q1. <https://doi.org/10.3390/nu16213660>.
14. Lavoignat, M., Juhász, A., Bose, U., Sayd, T., Chambon, C., Ribeiro, M., Igrejas, G., Déjean, S., Ravel, C., & Bancel, E. (2024). Peptidomics analysis of *in vitro* digested wheat breads: Effect of genotype and environment on protein digestibility and release of celiac disease and wheat allergy related epitopes. **Food Chem.**, 448, 139148. Q1. <https://doi.org/10.1016/j.foodchem.2024.139148>.
15. Marques, C., & **Vilela**, A. (2024). FaceReader Insights into the Emotional Response of Douro Wines. *Applied Sciences-basel*, 14(21), 10053. Q1. <https://doi.org/10.3390/app142110053>.
16. Marques, C., Correia, E., Aires, A., Dinis, L.-T., & **Vilela**, A. (2024). A Comprehensive Study on the Amino Acids and Tryptophan-Derived Molecules in Iberian Wine Vinegar. **Foods**, 13(21), 3384; Q1. <https://doi.org/10.3390/foods13213384>.
17. Marques, C., Dinis L.-T., Modesti, M., Bellincontro, A., Correia, E., & **Vilela**, A. (2024). Exploring the influence of terroir on Douro white and red wines characteristics: a study of human perception and electronic analysis. **Eur. Food Res. Technol.**, 250, 3011-3027. Q2. <https://doi.org/10.1007/s00217-024-04607-8>.
18. Martins, S., Brito, C., Silva, E., Gonçalves, A., Arrobas, M., Pereira, E., Rodrigues, M.A., **Nunes**, F.M., & Correia, C.M. (2024). Differential responses of photosynthesis, yield and soil properties 4 years after a single application of zeolites and biochar in a rainfed olive orchard. **SOIL USE MANAGE.**, 40, e13045. Q1. <https://doi.org/10.1111/sum.13045>.
19. Martins-Gomes, C., **Nunes**, F.M., & Silva, A. M. (2024). Natural products as dietary agents for the prevention and mitigation of oxidative damage and inflammation in the intestinal barrier. **Antioxidants**, 13, 65. Q1. <https://doi.org/10.3390/antiox13010065>.
20. Martins-Gomes, C., **Nunes**, F.M., & Silva, A.M. (2024). Linking variability in phytochemical composition with the safety profile of *Thymus carnosus* Boiss.

extracts: effect of major compounds and evaluation of markers of oxidative stress and cell death. *Int. J. Mol. Sci.*, 25(10), 5343. Q2. <https://doi.org/10.3390/ijms25105343> Q2.

21. Martins-Gomes, C., **Nunes**, F.M., & Silva, A.M. (2024). *Thymus* spp. Aqueous Extracts and Their Constituent Salvianolic Acid A Induce Nrf2-Dependent Cellular Antioxidant Protection Against Oxidative Stress in Caco-2 Cells. *Antioxidants*, 13(11), 1287. Q1. <https://doi.org/10.3390/antiox13111287>.
22. Oliveira, M.M., Correia, S., Peirone, C., Magalhães, M., Oliveira, P., & Peixoto, F. (2024). Impact of ozone therapy on mouse liver mitochondrial function and antioxidant system *Biochimie*, 223(1) 116-124 Q2. <https://doi.org/10.1016/j.biochi.2024.03.014>.
23. Mota, J., **Vilela**, A. (2024). Exploring Microbial Dynamics: The Interaction between Yeasts and Acetic Acid Bacteria in Port Wine Vinegar and Its Implications on Chemical Composition and Sensory Acceptance. *Fermentation-basel*, 10(8), 421. Q2. <https://doi.org/10.3390/fermentation10080421>.
24. Mota, J., & **Vilela**, A. (2024). Aged to Perfection: The Scientific Symphony behind Port Wine, Vinegar, and Acetic Acid Bacteria, *Fermentation-basel*, 10(4), 200. Q2. <https://doi.org/10.3390/fermentation10040200>.
25. Moreira, L., Milheiro, J., Filipe-Ribeiro, L., **Cosme**, F., & Nunes, F.M. (2024). Exploring factors influencing the levels of biogenic amines in wine and microbiological strategies for controlling their occurrence in winemaking. *Food Res. Int.*, 190, 114558, Q1. <https://doi.org/10.1016/j.foodres.2024.114558>.
26. Pérez-Pérez, M., Ribeiro, M., Fdez-Riverola, F., & Igrejas, G. (2024). Insights into wheat science: A bibliometric review using unsupervised machine learning techniques. *J. Cereal Sci.*, 118, 103960, Q2. <https://doi.org/10.1016/j.jcs.2024.103960>.
27. Santos, M., Pereira, S., Ferreira, H., Ricardo Sousa, J., **Vilela**, A., Ribeiro, C., Raimundo, F., Egea-Cortines, M., Matos, M., & Gonçalves, B. (2024). Optimizing Sweet Cherry Attributes Through Magnesium and Potassium Fertilization. *Horticulturae*, 10(8), 881. Q1. <https://doi.org/10.3390/horticulturae10080881>.
28. Sousa, T., Sabeça, C., **Ribeiro**, M., Pino-Hurtado, M., Torres, C., Hébraud, M., Alves, O., Sousa, S., Costa, E., Igrejas, G., & Poeta, P. (2024). Activity of Epsilon-poly-L-lysine against Multidrug-Resistant *Pseudomonas aeruginosa* and *Klebsiella pneumoniae* Isolates of Urinary Tract Infections. *Biomedicines*, 12(3). Q1. <https://doi.org/10.3390/biomedicines12030638>.
29. Gonçalves, S., **Peixoto**, F., da Silveria, T.F.F., Barros, L., & Gaivão, I. (2024). Antigenotoxic and cosmetic potential of elderberry (*Sambucus nigra*) extract:

protection against oxidative DNA damage. **Food Funct.**, 15(21), 10795-10810. Q1. <https://doi.org/10.1039/D4FO03217A>.

30. Gonçalves, S., **Peixoto**, F., Schoss, K., Glavač, N.K., & Gaivão, I. (2024). Elderberry Hydrolate: Exploring Chemical Profile, Antioxidant Potency and Antigenotoxicity for Cosmetic Applications. **Appl. Sci. (Basel)**, 14, 6338. Q2. <https://doi.org/10.3390/app14146338>.
31. Silva, C., Abrantes, A.C., Fontes, A.C., Dias, I., Domingues, R., **Peixoto**, F., & Viegas, C. (2024). Evaluation of Haematological Ratios at: Different Stages of Canine Periodontal Disease. **Vet. Sci.**, 11, 1-19. Q1. <https://doi.org/10.3390/vetsci11110581>.
32. Azevedo, T., Gonçalves, M., Silva-Reis, R., Medeiros-Fonseca, B., Roboredo, M., Sousa, J.R., Oliveira, P.A., Pinto, M.L., **Peixoto**, F., Gaivão, I., Matos, M., & Coimbra, A.M. (2024). Do endocrine disrupting compounds impact earthworms? A comprehensive evidence review. **Rev. Environ. Sci. Biotechnol.**, 23(3), 633–677. Q1. <https://link.springer.com/article/10.1007/s11157-024-09698-z>.
33. **Vilela**, A., Domizio, P., & Morata, A. (2024). Editorial: Microbial modulation to mitigate the impact of climate change on wine production. **Front. Microbiol.**, 15. Q2. <https://doi.org/10.3389/fmicb.2024.1465637>.

II.3.3.2. Q3 and Q4 Journals

1. Dinis, L-T., Pereira, S., Fraga, I., Rocha, S.M., Costa, C., Martins, C., **Vilela**, A., (...) & Moutinho-Pereira, J. (2024). Kaolin foliar spray induces positive modifications in volatile compounds and fruit quality of Touriga-Nacional red wine. **OENO One**, 58(2). Q3. <https://doi.org/10.20870/oenone-2024.58.2.7945>.
2. Silva, J., Azevedo, T., Aires, I., **Peixoto**, F., Neuparth, M.J., Queiroga, F.L., Seixas, F., Ferreira, R., Faustino-Rocha, A.I., Duarte, J.A., & Oliveira, P.A. (2024). Interplay Between Western Diet and Mammary Cancer: Data from a Chemically-induced Model in Wistar Rats. **Anticancer Res.** 44(11), 4843- 4856. Q4. <https://ar.iiarjournals.org/content/44/11/4843>.
3. Martins, F.C., Oliveira, M.M., Gaivão, I., Videira R.A., & **Peixoto**, F. (2024). The administration of methyl and butyl parabens interferes with the enzymatic antioxidant system and induces genotoxicity in rat testis: possible relation to male infertility. **Drug Chem. Toxicol.** 47(3), 322-329. Q3. <https://doi.org/10.1080/01480545.2023.2176512>.
4. Pinto, M., Barros, P., Vilela, A., & Correia, E. (2024). Controlling sensory analysis results: tools and importance in assessor selection. Case study: PROVA-ALABE proficiency test. **Ciência Téc. Vitiv.**, 39(1), 30-50. Q4. <https://doi.org/10.1051/ctv/ctv2024390130>.

II.3.3.3. New Journals (Impact Factor pending)

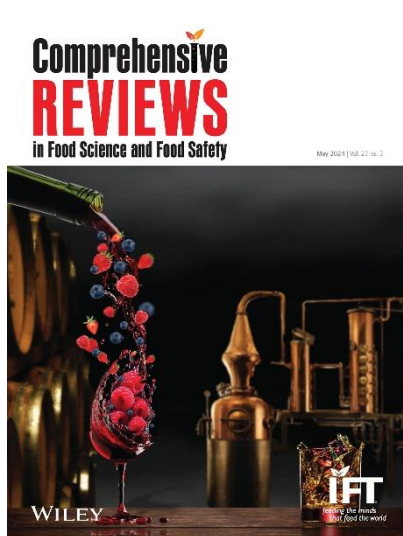
1. Azevedo, T., Silva, J., Faustino-Rocha, A. I., Valada, A., Anjos, L., Moura, T., Ferreira, R., Santos, M., Pires, M. J., Neuparth, M. J., **Peixoto, F.**, Silvestre-Ferreira, A.C., Gama, A., Seixas, F., Finimundy, T.C., Barros, L., Matos M., & Oliveira, P.A. (2024). The role of natural compounds in rat mammary cancer: the beneficial effects of *Santolina chamaecyparissus* L. aqueous extract. **Veterinarska Stanica**, 55(1), 45-61. Q3.

II.3.3.4. Technical Articles

1. Filipe-Ribeiro, L., Rodrigues, S., Nunes, F.M.; **Cosme, F.** (2024). Efeito negativo da exposição ao oxigénio durante operações de transporte. Bons Vinhos, Sustentabilidade nos Vinhos Verdes – News, 01/24 <https://www.vinhoverde.pt/pt/noticias/utad-apreseta-estudo-sobre-o-efetudo-negativo-da-exposicao-ao-oxigenio>.
2. Sílvia Martins Afonso, António Inês & Alice Vilela (2024): Vini più "leggeri" con la dealcolazione biologica. **VVQ, vigne vini & qualita**, ISSN 0390-0479, Año nº 8, Nº 4, págs. 54-57. <https://dialnet.unirioja.es/servlet/articulo?codigo=9564508>

II.3.3.5. Cover Picture

1. Bezerra, M., Ribeiro, M., Cosme, F., **Nunes, F.M.** (2024). Overview of the distinctive characteristics of strawberry, raspberry, and blueberry in berry, berry wine, and berry spirits. **Compr. Rev. Food Sci. Food Saf.** , 23 (3), e13354. <https://doi.org/10.1111/1541-4337.13354>.



II.3.4. Publications in Proceedings

1. Cosme, F., Inês, A., Silva, D., Filipe-Ribeiro, L., Abrunhosa, L., & Nunes, F.M. (2024). An effective approach to mitigating ochratoxin A (OTA) levels in wine with minor

impact on wine quality. Proceedings **45th World Congress of Vine and Wine**, 14-18 October, Dijon, France. <https://doi.org/10.58233/OcPLknsk>.

II.3.5 Oral Presentations at National and International Meetings

1. Bancel, E., Lavoignat, M., Juhász, Á., Bose, U., Sayd, T., Chambon, C., Ribeiro, M. *et al.* (2024). *Looking for a peptide signature to distinguish high and low-digestible genotypes*. **17th International Cereal and Bread Congress**, 22-25 April, Nantes, France.
2. Cosme, F., Inês, A., Silva, D., Filipe-Ribeiro, L., Abrunhosa, L., & Nunes, F.M. (2024). *Critical characteristics of activated carbons for efficient removal of ochratoxin A (OTA) from wine*. Session IV: Safety and Health 45 OIV. **45th World Congress of Vine and Wine**, 13-18 October, Dijon, France.
3. Filipe-Ribeiro, L., Minute, F., Giotto, F., Cosme, F., & Nunes, F. M. (2024). *Alternative methods to evaluate the pinking susceptibility of white wines: derivative spectroscopy and $ciel^*a^*b^*$ colour analysis*. **45th World Congress of Vine and Wine**, 13-18 October, Dijon, France.
4. Mota, J., Correia, E., Marques, C., Inês, A., Vilela, A. (2024). *Emosensory Profile and Chemical Characterization of Wine Vinegar* (Short communication, 2024-059). **45th World Congress of Vine and Wine**, 13-18 October, Dijon, France.
5. Aguiar-Macedo, M., Redondo, L.M., Silva, C., Correia, E., & Vilela, A. (2024). *Impact of Monopolar and Bipolar Pulsed Electric Fields on the Quality of Tinta Roriz Wines* (Short communication, 2024-360). **45th World Congress of Vine and Wine**, 13-18 October, Dijon, France.
6. Aguiar-Macedo, M., Redondo, L.M., Silva, C., Correia, E., & Vilela, A. (2024). *Influence of PEF on the chemical and sensory characteristics of tinta roriz wines* (Oral communication, OSQT01). **XVII Encontro de Química dos Alimentos**, 9-11 October, University of Trás-os-Montes e Alto Douro, Vila Real, Portugal. P. 126.
7. Oliveira, I., Marinho, B., Szimanowska, U., Karas, M., & Vilela, A. (2024). *Sensory and chemical properties of cookies supplemented with almond skin (FDP01)*. **XVII Encontro de Química dos Alimentos**, 9-11 October, University of Trás-os-Montes e Alto Douro, Vila Real, Portugal. P. 144.
8. Silva, M.G., Oliveira, M.M., & Peixoto, F. (2024). *Assessing mitochondrial and antioxidant function in FVB/n mouse kidney: comparative toxicity of fluorescent and non-fluorescent micro-nanoplastics* (Oral Communication). **XXII National Congress of Biochemistry**, 24-26 October, Aveiro, Portugal.

II.3.6 Poster Presentations at National and International Meetings

I.3.6.1 International Meetings

1. **Vilela, A., Santos, M.A., & Correia, E.** (2024). *Discover The Fascinating World of Port Wines and Chocolates as We Explore the Temporal Nature of Their Sensory*

Experience. Poster 2024-060 **45th World Congress of Vine and Wine** (Session II: Oenology, Methods of Analysis), 14-18 October, Dijon, France.

2. Aires, C., Maioto, R., **Inês, A.**, Conceição, E., & Sampaio, A. (2024). *Quantification and biochemical characterization of culturable microbial communities in wineries surfaces*. **18th Congress of the International Union of Microbiological Societies** (IUMS 2024), 23-25 October, Florence, Italy.
3. **Cosme, F.**, Filipe-Ribeiro, L., Rodrigues, S., & Nunes, F.M. (2024). *Minimizing the negative impact on the chromatic features of white wine due to oxygen exposure during transportation through the deoxygenation process*. **13th In Vino Analytica Scientia**, 9-12 July, University of California, Davis, USA.
4. **Cosme, F.**, Gomes, S., **Vilela, A.**, Filipe-Ribeiro, L., & Nunes, F. M. (2024). *Innovative sustainable optimized cork-powder based fining agent for 2,4,6-trichloroanisole (TCA) removal in red wines: Impact on wine quality*. **13th In Vino Analytica Scientia**, 9-12 July, University of California, Davis, USA.
5. Filipe-Ribeiro, L., Milheiro, J., Guise, R., Vilamarim, R., Fraga, J.B., Martins-Gomes, C., Nunes, F.M., & **Cosme, F.** (2024). *Impact of sodium carboxymethylcellulose on red wine phenolic composition and colouring matter stability*. **13th In Vino Analytica Scientia**, 9-12 July, University of California, Davis, USA.
6. Filipe-Ribeiro, L., Gonçalves, A., Minute, F., Giotto, F., **Cosme, F.**, & Nunes, F.M. (2024). *Pinking phenomena in white wine: Predictive pinking susceptibility index (PSI) method and its correlation with residual anthocyanins*. **13th In Vino Analytica Scientia**, 9-12 July, University of California, Davis, USA.
7. Maioto, Rita, Aires, C., **Inês, A.**, Rodrigues, P., & Sampaio, A. (2024). *Wineries Surface Yeasts: Enzymatic Activities and Tolerance to Sodium Chloride, Glucose, Ethanol, Sulfite and Copper*. **18th Congress of the International Union of Microbiological Societies** (IUMS 2024), 23-25 October, Florence, Italy.
8. Maioto, R., Aires, C., **Inês, A.**, Rodrigues, P., & Sampaio, A. (2024). *Efficacy of UV-C and disinfectants in eliminating yeasts from winery surfaces and environments*. **18th Congress of the International Union of Microbiological Societies** (IUMS 2024), 23-25 October, Florence, Italy.
9. Siopa, J., Ribeiro, M., Cosme, F., & Nunes, F. M. (2024). *Development of a statistical model to predict acrylamide content in industrially produced biscuits*. **ACRYRED - Acrylamide and process formed contaminants: a supply chain approach**, The Museum of Natural Sciences of Brussels, 4-5 September, Brussels, Belgium.
10. Afonso, S., Inês, A., & **Vilela, A.** (2024). *Removing Alcohol from Wines by Processes of Yeast Bio-Dealcoholization* (Poster PO-237). **45th World Congress of Vine and Wine** (Session II: Oenology, Methods of Analysis), 14-18 October, Dijon, France.

I.3.6.2 National Meetings

- 1 Vilela, A., Rijo, G., Barroso, J., & Rocha, T. (2024). *An AI algorithm and a virtual environment in the perception of wine flavor* (Poster PMA10; p. 256). **XVII Encontro de Química dos Alimentos**, UTAD, 9-11 outubro, Vila Real, Portugal.
- 2 Afonso, S., Teixeira, E., Inês, A. & Vilela, A. (2024). *Bio-Dealcoholization of Wines Post-Fermentation to Create Lighter Wines* (Poster PSA28, p. 195). **XVII Encontro de Química dos Alimentos**, UTAD, 9-11 outubro, Vila Real, Portugal.
- 3 Silva, F., Rodrigues, L.P., Peixoto, F., Silva, M.G., & Oliveira, M.M. (2024). *Study on the impact of microplastics in mice's cerebral function and its neurological consequences*. **XXII National Congress of Biochemistry**, 24-26 outubro, Aveiro, Portugal.
- 4 Freixo, M., & Antunes, C. (2024). *Implementation and validation of a difference spectrophotometric method for the determination of HMF in honey*. **XVII Encontro de Química dos Alimentos**, UTAD, 9-11 outubro, Vila Real, Portugal.
- 5 Teixeira, J., Silva, M., Peixoto, F., & Oliveira, M.M. (2024). *Impact of microplastic ingestion on reproductive function: relationship with mitochondrial function and oxidative stress*. **XXII National Congress of Biochemistry**, 24-26 October, Aveiro, Portugal.
- 6 Luís, S. & Antunes, C. (2024). *Chemical Characterization of commercial apple snacks*. **XVII Encontro de Química dos Alimentos**, UTAD, 9-11 outubro, Vila Real, Portugal.

II. 4. Outreach Activities

II.4.1 Participation in Committees of National and International Organizations

1. Alice Vilela, Member of the **Organizing Committee** of the XVII Encontro Nacional de Química dos Alimentos, University of Trás-os-Montes and Alto Douro, Vila Real, Portugal, October 9-11, **2024**. <https://xviieqa.events.chemistry.pt/>.
2. Alice Vilela – Membro da Comissão Científica das VIII Jornadas de Engenharia Agronómica, decorridas no dia 20 de Novembro de 2024, na Universidade de Trás-os-Montes e Alto Douro

II.4.2. Participation in Decision-making Bodies

Evaluation of International Projects

1. Cosme F Avaliação de **Project - IP-2024-05-3844**– Croatian Science Foundation Call for Proposals 'Research projects' 2024. **Scientific review for the Croatia Science Foundation**. julho 2024

II.4.3 Participation in Editorial and Special Issues of International Scientific Journals

1. **Frontiers in Nutrition**, Associate Editor for Food Chemistry: Fernanda Cosme.
2. **Frontiers in Nutrition**, Associate Editor for Food Chemistry: Fernanda Nunes.
3. **Frontiers in Nutrition**, Associate Editor for Food Chemistry: Miguel Ribeiro.
4. **Beverages**, Comité Editorial: Fernanda Cosme.
5. **Foods**, Comité Editorial: Fernanda Cosme.
6. **Foods**, Section board: Fernando Nunes.
7. **Foods**, Topic editor: Miguel Ribeiro.
8. **Journal of Polyphenols**, Comité Editorial: Fernanda Cosme.
9. **Fermentation**, Section board: Fernanda Cosme.
10. **Fermentation**, Section board: Alice Vilela.
11. **Molecules**, Section board: Fernanda Cosme.
12. **International Journal of Environment and Climate Change**, Alice Vilela.
13. **Insights in Organic & Inorganic Chemistry Journal**, Alice Vilela.

Special Issues

1. ***Fermented Food: Health and Benefit***; Topical Collection (Applied Microbiology; Fermentation, Foods, Microbiology Research, Microorganisms): Alice Vilela
<https://www.mdpi.com/topics/50569QBK0F>.
2. ***Innovative Sensory, Chemosensory, and Chemical Techniques in Beverages Quality***; Topical Collection (Foods, MDPI): Alice Vilela.
https://www.mdpi.com/journal/foods/topical_collections/Sensory_Chemosensory_Chemical_Beverages.
3. ***New Aspect on Wine Fermentation***; Topical Collection (Fermentation, MDPI): Alice Vilela.
https://www.mdpi.com/journal/fermentation/topical_collections/DD9B7W9VV0.
4. ***Microbial Modulation to Mitigate the Impact of Climate Change on Wine Production, Frontiers in Microbiology, Food Microbiology***: Alice Vilela.
<https://www.frontiersin.org/research-topics/53969/microbial-modulation-to-mitigate-the-impact-of-climate-change-on-wine-production>.
5. ***Current Use of Genetically Modified Microorganisms in the Fermented Food Industry*** (Fermentation, MDPI): Alice Vilela.
https://www.mdpi.com/journal/fermentation/special_issues/4639Q6346H.
6. ***Safety and Quality in Fermented Beverages*** (Fermentation, MDPI): Fernanda Cosme, Fernando M. Nunes, Luís Filipe-Ribeiro, Miguel Ribeiro.
https://www.mdpi.com/journal/fermentation/special_issues/LYGM7F52GO.

7. **Analysis of Quality and Sensory Characteristics of Fermented Products Fermentation** (MDPI): Fernanda Cosme, Luís Patarata, Fernando M. Nunes. <https://www.mdpi.com/2311-5637/11/3/112>.
8. **Mitochondria Meets Oxidative Stress** (MDPI): Francisco Peixoto https://www.mdpi.com/journal/cells/special_issues/W2A6NI9XRF
9. **Molecular Mechanisms in Mitochondria-Targeted Drug Delivery System** (IJMS): Maria Manuel Oliveira. https://www.mdpi.com/journal/ijms/special_issues/Nanotechnology_Targeted.

Book Editor

1. **Functional Food - Upgrading Natural and Synthetic Sources** (2024); Editors: Ana Barros, Alice Vilela & Joana Campos. Published at 25 September; Doi 10.5772/intechopen.107803; ISBN 978-1-83769-088-6; Number of pages: 260, Part of the book series Food Science and Nutrition. <https://www.intechopen.com/books/12688>.
2. **Global Warming and the Wine Industry – Challenges, Innovations and Future Prospects**. (2024); Editors: Fernanda Cosme, Fernando M. Nunes & Luís Filipe-Ribeiro. Open access INTECH. Doi: 10.5772/intechopen.111161. <https://www.intechopen.com/books/1003131>.

II.4.4 Other Outreach Activities

1. Alice Vilela - Chairperson on the Organization of the **XVII Encontro Nacional de Química dos Alimentos**, 9-11 October, 2024, UTAD, Vila Real, Portugal.
2. Alice Vilela - Dinamização do Workshop - Oficina Culinária – Análise sensorial de cafés, **IV Seminário Ibero – Americano de História e Cultura da Alimentação**, 18 de junho de 2024 (UTAD); organização: UTAD, Vila Real, Portugal, UER, Rio de Janeiro, Brasil e IPV, Viana do Castelo, Portugal.
3. Alice Vilela - Dinamização da Atividade **“Harmonização de Vinhos”** com os alunos dos Cursos Técnicos de Vitivinícola, Turismo Ambiental e Rural e Restaurante/Bar, na Escola Profissional de Desenvolvimento Rural do Rodo, 8 de maio (manhã) de 2024, Godim, Régua, Portugal.
4. Alice Vilela - Prova Comparativa de vinhos no âmbito do módulo **“Análise Sensorial Básica de Vinhos”** com os alunos dos Cursos Técnicos de Vitivinícola, Escola Profissional de Desenvolvimento Rural do Rodo, 8 de maio (tarde) de 2024, Godim, Régua, Portugal.
5. Alice Vilela - Workshop de 45 min: **“Saboreando Chocolates com os cinco sentidos”**, **Dia Aberto - UTAD**, 10 abril 2024, UTAD, Vila Real, Portugal.
6. Alice Vilela - Workshop de **“Harmonização de Vinhos”** e **“Prova comparativa de Vinhos”**, realizado na Escola Profissional de Desenvolvimento Rural do Rodo, para

os alunos dos cursos Técnicos de Vitivinícola, Turismo Ambiental e Rural e Restaurante/Bar, 2 de maio de 2024, Godim, Régua, Portugal.

7. Alice Vilela - Workshop de 1.5 horas *“Terroir and wines tipicity”*, **XVI Jornadas de Bioquímica**, 14-16 maio, 2024, UTAD, Vila Real, Portugal.
8. Alice Vilela - Workshop de 2 horas *“Química Alimentar – química do vinho”*, **IX Jornadas da Bioquímica 2024** – A pegada que a Bioquímica deixou no mundo, 19 abril, 2024, FCUP, Porto, Portugal.
9. ERASMUS+ teaching scholarship at the Università degli Studi di Firenze - FIRENZE01, 8-12 April 2024, Florence, Italy (Alice Vilela, Fernanda Cosme e António Inês)

II.5. Awards

1. **ACRYRED Student Contest** (COST Action CA21149); “Reducing Acrylamide exposure of consumers by a Cereals supply chain approach targeting Asparagine”. em Aveiro 8-9 julho 2024 Siopa J., Ribeiro M., Cosme F., Nunes, F.
<https://acryred.eu/news/acryred-student-contest/>

Part III – Material Chemistry

III.1. Advanced Education

III.1.1. PhD Students

Name	Andreia Daniela Rosa Veloso
Supervisors	Maria Cristina Fialho Oliveira
PhD Programme	Chemical and Biological Sciences (UTAD)
Starting Date	October 2018
Name	Abderrazzak Ait Bassou
Supervisors	Pedro Manuel Bandeira Tavares (UTAD); José Ramiro Fernandes (UTAD); Fábio Figueiras (IFIMUP/FCUP)
PhD Programme	Ciências Físicas Aplicadas (UTAD)
Starting Date	December 2021
Name	Paulo Joaquim Ribeiro Nunes
Supervisors	Mariana Fernandes; Verónica de Zea Bermudez
PhD Programme	Chemical and Biological Sciences (UTAD)
Starting Date	March 2021
Name	Lisete Sofia Gomes Fernandes
Supervisors	Pedro B. Tavares; Fernando Nunes
PhD Programme	Chemical and Biological Sciences (UTAD)
Starting Date	October 2021
Name	Sara Barrias
Supervisors	Paula Martins Lopes (UTAD); Javier Ibañez (ICVV); José Ramiro Fernandes (UTAD)
PhD Programme	Genética Molecular Comparativa (UTAD)
Starting Date	2021
Name	Filipe Almeida
Supervisors	Nuno Cristelo (UTAD); Castorina Vieira (FEUP).
PhD Programme	Engenharia Civil
Starting Date	October 2021
Name	Filipe Lusio Ferreira
Supervisors	José Ramiro Fernandes; Serafim Oliveira (DEMGI/IPV); Paulo Coelho
PhD Programme	Ciências Físicas Aplicadas (UTAD)
Starting Date	2023

Name	João Pinheiro
Supervisors	Nuno Cristelo (UTAD); Tiago Miranda (UMinho)
PhD Programme	Engenharia Civil
Starting Date	September 2024

III.1.2. Doctoral Thesis Concluded

Name	Andreia Daniela Rosa Veloso
Title	Desenvolvimento de nanomateriais hidrofílicos de carbono com propriedades biomiméticas de enzimas antioxidantes
PhD Programme	Chemical and Biological Sciences (UTAD)
Date	22 nd November, 2024
Supervisors	Maria Cristina Fialho Oliveira; Romeu Videira; Nuno Cerqueira

Name	Sara Isabel Mourão Barrias
Title	Wine authenticity using alternative DNA-based platforms
PhD Programme	Genética Molecular Comparativa (UTAD)
Date	19 th July, 2024
Supervisors	Paula Martins Lopes (UTAD); José Ramiro Fernandes; Javier Ibañez (ICVV)

III.1.3. Master Thesis Concluded

Name	André Valdemar Cunha de Almeida Pinto
Title	Sclerophyllization in plant leaves: physico-chemical and histological characterizations
Master	Biochemistry
Date	5 th July, 2024
Supervisors	Mariana Fernandes; António Luís Crespí

Name	Maria Carolina Pinheiro Dias
Title	New 2D-nanomaterials drug conjugates for cancer phototherapy using light-emitting diode devices
Master	Mestrado Integrado em Engenharia Química (FEUP)
Date	26 th July, 2024
Supervisors	Artur Daniel Moreira Pinto (LEPABE & DEQ/FEUP); Fernão Magalhães (DEQ/FEUP); José Ramiro Afonso Fernandes

Name	Bruna Beatriz Alves Rodrigues
Title	Application of an improved piezoelectric DNA based biosensor to the detection of lung cancer
Master	Engenharia Biomédica, Escola de Ciências e Tecnologia (UTAD)
Date	5 th April, 2024

Supervisors	José Ramiro Afonso Fernandes; Paula Martins-Lopes (UTAD); Sara Isabel Mourão Barrias (BioISI)
Name	Lorena Beatriz Costa Davantel
Title	Comportamento térmico de sistemas multicamadas para portas corta fogo
Master	Engenharia da Construção (IPB)
Date	Outubro, 2024
Supervisors	Débora Macanjo Ferreira, Ana Briga Sá
Name	Paulino Jonas
Title	Sistema integrado de monitorização e gestão de consumos de água e energia em edifícios inteligentes
Master	Engenharia Informática e Tecnologias Web (UTAD)
Date	Setembro, 2024
Supervisors	Frederico Branco; Ana Briga Sá
Name	Rodrigo Branquinho
Title	Resource Management System for Optimizing Production Efficiency in the Wine Sector
Master	Engenharia Eletrotécnica e de Computadores (ISEP)
Date	Outubro, 2024
Supervisors	Sérgio Filipe Carvalho Ramos; Tiago Campelos Ferreira Pinto; Ana Briga Sá

III.2. Projects

III.2.1. European/International

1. **ECO-GT Project - Engineers Communicating and Collaborating Internationally for the Green Transition**

2023-1-PL01-KA220-HED-000165199. 01/09/2023 - 31/08/2026. Programa de Parcerias de Cooperação Erasmus+ da União Europeia. UTAD, Gdansk University of Technology, Technikum Vienna, Technical University of Dublin, Lapland University of Applied Sciences, Transylvanian University of Brasov, Istanbul Technical University and IEEE European Public Policy Office: € 400.000,00 (UTAD, € 70.775,88); **Ana Briga-Sá**, September 2023 – August 2026.

2. **Programme: Key Action 1 - Mobility for Learners and Staff (Higher Education Student and Staff Mobility)**

Erasmus+ AGH University Coordinator, UTAD, 2022/2023 - 2028/2029. Subject: Engineering and Engineering Trades, Physical Sciences, Chemistry; **Rosa Rego**.

3. **Programme: Key Action 1 - Mobility for Learners and Staff (Higher Education Student and Staff Mobility)**

Erasmus+ University of Potsdam, Germany/UTAD. Subject areas: Biomedical Engineering and Bioengineering. **Verónica de Zea Bermudez**

III.2.2. National

1. **A-MoVer-Agenda Mobilizadora para o Desenvolvimento de Produtos e Sistemas Inteligentes de Mobilidade Verde**

02/C05-i01.01/2022.PC646908627-00000069, PRR. M € 16.28 (UTAD, M € 9.59). 01 December 2023- 30 November 2025. Continental Advanced Antenna, Lda. (CAA (Leading Promoter), Arquiconsult - Sistemas de Informação, S.A., UP Motion, Lda., Neoception, Unipessoal, Lda. INESC TEC UTAD; **Verónica de Zea Bermudez, Rosa Rego, Ana Briga-Sá, Mariana Fernandes**.

2. **Vine&Wine Portugal - Driving Sustainable Growth Through Smart Innovation**

PRR Agendas Mobilizadoras para a Reindustrialização. € 77.575.052,73 (UTAD, € 7.875.653,67); 2021- 2025. Promotor: Gran Cruz Porto – Sociedade Comercial de Vinhos, Lda., 47 entidades, distribuídas por 22 empresas do setor, 16 empresas

tecnológicas, 9 ENESII (3 Associações); **Ana Briga-Sá** (Subprojeto B122 WEE4WINE (€ 200.718,00).

3. **ROCKinBIO- A biodeterioration model to predict biological impact on exposed rock surfaces and open-air rock-art**

FCT- 2022.04830.PTDC. 01/02/2023 - 1/01/2026. Associação Biopolis, Laboratório Hercules, Associação Viver Ciência, Fundação Côa Parque, Univ Oxford, UTAD; **Ana Briga-Sá**.

4. **E-FiELD - Distorções estruturais controladas por campo elétrico para dispositivos optoelectrónicos**

FCT- PTDC/NAN-MAT/0098/2020; 2021-03-29 - 2024-03-28. IFIMUP, FCUP. CQVR € 249.967,50 (UTAD, € 28.485,00); CQVR: **Pedro B. Tavares, José Ramiro Fernandes, Lisete Fernandes**.

5. **Solar-Powered Smart Windows for Sustainable Buildings (SOLPOWINS)**

FCT - PTDC/CTM/4304/2020; 2021 - 2024. € 249.285,88; CICECO, UBI, UA, (UTAD, € 66.875,00); **M.C. Gonçalves** (participant), **M. Fernandes** (participant), **R. Rego** (participant), **Verónica de Zea Bermudez** (Coordinator).

6. **Material's Research with Radioactive Isotopes and Nuclear Techniques at ISOLDE-CERN 2021**

FCT - CERN/FIS-NUC/0003/2021. ISOLDE-CERN 2021. 1st January 2023 to 31st December 2024. € 170.000,00 (UTAD, € 22.032); **Pedro Tavares** (UTAD), **José Ramiro Fernandes, Lisete Fernandes**.

III.3. Outputs

III.3.1. Patents

1. Methods for producing a cement paste, a mortar, and a concrete construction material by utilizing an aqueous sericin solution and respective construction materials, **A. Briga-Sá**, A. Jerónimo, T. Duarte, B. Loureiro, R.F.P. Pereira, **V. de Zea Bermudez**, WO/2024/095062

III.3.2. Book Chapters

1. Cristelo, N., Rivera, J., & Garcia-Lodeiro, I. (2024). New and more sustainable paths for the development of alkali-activated cements in: *The Path to Green Concrete*:

Woodhead Publishing Series in Civil and Structural Engineering, Elsevier, Pages 123-149, 1 January 2024. ISBN 978-0443191165-7, 978-044319166-4.
<https://doi.org/10.1016/B978-0-443-19165-7.00014-9>.

2. Figueiredo, G., Correia, S.F.H., Fu, L., de Zea Bermudez, V., Neto, A.N.C., André, P.S., & Ferreira, R.A.S. (2024). Luminescent solar concentrators: current and future applications in smart cities: in *Women's Contribution to F-element Science*, Jean-Claude G. Bunzli and Susan M. Kauzlarich, Eds.Elsevier, Part 2, Volume 66. Hardback ISBN 9780443313028. <https://doi.org/10.1016/bs.hpcr.2024.06.001>.
3. Fernandes, M. (2024). *Noite Europeia dos Investigadores em Armamar: palco da ciência em ambientes rurais*. ISBN 978-972-789-956-4, 20 Setembro. UA Editora. <https://doi.org/10.48528/vh3d-zx88>.
4. Monteiro, M., Santos, C., Matos, C., & Briga Sá, A. (Eds.). (2024). *Urban Green Spaces – Insights Into Different Solutions to Increase Urban Resilience*. IntechOpen. <https://www.intechopen.com/books/12866>.

II.3.3. Publications in journals of Journal Citation Reports

III.3.3.1. Q1 and Q2 Journals

1. Ait Bassou, A., Figueiras, F.G., Fernandes, J.R., & Tavares, P.B. (2024). Photo-ferroelectric oxides for photovoltaic applications: Insights, challenges and opportunities. **Appl. Mater. Today**, 41, 102465. Q1. <https://doi.org/10.1016/j.apmt.2024.102465>.
2. Amaral, S.I., Silva, F.A.L.S., Costa-Almeida, R., Timochenco, L., Fernandes, J.R., Sarmento, B., Gonçalves, I.C., Magalhães, F.D., & Pinto, A.M. (2024). Pharmaceutical formulations containing graphene and 5-fluorouracil for light-emitting diode-based photochemotherapy of skin cancer. **ACS Appl. Mater. Interfaces**, 16(4), 4333-4347. Q1. <https://doi.org/10.1021/acsami.3c13409>.
3. Branquinho, R., Briga-Sá, A., Ramos, S., Serôdio, C., & Pinto, T. (2024). Sustainable Irrigation Systems in Vineyards: A Literature Review on the Contribution of Renewable Energy Generation and Intelligent Resource Management Models. **Electronics**, 13(12), 2308. Q2. <https://doi.org/10.3390/electronics13122308>.
4. Barrias, S., Ibáñez, J., Fernandes, J. R., & Martins-Lopes, P. (2024). The role of DNA-based biosensors in species identification for food authenticity assessment. **Trends Food Sci Technol.**, 145, 104350. Q1. <https://doi.org/10.1016/j.tifs.2024.104350>.
5. Castro, M., Baptista, J., Matos, C., Valente, A., & Briga-Sá, A. (2024). Energy efficiency in winemaking industry: Challenges and opportunities. **Sci. Total Environ.**, 930. Q1. <https://doi.org/10.1016/j.scitotenv.2024.172383>.
6. Cruz, B.D.D., Pereira, N., García Díez, A., Botelho, G., Lanceros-Méndez, S., de Zea Bermudez, V., Correia, & D.M. (2024). Photoluminescent ionic liquid-poly(vinylidene fluoride) hybrid materials for UV-Vis filter applications. **SENSOR ACTUAT A-PHYS**, 376, 115623. Q1. <https://doi.org/10.1016/j.sna.2024.115623>.

7. Campos, M.T., Silva, F.A.L.S., Fernandes, J.R., Santos, S.G., Magalhães, F.D., Oliveira, M.J., & Pinto, A.M. (2024). New MoS₂/Tegafur-containing pharmaceutical formulations for selective LED-based skin cancer photo-chemotherapy. *Pharmaceutics*, 16(3), 360. Q1. <https://doi.org/10.3390/pharmaceutics16030360>.
8. Duarte, T.A.G., Pereira, R.F.P., Medronho, B., Maltseva, E.S., Krivoschapkina, E.F., Varela-Dopico, A., Taboada, P., Fu, L., Ferreira, R.A.S., & de Zea Bermudez, V. (2024). A glance at novel ionanofluids incorporating silk-derived carbon dots. *Chem. Mater.*, 36(3), 1136-1152. Q1. <https://doi.org/10.1021/acs.chemmater.3c01370>.
9. Fernandes, L., Fernandes, J.R., Nunes, F.M., & Tavares, P.B. (2024). Effect of drying temperature and storage time on the crispiness of homemade apple snacks. *J. Sci. Food Agric.*, 104(2), 916–931. Q2. <https://doi.org/10.1002/jsfa.12980>.
10. Gonçalves, A.S.C., Leitão, M.M., Fernandes, J.R., Saavedra, M.J., Pereira, C., Simões, M., & Borges, A. (2024). Photodynamic activation of phytochemical-antibiotic combinations for combatting *Staphylococcus aureus* from acute wound infections. *J. Photochem. Photobiolo. B: Biol.*, 258, 112978. Q2. <https://doi.org/10.1016/j.jphotobiol.2024.112978>.
11. Gomes, M.M., Manjunath, B., Vilarinho, R., Bassou, A.A., Silva, B., Oliveira, J., Çaha, I., Deepak, F.L., Almeida, B., Almeida, A., Kreisel, J., Tavares, P.B., Íñiguez, J., & Moreira, J.A. (2024). Structural percolation evolution throughout the metal-to-insulator transition in NdNiO₃. *Phys. Rev. B*, 109, 224109. Q2. <https://doi.org/10.1103/PhysRevB.109.224109>.
12. Matos, C., Castro, M., Baptista, J., Valente, A., & Briga-Sá, A. (2024). The use of water in wineries: A review. *Sci. Total Environ.*, 951, 175198. Q1. <https://doi.org/10.1016/j.scitotenv.2024.175198>.
13. Magalhães, L., Conde, O., Mesquita, L., Briga-Sá, A., & Ferreira, D.M. (2024). Evaluating the fire behaviour of cement-based lightweight materials with textile waste incorporation using a cone calorimeter. *Case Stud. Constr. Mater.*, 20, e02798. Q1. <https://doi.org/10.1016/j.cscm.2023.e02798>.
14. Manaviparast, H., Miranda, T., Pereira, E., & Cristelo, N. (2024). A Comprehensive Review on Mine Tailings as a Raw Material in the Alkali Activation Process. *Appl. Sci. (Basel)*, 14(12), 5127. Q2. <https://doi.org/10.3390/app14125127>.
15. Nunes, S.C., Nunes, P., Fernandes, M., Maia, A., Bacelar, E., Cruz, R., Boatto, A., Rocha, J., Casal, S., de Zea Bermudez, V., Crespí, A.L. (2024). *Crocasmia x crocosmiiflora*: leaf cuticle and bioclimatic variability. *Plant Biosyst.*, 158(6) 1468-1481. Q2. <https://doi.org/10.1080/11263504.2024.2424239>.
16. Pinheiro, C., Rios, S., Viana Fonseca, A., & Cristelo, N. (2024). Stabilisation of estuarine sediments with an alkali-activated cement for deep soil mixing applications. *J. Rock Mech. Geotech. Eng.*, 16(4), 1398-1410. Q1. <https://doi.org/10.1016/j.jrmge.2023.08.020>
17. Pinheiro, D., Pereira, R.F.P., Gonçalves, A., Correia, S.F.H., Silva, M.M., Fortunato, E., Gonçalves, M.C., Ferreira, R.A.S., & de Zea Bermudez, V. (2024). Electrochromic windows based on luminescent acrylate/ionosilicas. *J. Sol-Gel Sci. Technol.*, 114, 148-163. Q2. <https://doi.org/10.1007/s10971-024-06342-8>.

18. Pinheiro, D., Fernandes, M., Pereira, R.F.P., Pereira, S., Correia, S.F.H., Silva, M.M., Fortunato, E., Ferreira, R.A.S., Gonçalves, M.C., & de Zea Bermudez, V. (2024). NIR-emitting Electrochromic Windows for Cold Climate Region Buildings. **ChemElectroChem.**, 11(3), e202300479. Q2. <http://doi.org/10.1002/celec.202300479>.
19. Santos, F.M., Nunes, S.C., & de Zea Bermudez, V. (2024). Looking Beyond the Bio: Glycosaminoglycans as Attractive Platforms for Energy Devices and Flexible Electronics. **Energy Adv.**, 3, 1766-1843. Q2. <http://dx.doi.org/10.1039/d4ya00155a>.
20. Silva, S.F.V., Figueiredo, G., Pereira, R.F.P., de Zea Bermudez, V., Fu, L., André, P.S., Neto, A.N.C., & Ferreira, R.A.S. (2024). Time-Gated Multi-Dimensional Luminescence Thermometry via Carbon Dots for Precise Temperature Mobile Sensing. **Nanoscale**, 16, 20532-20541. Q1. <http://doi.org/10.1039/d4nr03155e>.
21. Silva, F.A.L.S., Timochenco, L., Costa-Almeida, R., Fernandes, J.R., Santos, S.G., Magalhães, F.D., & Pinto, A.M. (2024). UV-C driven reduction of nanographene oxide opens path for new applications in phototherapy. **Colloids Surf. B Biointerfaces**, 233, 113594. Q2. <https://doi.org/10.1016/j.colsurfb.2023.113594>.
22. Swetha, K., Samantaray, S., Silva, F.A.L.S., Silva, F.C., Freitas, B., Incorvia, J.A.C., Fernandes, J.R., Jayaraj, A., Banerjee, S., Sadananda Singh, N., Magalhães, F.D., Pinto, A.M., & Kurapati, R. (2024). Biodegradability of partially reduced nanographene oxide by human, plant and microbial enzymes: Impact of magnetic nanoparticles. **Carbon**, 229, 119486. Q1. <https://doi.org/10.1016/j.carbon.2024.119486>.
23. Sousa, C.M., Fernandes, J.R. & Coelho, P.J. (2024). Visible light radical photoinitiators of polymerization based on photochromic molecules. **Dyes and Pigments**, 226, 112139. Q2. <https://doi.org/10.1016/j.dyepig.2024.112139>.
24. Veloso, A.D., Videira, R.A., & Oliveira, M.C. (2024). Carbon nanomaterials with SOD-like activity: the effect of the ionic strength. **Molecules**, 29, 4098. Q1. <https://doi.org/10.3390/molecules29174098>.
25. Veloso, A.D., Ferraria, A.M., Botelho do Rego, A.M., Viana, A.S., Fernandes, A.J.S., Fielding, A.J., Videira, R.A., & Oliveira, M.C. (2024). Structural effects induced by dialysis based purification of carbon nanomaterials. **Nano Mater. Sci.**, 6(4) 475-483. Q1. <https://doi.org/10.1016/j.nanoms.2023.12.002>.
26. Ait Bassou, A., Fernandes, L., Fernandes, J.R., Figueiras, F.G., & Tavares, P.B. (2024). Growth and Structural Characterization of h-LuMnO₃ Thin Films Deposited by Direct MOCVD. **Materials**, 17, 211. Q2. <https://doi.org/10.3390/ma17010211>.
27. Jerónimo, A., Loureiro, M., Fernandes, M., de Zea Bermudez, V., & Briga-Sá, A. (2024). Antifungal Susceptibility Assessment of Innovative and Non-Conventional Lime Mortars Incorporating Almond-Shell Powder Bio-Waste Subjected to Particle Dispersion Technique. **Materials**, 17, 1426. Q2. <https://doi.org/10.3390/ma17061426>.

III.3.3.2. Q3 and Q4 Journals

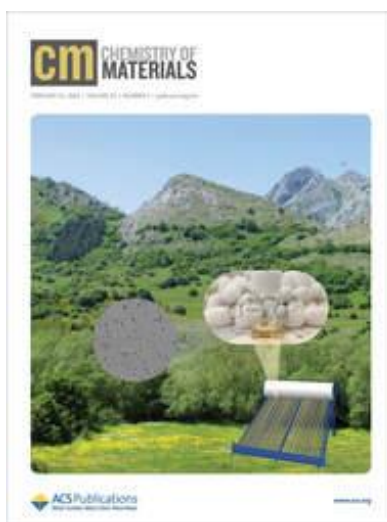
1. Jerónimo, A. Fernandes, M., & Briga-Sá, A. (2024). Experimental Study on the Potential Utilization of Olive Oil Production Wastes and By-Products as Building Materials. *Sustainability* 16(4), 1355. Q3. <https://doi.org/10.3390/su16041355>.
2. Figueiras, F.G., Fernandes, J.R.A., Silva, J.P.B., Alkin, D.O., Lourenço, A.C., & Tavares, P.B. (2024). Bi₂ZnTiO₆ Thin Films for Next-Generation Photovoltaics: Study of Material Properties Characterization and Deposition Conditions Optimization. *Thin Solid Films* 788, 140153, 1-9. Q3. <https://doi.org/10.1016/j.tsf.2023.140153>.

III.3.3.3. New Journals (Impact Factor pending)

1. Dias, L.M.S., Fu, L., Pereira, R.F.P., Neto, A.N.C., de Zea Bermudez, V., André, P.S., & Ferreira, R.A.S. (2024). Evolving photonic authentication with sustainable luminescent smart e-tags. *FlexMat*, 1, 116-126. <https://doi.org/10.1002/flm2.16>.
2. Fernandes, L., & Tavares, P.B. (2024). A Review on Solar Drying Devices: Heat Transfer, Air Movement and Type of Chambers. *Solar*, 4(1), 15-42. <https://doi.org/10.3390/solar4010002>.

II.3.3.4. Cover Picture

1. Duarte T. A.G., Pereira, R. F.P., Medronho, B., Maltseva, E. S., Krivoschapkina, E. F., Varela-Dopico, A., Taboada, P., Fu, L., Ferreira, R. A. S., de Zea Bermudez, V. . "A glance at novel ionanofluids incorporating silk-derived carbon dots". *Chemistry of Materials*, 36(3) (2024) 1136-1152. Q1. <https://doi.org/10.1021/acs.chemmater.3c01370>



II.3.3.5. Outside Back Cover

1. Silva S. F. V., Figueiredo, G. V., Pereira, R. F. P., de Zea Bermudez, V., Fu, L., André, P. S., Carneiro Neto, A. N., Ferreira, R. A. S. "Time-Gated Multi-Dimensional Luminescence Thermometry via Carbon Dots for Precise Temperature Mobile Sensing". *Nanoscale*, 16 (2024) 20532-20541. Q1. <http://doi.org/10.1039/d4nr03155e>



II. 3.3.6. Very Important Paper

1. Pinheiro, D., Fernandes, M., Pereira, R.F.P., Pereira, S., Correia, S.F.H., Silva, M.M., Fortunato, E., Ferreira, R.A.S., Gonçalves, M.C., & de Zea Bermudez, V. (2024). NIR-emitting Electrochromic Windows for Cold Climate Region Buildings. **ChemElectroChem.**, 11(3), e202300479. Q2. <http://doi.org/10.1002/celc.202300479>.

III.3.4. Publications in Proceedings

5. Bessa, I., Jerónimo, A., & Briga-Sá, A. (2024). *Análise do Potencial de Valorização de Cinzas de Carço de Azeitona na Produção de Argamassas de Cal*. **V Simpósio de Argamassas e Soluções Térmicas de Revestimento**. 11-12 julho, Coimbra, Portugal. ISBN 978-989-54499-5-8.
1. Briga-Sá, A., & Matos, C. (2024). *Identification of Influencing Factors of Energy and Water Consumption at the Residential End-use Level*. **ICoWEFS 2024 Sustainability**. 8-10 maio, Portalegre, Portugal. Lecture Notes on Multidisciplinary Industrial Engineering, Springer. https://doi.org/10.1007/978-3-031-80330-7_14.
2. Briga-Sá, A., Monteiro, C., Santos, C., & Matos, C. (2024). *The impact of green roofs on energy and water efficient management at the urban scale*. Atas da 2ª Edição da **CIECC – 2ª Conferência Internacional sobre Economia Circular**. 6-7 junho, S. Miguel, Açores. ISBN 978-989-96043-4-6, 201-209.
3. Briga-Sá, A., & Jerónimo, A. (2024). *Estudo Experimental do Comportamento Físico e Mecânico de Blocos de Base Cimentícia com incorporação de Bagaço de Azeitona*. Livro de Atas do **5.º Congresso Luso-Brasileiro de Materiais de Construção Sustentáveis**. 6-8 novembro, Lisboa, Portugal. Atas CERIS 01-2024, 1446-1466, ISBN 978-989-95625-9-2.
4. Jerónimo, A., Loureiro, M., & Gonçalves, D. (2024). *Experimental Study of hydraulic Lime Mortars incorporating Almond Shell Powder*. Livro de Atas da 2ª Edição da **CIECC - 2ª Conferência Internacional sobre Economia Circular**. 6-7 junho, S. Miguel, Açores. ISBN 978-989-96043-4-6, 237-246.

5. Luso, E., Cabello, I., Silva, R., & Briga-Sá, A. (2024). *An experimental analysis of the thermal performance of rammed earth walls*. Proceedings of REHABEND 2024 -10th Euro-American Congress on Construction Pathology, **Rehabilitation Technology and Heritage Management**, 7-10 May, Gijón, Spain. Pages 1172-1180.
6. Monteiro, C., Matos, C., Santos, C., & Briga-Sá, A. (2024). *Estudo experimental do desempenho higratérmico de uma cobertura verde extensiva com incorporação de argila expandida*. Livro de Atas do **5.º Congresso Luso-Brasileiro de Materiais de Construção Sustentáveis**. 6-8 novembro, IST, Lisboa, Portugal. Atas CERIS 01-2024, 1432-1439, ISBN 978-989-95625-9-2.
7. Matos, C., & Briga-Sá, A. (2024). *Energy to Water Nexus in Wastewater Treatment Plants*. **ICoWEFS 2024 Sustainability**. 8-10 maio, Portalegre, Portugal. Lecture Notes on Multidisciplinary Industrial Engineering, Springer. https://doi.org/10.1007/978-3-031-80330-7_13.
8. Soares, Soares, R.P., Gonçalves, R., Briga-Sá, A., Martins, J., & Branco, F. (2024). Bridging the Digital Divide: A Study on the Feasibility of Smart University Integration in Timor-Leste. WorldCIST 2024, 26 - 28 March, Lodz, Poland. Lecture Notes in Networks and Systems, Vol. 987. Springer, Cham. https://doi.org/10.1007/978-3-031-60221-4_29.

III.3.5. Oral Presentations at National and International Meetings

1. Barrias, S., Fernandes, J.R., & Martins-Lopes, P. (2024). *Development of a QCM-DNA biosensor applicable in wine authenticity*. **V International Meeting of the Portuguese Society of Genetics**, I3S, 7-8 October, Porto, Portugal. pp. 29.
2. Bessa, I., Jerónimo, A., & Briga-Sá, A. (2024). *Análise do Potencial de Valorização de Cinzas de Caroço de Azeitona na Produção de Argamassas de Cal*. **V Simpósio de Argamassas e Soluções Térmicas de Revestimento**, 11-12 julho, ITECONS, Coimbra, Portugal.
3. Briga-Sá, A., Monteiro, C., Santos, C., & Matos, C. (2024). *The impact of green roofs on energy and water efficient management at the urban scale*. CIECC, **2nd International Conference on Circular Economy in the Construction Sector - From Vision to Reality: Building Circular, Building Sustainable**, 6-7junho 2024, S. Miguel, Açores.
4. Briga-Sá, A., & Jerónimo, A. (2024). *Estudo Experimental do Comportamento Físico e Mecânico de Blocos de Base Cimentícia com incorporação de Bagaço de Azeitona*, **5.º Congresso Luso-Brasileiro de Materiais de Construção Sustentáveis**. 6-8 novembro, IST, Lisboa, Portugal.
5. Coelho, Paulo J., Fernandes, José R., & Sousa, Céu M. (2024). *New dual-color photoinitiators derived from photochromic naphthopyrans for 3D printing*. **15th National Organic Chemistry Meeting and 8th National Medicinal Chemistry Meeting**, 22-24 January, Universidade do Algarve, Faro, Portugal. KN8.
6. Duarte, T.A., Pereira, R.F., Medronho, B., Nunes, S.C., Maltseva, E.S., Krivoschapkina, E.F., Varela-Dopico, A., Taboada, P., Fu, L., Sá Ferreira, M.R., & de

- Zea Bermudez, V. (2024). *Sustainable Ionanofluids with Silk-Based Carbon Dots for Energy Harvesting and Saving*. **2024 MRS Fall Meeting, Symposium EN04** - Phase Change Materials for Energy Conversion and Storage, 1-6 December, Boston, USA.
7. Jerónimo, A., Loureiro, M., & Gonçalves, D. (2024). *Experimental Study of hydraulic Lime Mortars incorporating Almond Shell Powder*, CIECC, **2nd International Conference on Circular Economy in the Construction Sector** - From Vision to Reality: Building Circular, Building Sustainable, 6-7junho 2024, S. Miguel, Açores.
 8. Luso, E., Cabello, I., Silva, R., & Briga-Sá, A. (2024). *An experimental analysis of the thermal performance of rammed earth walls*. REHABEND 2024 -**10th Euro-American Congress on Construction Pathology, Rehabilitation Technology and Heritage Management**, 7-10 May, Gijón, Spain.
 9. Lima, E., Ferreira, O., Boto, R.E., Fernandes, J.R., Almeida, P., Silvestre, S.M., Santos, A.O., Reis, L.V. (2024). *High"light"ing dansylpiperazino-functionalized squaraine dyes for enhanced anticancer photodynamic purposes*. **15th National Organic Chemistry Meeting and 8th National Medicinal Chemistry Meeting**, 22-24 January, Universidade do Algarve, Faro, Portugal. OC28.
 10. Monteiro, C, Matos, C., Santos, C, & Briga-Sá, A. (2024). *Estudo experimental do desempenho higrótérmico de uma cobertura verde extensiva com incorporação de argila expandida*. **5.º Congresso Luso-Brasileiro de Materiais de Construção Sustentáveis**. 6-8 novembro, IST, Lisboa, Portugal.
 11. Nunes, P.J., de Zea Bermudez, V., & Fernandes M. (2024). *Advancements in sol-gel derived electrolytes for electrochromic devices*. **eMarathon ISGS**. 26 March (online).
 12. Nunes, P.J., de Zea Bermudez, V., & Fernandes, M. (2024). *Carbon dots from Agapanthus africanus: Boosting Quantum Yield in hybrid materials*. **CQ-VR Day 2024**, 25 October, UTAD, Vila Real, Portugal.
 13. Queijo, A.R., Frydel, L., Reis, A., Styszko, K., & Rego, R. (2024). *Emerging pollutants: a problem to be solved*. **36th Topical Meeting of International Society of Electrochemistry**, 26-29 May, Sibenik, Croatia.
 14. Veloso, A.D, & Oliveira, M.C. (2024). *Carbon nanomaterials with reducing properties generated from graphite anodes*. **XXVI Congresso SIBAE**, 20-23 Maio, Lisboa, Portugal.
 15. de Zea Bermudez, V. (2024). *PLENARY. Solar energy harvesting, conversion and management materials for architectural glazing*. **Sustainable Energy Solutions: Electrochromic Innovations, Energy Fuels Environment, EFE2024**. 26-28 June, Kraków, Poland.
 16. de Zea Bermudez, V. (2024). *Energia solar, janelas inteligentes e cidades sustentáveis*. **Nx Ciência às 5**, Espaço Miguel Torga, 25 september, São Martinho de Anta, Portugal.

III.3.6. Poster Presentations at National and International Meetings

III.3.6.1. International Meetings

1. Pinheiro, D., **Fernandes, M.**, Pereira, R.F.P., Pereira, S., Correia, S.F.H., Silva, M.M., Fortunato, E., Ferreira, R.S.S., **Gonçalves, M.C.**, de **Zea Bermudez, V.** (2024). *NIR-emitting Electrochromic Windows for Cold Climate Region Buildings*. **22nd International Sol-Gel Conference**, 1-6 September, Berlin, Alemanha.
2. Nunes, P., Pereira, R.F.P., Fu, L., Ferreira, R.A.S., **Fernandes, M.**, & **de Zea Bermudez, V.** (2024). *Sustainable organic/inorganic hybrids doped with carbon dots derived from African Lily leaves*. **22nd International Sol-Gel Conference**, 1-6 September, Berlin, Alemanha.
3. Nunes, P.J., Zając, W., Styszko, K., **de Zea Bermudez, V.**, & **Fernandes, M.** (2024). *Sustainable energy solutions: Electrochromic innovations*. **Energy Fuels Environment International Conference**, 26-28 June, Kraków, Poland.
4. **Silva, M.M.**, Nunes, P.J., Pinto, A., Nunes, S., de Zea Bermudez, V., & **Fernandes, M.** (2024). *Structural, thermal and electrochemical properties of di-ureasils doped with a sodium salt and ionic liquid*. **PRIME 2024** 6-11 October, Honolulu, Hawaii.

III.3.6.2. National Meetings

1. Pinto, A., Nunes, P.J., Nunes, S., Silva, M.M., **de Zea Bermudez, V.**, & **Fernandes, M.** (2024). *Development of new sodium-based electrolytes*. **3rd Summer School Materials for Energy Transition**, 22 July, Universidade de Aveiro, Aveiro, Portugal.
2. Ferreira, M., Pinto, A., Nunes, P., **de Zea Bermudez, V.**, Crespí, A.L., **Fernandes, M.** (2024). *Physico-chemical study of the surfaces of Magnolia grandiflora and Michelia figo leaves*. **XVI Jornadas de Bioquímica**, 16- 17 May, UTAD, Vila Real, Portugal. (2nd Best poster).

III. 4. Outreach Activities

III.4.1. Participation in National and International Organizations

1. Oliveira, M.C.; **XXVI Congresso SIBAE**, 20- 23 de Maio de 2024, Lisboa, Portugal.
2. de Zea Bermudez, V., **International Sol-Gel Conference**, Berlin, Germany, 01-06 setembro 2024, Membro da Comissão Científica

III.4.2. Participation in Decision-making Bodies

Evaluation of International Projects

1. de Zea Bermudez, V., Avaliação de 16 projetos da **National Science Centre of Poland** (Funding scheme SONATA), on-line, in-situ, 11-13 march, **2024**.

2. de Zea Bermudez, V., Avaliação de 20 projectos da **European Research Council (ERC) Synergy Grants 2024-2025**, on-line, December 2024.

III.4.3. Participation in Editorial and Special Issues of International Scientific Journals

Editorial and Associate Editor

1. **Catalyst**, Academic Editor: Pedro B. Tavares.
2. **Frontiers in Environmental Science** - Section Land Use Dynamics: Urban Nature-Based Solutions and Green Infrastructure as Strategies for Climate Change Adaptation, Topic Editor: Ana Briga Sá.
3. **Frontiers in Environmental Chemistry**, Review Editor: Pedro B. Tavares
4. **Eclética Química**, Editorial Board: V. de Zea Bermudez.
5. **Frontiers in Materials**, Associate Editor: V. de Zea Bermudez
6. **Frontiers in Materials** – Section Energy Materials, Associate Editor: V. de Zea Bermudez.
7. **Frontiers in Materials** – Section Ceramics and Glass, Associate Editor: V. de Zea Bermudez.
8. **Frontiers in Energy Research** – Section Electrochemical Energy Conversion and Storage, Review Editor: V. de Zea Bermudez.
9. **Frontiers in the Built Environment** – Section Geotechnical Engineering, Associate Editor: Nuno Cristelo.
10. **Geotecnia**, Editorial Board: Nuno Cristelo.
11. **Materiales de Construcción**, Assistant Editor: Nuno Cristelo.
12. **Journal of the Mechanical Behaviour of Materials**, Associate Editor: Nuno Cristelo.
13. **Frontiers in Chemistry** – Section Inorganic Chemistry, EPFL Science Park, Lausanne, Switzerland, Review Editor: V. de Zea Bermudez.
14. **Frontiers in Energy Research**, Review Editor: V. de Zea Bermudez.
15. **Journal of Materials in Civil Engineering**, Editorial Board: Nuno Cristelo
16. **Molecules**, Editorial Board: V. de Zea Bermudez.
17. **Journal of Sol-Gel Science and Technology**, Editorial Board: V. de Zea Bermudez.

Special Issue Guest Editor

1. **Built Environment and Sustainable Energy Efficiency**, Sustainability Guest Editors: João-Carlos Lazinha, Ana Briga-Sá, Pedro Brandão, Eduarda Luso. https://www.mdpi.com/journal/sustainability/special_issues/TFV6C48C6F.
2. **Emerging Topics in Future Energy Materials**, Special Issue: Rosa Rego. https://www.mdpi.com/journal/energies/special_issues/P898O1DEAF.
3. **For Sustainable Development: The Differences in Water and Energy Consumptions in Urban and Rural Environments**, Sustainability, Guest-Editor: Ana Briga-Sá. https://www.mdpi.com/journal/sustainability/special_issues/WECURE.
4. **New Trends in Construction Energy Efficiency and Sustainability in Buildings**, Energies. Guest Editor: Ana Briga Sá. https://www.mdpi.com/journal/buildings/special_issues/K38JV296HU.
5. **Recent Progress of Materials for Smart Windows**, Materials Guest Editor: M. Fernandes, V. de Zea Bermudez. https://www.mdpi.com/journal/materials/special_issues/UGVU9W8TMC.
6. **Recent Progress in Advanced Materials for Solid-State Lithium Batteries**. Coatings, Guest Editor Paula Barbosa, M. Fernandes. https://www.mdpi.com/journal/coatings/special_issues/Lithium_Batteries.
7. **Smart, Sustainable and Resilient Infrastructures**, Infrastructures. Guest Editors: Bruno Costa, Ana Evangelista, Assed Haddad, Diego Vasco, Ana Briga-Sá. https://www.mdpi.com/journal/infrastructures/special_issues/X8V7DQ1K0Yhttps://www.mdpi.com/journal/infrastructures/special_issues/X8V7DQ1K0Y.

III.4.4. Other Outreach Activities

1. Olimpíadas de Química Júnior, Abril 2024.
2. Olimpíadas de Química + , Abril 2024.

International Collaborations: Incoming and Outgoing Lab Visits and Training Stays

EPSRC National Research – EPR Spectroscopy /University of Manchester

Training stay: Oliveira, C. (2024). *Deteção EPR de radicais livres com sequestradores moleculares em nanomateriais de carbono gerados electroquimicamente*. 20-26 October 2024, Manchester, England.

Part IV - Organic Chemistry

IV.1. Advanced Education

IV.1.1. PhD students

Name	Diogo Alexandre Cartaxo Sousa
Supervisor	José Virgílio de Sousa Coelho Prata (ISEL/IPL/CQ-VR)
Co-Supervisor	Mário Nuno de Matos Sequeira Berberan e Santos (IST/UL/IBB)
PhD Programme	Chemistry - IST/UL
Starting Date	2019

Name	Eurico Emanuel Avelar de Serpa Vieira Lima
Supervisors	Lucinda Reis; Samuel M. Silvestre (UBI); Adriana O. Santos (UBI)
PhD Programme	Ciências Químicas e Biológicas
Starting date	2019

IV.1.2. PhD Thesis Concluded

Name	Eurico Emanuel Avelar de Serpa Vieira Lima
Title	Targeting photodynamic cancer therapy with squaraine cyanine dyes
PhD Programme	Ciências Químicas e Biológicas
Date	October 2024
Supervisors	Lucinda Reis; Samuel M. Silvestre (UBI); Adriana O. Santos (UBI)

Name	Diogo Alexandre Cartaxo Sousa
Title	Luminescent Carbon Dots from Wet Olive Pomace: Structural and Dynamic Studies
Supervisor	José Virgílio de Sousa Coelho Prata (ISEL/IPL/CQ-VR)
Co-Supervisor	Mário Nuno de Matos Sequeira Berberan e Santos (IST/UL/IBB)
PhD programme	Chemistry (IST/UL)
Conclusion Date	July 2024

IV.1.3. Master Thesis Concluded

Name	Mariana Garrido Conduto
Title	Pontos de Carbono a partir da Biomassa de Microalgas cultivadas em Resíduos Alimentares: Produção Sustentável, Bioatividade e Aplicação em Imagiologia
Master	Engenharia Biomédica
Date	20 de dezembro de 2024
Supervisors	Patrícia D. Barata (ISEL/IPL); Magda C. Semedo (ISEL/IPL)

IV.2. Projects

1. TNT4UV - Exploring new hybrid titanate nanotubular materials as UV shields for sustainable applications

FCT 2022.06165.PTDC. January 2023 - June 2024. José V. Prata (participant).

2. CN2NDots - Valorização de Resíduos do Processamento Industrial da Castanha na Síntese de Nanomateriais de Carbono Bioativos.

IPL (Total fund: € 5.000). CN2NDots /IPL/IDI&CA/2024. September 2024 - September 2025. Alexandra I. Costa (coordinator), Patrícia D. Barata.

3. Mic4BioDot - Valorização da Biomassa de Microalgas cultivadas em Resíduos Alimentares na Produção Sustentável de Pontos de Carbono com Atividade Biológica

IPL (Total fund: € 5.000). Mic4BioDot /IPL/IDI&CA/2023. September 2023 - September 2024. Patrícia D. Barata (coordinator), Alexandra I. Costa, José V. Prata.

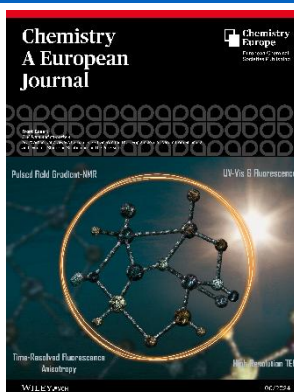
4. BioComCork - Produção de BioCompósitos a partir de resíduos das indústrias transformadoras da madeira

IPL BioComCork /IPL/IDI&CA/2023. September 2023 - September 2024. Alexandra I. Costa, Patrícia D. Barata.

IV.3. Outputs

IV.3.1. Publications in Q1 and Q2 Journals

1. **Sousa**, C.M., Fernandes, J.R., & **Coelho**, Paulo J. (2024). Visible light radical photoinitiators of polymerization based on photochromic molecules. **Dyes and Pigments**. 226, 112139. Q2. <https://doi.org/10.1016/j.dyepig.2024.112139>.
2. Sousa, D.A., Berberan-Santos, M.N., & **Prata**, J.V. (2024). Are “Carbon Dots” Always Carbon Dots? Evidence for their Supramolecular Nature from Structural and Dynamic Studies in Solution and in the Pure Solid. **Chem. Eur. J.**, 30, e202302955 (1 of 11). Q1. <https://doi.org/10.1002/chem.202302955>.



IV.3.2. Oral Presentations

1. **Lima**, E., Ferreira, O., Boto, R.E., Fernandes, J.R., Almeida, P., Silvestre, S.M., Santos, A.O., & Reis, L.V. (2024). High“light”ing dansylpiperazino-functionalized squaraine dyes for enhanced anticancer photodynamic purposes. **15th National Organic Chemistry Meeting & 8th National Medicinal Chemistry Meeting**, 22-24 January, University of Algarve, Faro, Portugal.
2. **Reis**, L.V., Lima, E., Costa, C., Fernandes, J.R., Boto, R.E., Almeida, P., Santos, A.O., & Silvestre, S.M. (2024). *In vitro* evaluation of new aminosquaraine dyes as potential photodynamic therapy photosensitizers for prostate cancer. **XXVIII Encontro Galego-Portugués de Química**, Fundación ABANCA, 13-15 November, Vigo, Spain.
3. **Coelho**, P. (2024). *New dual-color photoinitiators derived from photochromic naphthopyrans for 3D printing*. **15th National Organic Chemistry Meeting & 8th National Medicinal Chemistry Meeting**, 22-24 January, University of Algarve, Faro, Portugal.

IV.3.3. Poster Presentations at National and International Meetings

IV.3.3.1. International Meetings

1. Lima, E., Ferreira, O., Barroso, A., Boto, R.E.F., Fernandes, J.R., Almeida, P., Silvestre, S.M., Santos, A.O., & Reis, L.V (2024). *May the light be with us”: Light-induced toxicity of a picolylamine-squaraine dye for photodynamic purposes* **IV Jornadas Ibéricas de Toxicologia**, University of Beira Interior, 26-27 September, Covilhã, Portugal. <https://www.ubi.pt/Evento/22551>.
2. Antunes, B.G., Barata, P.D., Costa, A.I., Semedo, M.C., Martins, S., Lobo, M.L., Cardoso, F.M.H., & Prata, J.V. (2024). *Multi-Functional Carbon Dots from Tomato Waste for Antimicrobial, Antioxidant and Bioimaging Applications*. **Global Research Conference on Nanotechnology and Nanomaterials** (GRCNN2024), 24-26 Outubro, Barcelona, Espanha. <https://fosterresearch.org/2024/nanomaterials>.
3. Barata, P.D., Costa, A.I., Semedo, M.C., Martins, S., Conduto, M.G., Cardoso, H., Lobo, M.L., Cardoso, F.M.H., & Prata, J.V. (2024). *Microalgae-based Carbon Dots: Synthesis and Biological Applications*. **Global Research Conference on Nanotechnology and Nanomaterials** (GRCNN2024), 24-26 Outubro, Barcelona, Espanha. <https://fosterresearch.org/2024/nanomaterials>.
4. Barata, P.D., Costa, A.I., Semedo, M.C., Martins, S., Conduto, M.G., Cardoso, H., Cardoso, F.M.H., & Prata, J.V. (2024). *Synthesis and Applications of Bioactive Fluorescent Carbon Dots Based on Microalgae Biomass Cultivated with Food Waste*. **3rd International Conference on Materials and Nanomaterials** (MNs-24), Lisbon, 29-31 July, Instituto Superior de Engenharia de Lisboa, Lisboa, Portugal. <https://nanomaterials-europe.eu/>.
5. Borges, A.I., Barata, P.D., & Costa, A.I. (2024). *Recycling Chestnut Industry Waste in the Synthesis of Smart Carbon Nanomaterials*. **3rd International Conference on Materials and Nanomaterials** (MNs-24), Lisbon, 29-31 July, Instituto Superior de Engenharia de Lisboa, Lisboa, Portugal. <https://nanomaterials-europe.eu/>.
6. Conduto, M.G., Barata, Patrícia D., Costa, Alexandra I., Semedo, Magda C., Martins, S., Cardoso, H., Cardoso, F.M.H., & Prata, J.V. (2024). *Aplicação de Pontos de Carbono derivados de Biomassa de Microalgas cultivadas em Resíduos Alimentares como Sondas Fluorescentes em Imagiologia*. **XXVIII Encontro Galego-Português De Química** (XXVIII EGPQ) 13-15 -Novembro, Vigo, Espanha. <https://www.encontrogalegoportugues.org/event-details/xxviii-encontro-galego-portugues-de-quimica>.
7. Costa, A.I., Ludovino, M.R., Barata, P.D., Semedo, M.C., & Martins, S. (2024). *Produção de Pontos de Carbono Fluorescentes com Potencial Antioxidante a partir dos Ouriços da Castanha*. **XXVIII Encontro Galego-Português De Química** (XXVIII EGPQ) 13-15 Novembro, Vigo, Espanha. <https://www.encontrogalegoportugues.org/event-details/xxviii-encontro-galego-portugues-de-quimica>.
8. Costa, A.I., Barata, P.D., Semedo, M.C., Martins, S., & Borges, A.I. (2024). *Sensing of Hemic Proteins by Bright Carbon Nanomaterials from Chestnut Industry by-Products*. **Global Research Conference on Nanotechnology and Nanomaterials** (GRCNN2024), 24-26 October, Barcelona, Espanha. <https://fosterresearch.org/2024/nanomaterials>.

9. Marçalo, A.R., Semedo, M.C., Martins, S., Barata, P.D., Costa, A.I., Cardoso, F.M.H., Reboredo, F.H. (2024). *Composição e Bioatividade de Produtos Alimentares à Base de Algas Comercializados em Portugal*. **XXVIII Encontro Galego-Português De Química** (XXVIII EG PQ) 13-15 Novembro, Vigo, Espanha. <https://www.encontrogalegoportugues.org/event-details/xxviii-encontro-galego-portugues-de-quimica>.
10. Semedo, M.C., Barata, P.D., Costa, A.I., Martins, S., Conduto, M.G., Cardoso, H., Cardoso, F.M.H., & Prata, J.V. (2024). *In vitro Cytotoxicity Evaluation of Carbon Dots from Chlorella vulgaris Biomass obtained in different Hydrothermal Conditions*. **Global Research Conference on Nanotechnology and Nanomaterials** (GRCNN2024), 24-26 October, Barcelona, Espanha. <https://fosterresearch.org/2024/nanomaterials>.

IV.3.3.2. National Meetings

1. Vaz, M., Lima, E., Boto, R.E.F., Almeida, P., & Reis L.V (2024). *Síntese e caracterização de uma nova cianina aminoessáurilica conjugada com uma unidade de pireno*. **XVI Jornadas de Bioquímica**, University of Trás-os-Montes and Alto Douro, 14-16 May, Vila Real, Portugal.
2. Borges, Ana I., Barata, P.D., & Costa, A.I. (2024). *Síntese e Aplicações de Pontos de Carbono Fluorescentes a partir dos Ouriços das Castanhas*. **7º Simpósio de Produção e Transformação de Alimentos em Ambiente Sustentável**, 29 Maio, INIAV, Oeiras, Portugal.
3. Conduto, M.G., Costa, A.I., Semedo, M.C., Martins, S., Cardoso, H., Cardoso, F.M.H., Prata, J.V., & Barata, P.D. (2024). *Valorização da Biomassa de Microalgas cultivadas em Resíduos Alimentares para a Produção de Pontos de Carbono Fluorescentes*. **7º Simpósio de Produção e Transformação de Alimentos em Ambiente Sustentável**, 29 Maio, INIAV, Oeiras, Portugal.
4. Conduto, M.G., Costa, A.I., Semedo, M.C., Martins, S., Cardoso, H., Cardoso, F.M.H., Prata, J.V., & Barata, P.D. (2024). *Pontos de Carbono baseados em Biomassa de Microalgas cultivadas em Resíduos Alimentares: Síntese e Aplicações*. **IFEQB - Fórum de Engenharia Química e Biológica**, Instituto Superior de Engenharia de Lisboa, Instituto Politécnico de Lisboa, 7-10 Maio, Lisboa, Portugal.
5. Borges, Ana I., Barata, P.D., & Costa, A.I. (2024). *Valorização de Desperdícios da Indústria da Castanha na Síntese de Nanomateriais de Carbono*. **IFEQB - Fórum de Engenharia Química e Biológica**, Instituto Superior de Engenharia de Lisboa, Instituto Politécnico de Lisboa, 7-10 Maio, Lisboa, Portugal.
6. Marçalo, Ana R., Martins, S., Barata, P.D., Costa, A.I., Cardoso, F.M.H., Reboredo, F.H., Semedo, M.C. (2024). *Macroalgas Marinhas Comestíveis Comercializadas em Portugal: Avaliação da sua Composição e Propriedades Bioativas*. **7º Simpósio de**

Produção e Transformação de Alimentos em Ambiente Sustentável, 29 Maio, INIAV, Oeiras, Portugal.

IV. 4. Outreach Activities

IV.4.1 Participation in National and International Organizations

1. Costa, A.I. & Barata, P.D.: Organizing Committee Members of **II International Meeting Molecules 4 Life** (CQVR-UTAD) to be held from 10-12 September **2025**. <https://molecules4life-2025.events.chemistry.pt/>
2. **Paulo Santos**: Membro do Painel de Avaliação de Química e Engenharia Química do Concurso de Bolsas de Doutoramento 2024 - Fundação para a Ciência e a Tecnologia.

IV.4.2. Participation in Editorial Board and Special Issues of International Scientific Journals

Pharmaceuticals, Editorial Board: Paulo Santos.

Anticancer Compounds in Medicinal Plants - In Honour of the 20th Anniversary of Pharmaceuticals, Guest Editor: Paulo Santos.

Synthesis and Applications of Fluorescent Carbon Dots, Organics. Guest Editors: Patrícia D. Barata, Alexandra I. Costa.