



SILVANA MUNZI

CIUHCT – Centro Interuniversitário de História das Ciências e da Tecnologia
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CURRENT POSITION: Project manager of the ERC project “RUTTER – Making the word global”

I'm a biologist, working on lichens since 1997. Since then, I'm attending regularly national and international conferences, workshops and updating courses on several aspects of lichen symbiosis.

Firstly, I was focused on lichen systematic, collecting samples and taking care of the herbarium in the University of Roma Tre (Italy). I've also worked on molecular interactions between algal and fungal partners. Then, I started studying lichens as bioindicators and bioaccumulators. Argument of my degree thesis was the use of epiphytic lichens as biomonitors of environmental quality in Rome, and I took part in several biomonitoring surveys in different Italian regions. In 2005-2006, I spent some months in Crete (Greece), working on the effects of nitrogen excess on lichens. After that, I obtained a PhD scholarship at the University of Siena, where I developed my research on eco-physiological parameters in lichens under nitrogen stress. During my PhD, I spent 6 months at the Universidade de Lisboa (Portugal) to deepen some physiological aspects of lichens-nitrogen interaction.

After that, I've been involved in several projects focused on the impact of nitrogen on lichens and I worked for two years at the University of Lisbon as a Marie Curie fellow investigating the mechanisms of nitrogen tolerance/sensitivity in lichens. For the following 5 years, I was Assistant Researcher at the same institution focusing my research on the study of symbiotic systems, namely lichens and mycorrhizas, from a molecular and physiological point of view, aiming at understanding the mechanisms responsible for their ability to cope with environmental stresses. I also worked on biomonitoring (pollution, climatic change, nitrogen stress) with a focus on urban environment.

I'm currently manager of the RUTTER project focused on nautical rutters and ship's logbooks of XVI and XVII centuries. Aim of the project is to collect and analyse critical information contained in these technical documents and including elements of strict nautical nature, as well as information on oceanography, meteorology, geography, geophysics and the natural world. My scientific contribution to the project aims to analyse documents related to natural science.

LANGUAGE

Italian: mother tongue

English: fluent in written and spoken

Portuguese: fluent in written and spoken

WORK EXPERIENCE

1 November 2019 – ongoing - Project manager at the Centro Interuniversitário de História das Ciências e da Tecnologia (CIUHCT), Faculdade de Ciências da Universidade de Lisboa (Portugal).

30 July 2014-29 July 2019 - Researcher Assistant (FCT contract) at the Centre for Ecology, Evolution and Environmental Changes (cE3c), Universidade de Lisboa (Portugal).

April 2012-March 2014 - Researcher Assistant (Marie Curie fellowship) at the Centre for Ecology, Evolution and Environmental Changes (cE3c), Universidade de Lisboa (Portugal).

EDUCATION

- April 9, 2010 - PhD degree (*Doctor Europaeus*) in Environmental Science at the Scuola Superiore S.Chiera, University of Siena with the thesis “Sensitive organisms (lichens) as monitors of biological effects of nitrogen pollution”.
- July 14, 2003 - Laurea in Biology (110 cum laude) at the University of Roma Tre with the thesis “Biomonitoring of lichens diversity in Rome as air quality indicator”.

SCHOLARSHIPS RECEIVED

- November 2019-ongoing – Scholarship as a Project Manager of the ERC project RUTTER, Universidade de Lisboa (Portugal) funded from the European Research Council (ERC) under the European Union’s Horizon 2020 research and innovation programme (grant agreement No 833438).
- April 2012-March 2014 - Marie Curie Intra-European Fellowship for the project “REAL TUNE - Role of enzymatic activity in lichen tolerance under nitrogen stress” promoted by European Commission
- December 2011- February 2012 - Post-Doc scholarship under the framework “Modelação da Estrutura e Diversidade Funcional do Ecossistema como indicadores de alerta-precoce de Desertificação e Degradação do Solo – do nível regional para o local”, (PTDC/AAC-CLI/104913/2008) promoted by the Universidade de Lisboa (Portugal).
- 2010 – 2011 - Scholarship for the research "Estimated relapse of trace metal with LDI and bioaccumulation in lichen thalli". Promoted by the University of La Tuscia, Viterbo
- 2009 - Erasmus Scholarship. Promoted by the European Union and the University of Siena
- 2006-2009 - PhD Scholarship in the University of Siena. Promoted by the Italian Ministry of Education
- 2006 - Scholarship "Research in Italy and in foreign countries". Promoted by the University of Roma Tre (Rome, Italy)
- 2005 - Scholarship under the framework “Pythagoras II – Investigation of possible relationships between genetic diversity and abundance-distribution patterns of endemic plant species in Mediterranean Ecosystems”, supported by Educational Ministry of Greece and European Community

ATTENDED WORKSHOPS, TRAINING COURSES AND OTHER MEETINGS

- 21 November 2022 – Webinar "REINFORCE-ing citizen science in large research infrastructures - Delivery of a policy roadmap" organized by the REINFORCE project, online.
- 11 November 2022 - Workshop 'Comunicação de Ciência na Carreira Científica' organized by the NEWSERA (<https://newsera2020.eu/>) and ENJOI (<https://enjoiscicomm.eu/>) projects.
- 27 October 2022 – “Ciência Aberta: Acesso, colaboração e partilha” organized by the FCT, online.
- 20 October 2022 – “Empirical evidence on the characteristics of citizen scientists and what we can learn from it” organized by the CS Track project, online.
- 17 October 2022 – “Plastics Summit Global Event” organized by Associação Portuguesa Da Indústria De Plásticos – APIP, FIL, Lisbon, Portugal.
- 23 August 2022 – “Young People and Lichens: Part 2” organized by the British lichen Society, online.
- 15 July 2022 – “Specialized gut microbiota-host interactions in social bees” by Philipp Engel, a SymbNET seminar, online.
- 8 July 2022 – “MCAA Around the World Webinar Series - Bridging STEM and Humanities/Social Sciences Disciplines: Opportunities, Challenges, and Personal Experiences”, organized by MCAA, online.
- 7 July 2022 – “Open Session to the Public - Microbiota and Human Health”, organized by the Instituto Gulbenkian de Ciência, Fundação Calouste Gulbenkian, Lisbon.
- 7 July 2022 – “Understanding the psychology of “Impostor syndrome” in academia – what is it and what can be done?” organized by the ReMO COST action, online.
- 7 July 2022 – “Describing your citizen science project – How to present your project and recruit volunteers” organized by the CS Track project, online.
- June-July 2022 – “Beyond ERC” organized by Enspire Science and supported by the University of Lisbon, online.
- 23 June 2022 - Virtual training course on the administrative aspects of Horizon Europe grants “Module 3:

- Payments, administrative management of the project, reporting and reviews” organized by the SOILDarity project, online.
- 16 June 2022 – “Once SciComm a Time: Using Storytelling Techniques in Science Talks” by Affelia Wibisono, online.
- 10 June 2022 – “MCAA Around the World Webinar Series - Engaging kids in Science". Organized by MCAA, online.
- 20 May 2022 – “Rhyme your research” by Dr. Sam Illingworth. Organized by MCAA Italy Chapter, online.
- 20 May 2022 - "Doing science with children" by Dr. Gemma Musacchio. Organized by MCAA Italy Chapter, online.
- 19 May 2022 - “Citizen science and data sharing boosting large physics infrastructure research” Organized by the REINFORCE project, online.
- 18 May 2022 - 2nd "Entrepreneurial competences for researchers: Developing a business model" Workshop by Marco Masia, organized by the MCAA, online.
- 13 May 2022 - "MCAA Around the World Webinar Series - Science advice to policy makers" by Chloe Hill, online talk, online.
- 5 May 2022 – “Práticas Equitativas em Educação e Divulgação de Ciências" seminar organized by Carta com Ciência, online.
- 26 April 2022 – “Entrepreneurial competences for researchers” workshop by Marco Masia, organized by the Spain-Portugal chapter of the Marie Curie Alumni Association, online.
- 21 April 2022 - "Gendered Innovations: Enhancing Excellence in Science & Technology" by Londa Schiebinger, CIUHCT conference, online.
- 31 March 2022 – Module 3: The template, practical tools and approaches to the writing proposal phase. Workshop organized by the SOILDarity project, online.
- 24 March 2022 - Opening Research Infrastructures - How citizens can play an active role in the advance of ground-breaking research? Organized by the REINFORCE project, online.
- 24 March 2022 – Module 2. Research excellence training programme on how to develop international proposals for getting funds at EU level. Workshop organized by the SOILDarity project, online.
- 17 March 2022 – Module 1. Research excellence training programme on how to develop international proposals for getting funds at EU level. Workshop organized by the SOILDarity project, online.
- 18 February 2022 – “Copyright in collaborative projects”, presented by the European IP Helpdesk, online.
- 1 February 2022 – “Vamos falar de gestão de ciência – Preparação dos projetos FCT” organized by the PIC - Plataforma de Interface à Ciência, online.
- 21 January 2022 - Info session Research Infrastructures & Widening. Webinar organized by the SOILDarity project, online.
- 18 January 2022 - CitizensHack2022 Opening Seminar. Organized by Ultrahack.org, online.
- 17 January 2022 - Ciência, Pseudociência e Desinformação, for the seminars cycle “Como Dialogar com quem não quer ouvir: para lá da polarização e da desinformação”. Organized by the Seminário de Jovens Cientistas of the Academia das Ciências de Lisboa, online.
- 20 December 2021 - My data are your data - How FAIR and share can boost scientific discovery. Webinar organized by BioData.pt, online.
- 16 December 2021 - Democracia, Ciência e Polarização Política, for the seminars cycle “Como Dialogar com quem não quer ouvir: para lá da polarização e da desinformação”. Organized by the Seminário de Jovens Cientistas of the Academia das Ciências de Lisboa.
- 4 and 11 December 2021 –Training School “Low-cost science video: from production to communication” under the project “EVOKE - Evolutionary Knowledge for Everyone”.
- 28 October 2021 – Workshop “How soil science contributes to achieving the Sustainable Development Goals” organized by the SOILDarity project (Twinning project n. 952051).
- 25-28 October 2021 – Online course “Basics in Light Microscopy” organized by the FCUL Microscopy Facility, Universidade de Lisboa.
- 5 October 2021 - Info Session on the Horizon Results Booster, online.
- 28-30 September 2021 – “Assessing Multi-Taxon Diversity in Forest Ecosystems” training school organized by the COST Action CA18207, Arezzo (Italy).
- September 2021 – Online training for the program “Cartas com Ciência”.
- 19-23 July 2021 – “Optimisation of the use of treated wastewater as a source for alternative fertilisers” training school organized by the SOILDarity project (Twinning project n. 952051).
- 7 May 2020 – Workshop “Green and blue infrastructure for urban sustainability in cE3c” organized by the

- UrbanLab of cE3c, online event, Universidade de Lisboa.
- 27 April 2021 - “Women empowerment, responsible research and innovation”, organized by the Twinning project SOILDarity, online event, Universidade de Lisboa.
- 17 February 2021 - [Research Smarter] Last updates about Web of Science, Clarivate support. Online event.
- 29-31 January – General assembly and annual meeting, organized by the British Lichen Society. Online.
- 15 December – 2 February 2021 – “Licheni a portata di click” online course organized by the Italian lichen Society.
- 7-11 September 2020 - Advanced course “Science and the media - bringing together scientists, journalists and society”, organized by the cE3c at the Universidade de Lisboa, online event.
- 16 July 2020 – Online session about “Horizon 2020: European Green Deal Call” organized by the Agência Nacional de Inovação.
- 23 June 2020 – COST info day, online session.
- 30 December 2019 and 18 January 2020 – Workshop “Quiosque do Conhecimento”, co-creation workshop for the development of a dialogue tool between science and society. Museu Nacional de História Natural e da Ciência da Universidade de Lisboa.
- 11-15 November 2019 – Advanced course “Production of Science Communication Activities”, organized by the cE3c at the Universidade de Lisboa.
- 8-9 July 2019 – Ciência 2019 - Encontro com a Ciência e Tecnologia em Portugal.
- 2 July 2019 - Science in the news: promoting more dialogue between scientists & journalists. Held by Marta Santos, cE3c communication office.
- 18-22 February 2019 - Data exploration, regression, GLM & GAM with introduction to R. Held by Dr. Alain F. Zuur, Highland Statistics Ltd.
- 31 January 2019 – Training session about the platform CIÊNCIAVITAE, Universidade de Lisboa.
- 14 December 2018 – Training session about the funding program FETOpen, Enspire Science, Universidade de Lisboa.
- 12 December 2018 - Training session about the funding program ERC, Enspire Science, Universidade de Lisboa.
- 28-29 June 2018 – Workshop with the working group on biomonitoring of the Italian Lichen Society for the definition of a standard protocol for bioaccumulation using lichens.
- 9 May 2018 – Workshop of presentation and public discussion of the FCT agenda for research and innovation “Agroalimentar, florestas e biodiversidade”, INIAV, Oeiras (Portugal).
- 12-13 April 2018 – Workshop with the working group on biomonitoring of the Italian Lichen Society for the definition of a standard protocol for bioaccumulation using lichens.
- 28 March 2018 – “Nitrogen Cycle Workshop – Biochemistry, Environmental Impacts and Biotechnological Applications”, Universidade Nova de Lisboa.
- 21 March 2018 – “Formação Scopus” and “SciVal essentials” with Scopus and Elsevier consultants, Universidade de Lisboa.
- 18-19 January 2018 – Workshop with the working group on biomonitoring of the Italian Lichen Society for the definition of a standard protocol for bioaccumulation using lichens.
- 9 October 2017 - Workshop “Nitrogen in soil, water and GHG” under the project NitroPortugal, Évora (Portugal).
- 19-28 February 2017 – Short term mission at the Centre for Ecology and Hydrology, Edinburgh, Scotland, to learn the AMFIA method for ammonia determination under the project NitroPortugal.
- 20 October 2016 - 1ª Colégio F3 - Food, Farming and Forestry annual conference “Produção e consumo de leguminosas: un passado com futuro?”, Universidade de Lisboa (Portugal).
- 10-14 October 2016 – 3rd GreenInUrbs Training School “From Brownfields to Green infrastructure and urban forests”, organized by the COST Action GreenInUrbs, Duisburg (Germany).
- 22 September 2016 - “Vamos à Fava! Leguminosas em Letras”, organized by the “Colégio F3 - Food, Farming and Forestry”, Lisbon (Portugal).
- 14 October 2015 - Mini-Curso de Microscopia Electrónica de Bancada, organized at the Universidade de Lisboa by Scansci – Equipamentos de Laboratório, Lda, Lisbon (Portugal).
- 7 October 2015 – Seminar “Horizonte 2020 Aspectos Legais e Financeiros”, Universidade de Lisboa (Portugal).
- 13 February 2015 - Workshop “LTsER Montado”, Universidade de Lisboa (Portugal).
- 24-28 November 2014 – Advanced course “R without fear: an R course in evolutionary ecology” organized by CBA at the Universidade de Lisboa (Portugal) and directed by Dr Jordi Moya-Laraño (Estación

Experimental de Zonas Áridas - CSIC).

- 17 July 2014 – Workshop “Science in2 Business” organized by Tec Labs – centro de inovação, Campus da FCUL, Universidade de Lisboa (Portugal).
- 3 April 2014 - Porque devemos preservar a biodiversidade? Uma análise etica da conservação, Universidade de Lisboa (Portugal).
- 25 February 2014 – COST ES1104 Workshop on Desertification & Restoration, Universidade de Lisboa, Lisbon (Portugal).
- 8 October 2013 – “Strategies to increase the quality and the impact of scientific publications” organized by Elsevier and the Universidade de Lisboa, Lisbon (Portugal).
- 22-24 May 2013 – Studied techniques of mycobiont isolation with Prof. Peter Crittenden, University of Nottingham (UK).
- 27 February 2013 – Workshop “Boas práticas em gestão de resíduos e segurança m laboratorio”, Faculdade de Ciências da Universidade de Lisboa (Portugal).
- 15-19 February 2013 – International “Training course in meta-analysis and systematic reviews” organized by CBA at the Universidade de Lisboa (Portugal) and directed by Prof. Dr Jessica Gurevitch (University of New York).
- 19-21 November 2012 – International course “Downscaling isoscapes to community level” held at the University of Lisbon (Portugal).
- 10-15 September 2012 - International workshop “Ecophysiology Techniques Workshop” organized by the British Ecological Society and Society for Experimental Biology and held in Lisbon (Portugal).
- 17 December 2011 – International Meeting on the development of “Urban and peri-urban Forestry Guidelines for Mediterranean region” organized by FAO and the Italian Academy of Forest Science and held in Florence (Italy).
- 16 December 2011 – International workshop “Guidelines and common routes for the future challenges of Urban and Peri-urban forests in Mediterranean cities”, Florence (Italy).
- 24-27 January 2011 – Training course “Introduction to geometric morphometrics applied to botany” held in Isernia (Italy) and organized by the University of Molise.
- 22-26 June 2009 - Workshop “Towards an international standard for lichen monitoring – what’s the application problems?” held in Monterotondo Marittimo (Grosseto, Italy) and organized by TerraData.
- 14-16 November 2008 - Training course on lichen genus *Anaptychia* Körb., *Heterodermia* Trevis., *Phaeophyscia* Moberg, *Physcia* (Schreb.) Michx. and *Physconia* Poelt with Prof. R. Moberg (University of Uppsala) and organized by Bryolich, Swiss Association of briology and lichenology.
- 29-30 November 2007 - Meeting of the Italian Lichenological Society working group on biomonitoring “Determination of Biological Index of Epiphytic Lichens”, held in Foiano della Chiana (Arezzo, Italy).
- 28-30 June 2007 – Meeting on intercalibration of instruments used to measure photosynthetic activity, held in Passo Pura (Udine, Italy) and organized by the University of Florence.
- 10-16 June 2007 - “*Bacidia* and *Micarea*” workshop held by Brian Coppins and organized by the British Lichen Society in the Dunstaffnage Marine Laboratory, Oban (Scotland).
- 27-28 October 2006 - Participant in the scientific meeting of the working groups on Floristics, Nature Conservancy and Micology of the Italian Botanical Society on “Implementation in Italy of categories and criterion IUCN (2001) for new red lists creation”, held in Rome.
- 12-16 June 2006 - Training course “The use of lichens in environmental biomonitoring surveys”, held in Candriai (Trento, Italy) and organized by the Italian Lichen Society, Botanical Society and Istituto Agrario di San Michele all’Adige.
- 12 -13 November 2005 - Workshop “The genus *Usnea* in Switzerland” organized by the Swiss Association of Bryology and Lichenology (Bryolich) in Lugano and directed by Philippe Clerc.
- 16-17 March 2005 - Seminar “L’immagine... svelata... - Fluorescence Microscopy in Life Science and not: from the acquisition to the restitution”, organized by the Electronic Microscopy Center (Ce.M.E.) of CNR in Sesto Fiorentino (Firenze, Italy)
- 24-25 February 2005 - Workshop on Biomonitoring “Critical aspects in the interpretation of biomonitoring data with lichens” held in Genova and organized by the Italian Lichenological Society.
- 18 November 2004 - Workshop on “Vegetal bioindicators for the environmental complexity” organized by the Italian Botanical Society and held in Bologna (Italy).
- 13-18 September 2004 - Specialization course on “DNA Analysis Techniques in Lichenology” with Prof. Martin Grube, Institute of Botany, Karl-Franzens-University (Graz), organized by Italian Lichen Society with University of Trieste.

- 26-27 March 2004 - Workshop on Biomonitoring held in Trento and organized by the Italian Lichen Society.
- 24-27 February 2004 - Specialization course on “Histological and histochemical techniques in Lichenology”, organized by the Italian Lichen Society and held in Genova by Prof. Paolo Modenesi (DIP.TE.RIS., University of Genova).
- 10 December 2003 - Participated in seminar “Index of Lichen Diversity – Methodological instruments and applications” organized by the Centro Tematico Nazionale Atmosfera Clima Emissioni with ARPA (Regional Agency for Environment Protection) Lazio in Rome (Italy).

SUPERVISORY EXPERIENCE

Post-doc researchers

- 2019-2022 – Supervising the Marie Skłodowska-Curie Individual Fellowship project “Assessing the interactive effects on N addition and climate change on soil processes through the biological soil crust in Mediterranean ecosystems” at the Universidade de Lisboa (Portugal).
- September 2021 – February 2022 – Supervisor at the Universidade de Lisboa of Viviana Maresca, postdoc for the “Wood vinegar for sustainable agriculture” grant under the program “GoForIT” funded by Fondazione CRUI (Italy) in collaboration with the University of Siena.
- 02-08 July 2021 - Supervising prof. Sonia Ravera in an Erasmus+ training period at the Universidade de Lisboa (Portugal).
- 20 July - 9 August 2019 – Supervising a visiting post-doc during an EMBO short-term fellowship at the Universidade de Lisboa (Portugal).
- 23 June – 12 July 2014 - Supervising a post-doc fellow during the STSM number ES1104-15661 under the COST action “Arid Lands Restoration and Combat of Desertification”.
- 13 January-15 February 2014 - Supervising a post-doc fellow during the STSM number ES1104-15661 under the COST action “Arid Lands Restoration and Combat of Desertification”.

PhD students

- 2016- 2019 – Co-supervisor of a PhD student of the Università del Molise (Italy).
- November 2017 – March 2018 - Supervising an Erasmus PhD student from the Università del Molise (Italy).
- August-September 2017 – Supervising an Erasmus PhD from the Università di Sassari (Italy).
- February 2014-June 2017 - Co-supervising a PhD student of the Università di Sassari (Italy).
- 6 June-6 August 2016 – Supervising a PhD student from the Università del Molise (Italy) during an Erasmus TUCEP training period.

Graduate students/Msc

- April 2021 – May 2022 – Co-supervising Veronica Castellari for her thesis work “Studio della relazione tra risposte fisiologiche, tratti funzionali e stress abiotici nei licheni” in “Interazione piante-ambiente e biomonitoraggio”. Defended on 26 May 2022 at the università di Bologna.
- 29 July – 30 September 2021 - Supervising two Erasmus students (Marta Zambelli and Valentina Caradonna) from the Università di Viterbo at the Universidade de Lisboa (Portugal).
- April – June 2021 Supervising Veronica Castellari, an Erasmus student from the Università di Bologna at the Universidade de Lisboa (Portugal).
- 16 December 2019 - 15 March 2020 – Supervising a graduate fellow under the program “Comprehensive Qualifications and Employment Programme (PICE)” (Spain).
- 24 April 2019 – 29 July 2019 - Supervising Catarina Gouveia (Master degree) at the Faculdade de Ciências da Universidade de Lisboa for research under the project “The secret of a winning strategy: common mechanisms in different symbioses”.
- 15 May 2017 - March 2018 - Supervising Catarina Gouveia (Master degree) at the Faculdade de Ciências da Universidade de Lisboa for research under the project “The secret of a winning strategy: common mechanisms in different symbioses”.
- 18 December 2015-18 December 2016 - Supervising Catarina Gouveia (Master degree) at the Faculdade de Ciências da Universidade de Lisboa for research under the project “The secret of a winning strategy: common mechanisms in different symbioses”.
- 16 January 2012-1 June 2012 - Supervisor of Mauro Lo Cascio (graduate student) in the University of Lisbon under the framework “Porta la Laurea in Azienda” promoted by the University of Genova (Italy).

Undergraduate students

- February- June 2020 – Supervising a student in the course “Estudo orientado” in Molecular Biology and Genetics at the Universidade de Lisboa (Portugal).
- June-July 2019 – Supervising a fellowship under an agreement protocol with the University of Viterbo (Italy).
- July – September 2018 - Supervising an Erasmus student from the Università di Viterbo (Italy).
- February- June 2018 – Supervising two students in the course “Estudo orientado” in Molecular Biology and Genetics at the Universidade de Lisboa (Portugal).
- April – June 2018 - Supervising an Erasmus student from the Università di Bologna (Italy).
- 01 July – 31 August 2017 - Supervising 3 Erasmus students from the Università di Viterbo (Italy).
- March-July 2017 – Supervising an Erasmus student from the University of Zagreb (Croatia).
- February- June 2017 – Supervising two students in the course “Estudo orientado” in Molecular Biology and Genetics at the Universidade de Lisboa (Portugal).
- February-July 2016 – Co-supervising two students in the course “Estudo orientado” in Molecular Biology and Genetics at the Universidade de Lisboa (Portugal).
- March-June 2015 – Co-supervising a student of “Estudo orientado” in Molecular Biology and Genetics, Universidade de Lisboa (Portugal).
- May 2013-January 2014 – Supervising a CBA volunteer internship.
- May 2013- Co-supervisor in the STSM “Use of lichens as ecological indicators of atmospheric nitrogen deposition and organic pollutants” under the COST Action TD1105.
- 2007 - Supervised two students in the University of Siena (Italy) in developing their degree thesis on lichen physiology.

TEACHING EXPERIENCE

Realized and ongoing

- 07-11 February 2022 - Organized and taught in the cE3c advanced course “Until death do us apart: living in a symbiotic world” third edition. Universidade de Lisboa (Portugal).
- 12-16 July 2021 - Organized and taught in the cE3c advanced course “Speaking “nature”: Methods for measuring the impact of environmental pollution on ecosystems”. Universidade de Lisboa (Portugal).
- 08-12 February 2021 - Organized and taught in the cE3c advanced course “Until death do us apart: living in a symbiotic world” second edition. Universidade de Lisboa (Portugal).
- 03-07 February 2020 - Organized and taught in the cE3c advanced course “Until death do us apart: living in a symbiotic world”. Universidade de Lisboa (Portugal).
- 2014-2019 – Lecturer in the Ecology course at the Universidade de Lisboa (Portugal).
- June 2018 – Teaching at the cE3c advanced course “Stable isotopes in Ecology and Environment: a tool to integrate scales and complexity”, Faculdade de Ciência da Universidade de Lisboa (Portugal).
- 10-14 July 2017 – Organized and taught in the cE3c advanced course “Lichens as a tool for interpretation of environmental changes and management” 5th edition. University of Lisbon (Portugal).
- 15-26 May 2017 – Teaching in the Training school “Global and long-term effects of nitrogen on ecosystems”, Universidade de Lisboa, Portugal, under the project NitroPortugal.
- 26-28 September 2016 – Teaching at the “International Lichenology course and workshop: Lichens as a tool for air pollution research”, University of Zagreb, Croatia.
- 11-15 July 2016 – Organized and taught in the cE3c advanced course “Lichens as a tool for interpretation of environmental changes and management” 4th edition. University of Lisbon (Portugal).
- 9-13 June 2015 – Organized and taught in the cE3c advanced course “Lichens as a tool for interpretation of environmental changes and management” 3rd edition. University of Lisbon (Portugal).
- 27-31 January 2014 – Organized and taught in the CBA advanced course “Lichens as a tool for interpretation of environmental changes and management” 2nd edition. Universidade de Lisboa (Portugal).
- 28 January -1 February 2013 – Organized and taught in the CBA advanced course “Lichens as a tool for interpretation of environmental changes and management” 1st edition. University of Lisbon (Portugal).
- 4-8 May 2009 - Taught in the training course “Epiphytic lichens as biomonitors of air quality” - Montecatini Terme, organized by the Regional Environmental Protection Agency of Tuscany (Italy).
- 24-27 May 2009 - Taught in a university training course on analytical methods in lichen physiology

organized by the University of Siena (Italy).

June 2009 - Gave a cycle of lectures, labs and field training on lichen determination and the use of lichens as biomonitors in a course organized by the University of Siena (Italy).

ORGANIZATION OF SCIENTIFIC MEETINGS

- Organizer of the Working Group and Management Committee meeting under the COST Action “European Soil-Biology Data Warehouse for Soil Protection” (CA18237), Universidade de Lisboa, Lisbon, Portugal, 5-8 September 2022.
- Organizer of the COST action BOTTOMS-UP training school “Field sampling for multi-taxon biodiversity studies in European forests”, Universidade de Lisboa and Serra de Aire e Candeeiros, Lisbon, Portugal, 20-22 June 2022.
- Book launch “Magellano – Il primo viaggio intorno al mondo” with David Salomoni, Henrique Leitão and Alessandra Bilotta. Caleidoscopio room, Universidade de Lisboa, Lisbon, Portugal, 3 May 2022.
- Member of the organizing committee of the 2022 MCAA Annual Conference and General Assembly, Lisbon, Portugal, 26-27 March 2022.
- Member of the organizing committee of “Pint of Science 2022”, 9-11 May 2022 (<https://pintofsciencept.wixsite.com/2020/equipa-lisboa>).
- Member of the organizing committee of the World Symbiosis Day Webinar “Symbiosis - When living together is a win-win”, 30 July 2020.
- Organizer of the kick-off meeting of the ERC project RUTTER, Universidade de Lisboa, Lisbon, 17 January 2020.
- Member of the scientific and organizing committee of the third “Committee on Air Pollution Effects Research in Mediterranean Environment” meeting held in Pamplona, Spain, 20-21 June 2018.
- Member of the scientific and organizing committee of the second “Committee on Air Pollution Effects Research in Mediterranean Environment” meeting held in Brescia, Italy, 28-30 June 2016.
- Member of the scientific and organizing committee of the 8th Congress of the International Symbiosis Society held in Lisbon, Portugal, 12-18 July 2015.
- Member of the organizing committee of annual national congresses of the Italian Lichen Society held at Siena (Italy), 13-14 September 2007, Rome (Italy), 2-5 October 2012 and Montecatini Terme (Italy), 15-17 October 2014.
- Member of the organizing committee of the first “Committee on Air Pollution Effects Research in Mediterranean Environment” meeting held in Lisbon, Portugal, 3-4 July 2014.
- Member of the organizing committee of the post-docs meeting “Time for Science”, 1 June 2012, University of Lisbon (Portugal).
- Organizer of the excursion to Oasi di Burano in cooperation with the Italian Lichen Society and the Italian Botanical Society, 2010.
- Member of the organizing committee of the meeting of the Italian Lichenological Society working group on biomonitoring “Determination of Biological Index of Epiphytic Lichens”, Foiano (Italy), 2007.
- Secretariat at the Biomap 4 - 4th International Workshop on Biomonitoring of Atmospheric Pollution, Agios Nikolaos, Greece, 2006.

EVALUATION ACTIVITIES

- External expert for the evaluation of the educational system in Portugal for the year 2021 by the Inspeção-Geral da Educação e Ciência.
- Project evaluator for the Polish Science Foundation (2021).
- Project evaluator for the Czech Science Foundation (2019 and 2021).
- Evaluator of book proposals for CRCPress (2019).
- Evaluator of the PhD thesis “Use of tree bark to study the distribution and concentration of trace elements in the atmosphere”, Università di Genova (2017).

EDITING AND REVIEWING ACTIVITIES

- Guest editor of the Special Issue “Terrestrial Ecosystem Nitrogen Fluxes via the Atmosphere-Land System”, in Frontiers journals (published in 2022).
- Editor of the scientific journal “Borziana - Mediterranean Journal of Cryptogamy” ISSN 2724-5020 (2020-ongoing).
- Editor of the scientific journal “Symbiosis” (2015-ongoing).
- Reviewer for the scientific journals (<https://www.reviewerrecognition.elsevier.com/#/profile/aef648c0-5d82-46e5-b96b-d904897e8c9f>): Acta Agriculturae Scandinavica, Acta Physiologiae Plantarum, American Journal of Agricultural and Biological Sciences, Biologia- Bratislava, Ecotoxicology and Environmental Safety, Environmental and Experimental Botany, Environmental Monitoring and Assessment, Environmental Pollution, Environmental Science and Pollution Research, Forest Ecology and Management, International Journal of Biodiversity and Conservation, Journal of Arid Environment, Landscape Research, Lichenologist, Plant Biosystems, Saudi Journal of Biological Sciences, Waste Management, Water, Air, & Soil Pollution (2011-2016); Acta Botanica Croatica, Biologia-Bratislava, Environmental Monitoring and Assessment, Ecological Indicators, Journal of the Air & Waste Management Association, Water, Air, & Soil Pollution (2016); Environmental and Experimental Botany, Environmental Monitoring and Assessment, Environmental Science and Pollution Research, Science of the Total Environment, Symbiosis (2017); Atmospheric Pollution Research, Basic and Applied Ecology, Chemosphere, Environmental Monitoring and Assessment, Science of the Total Environment, Urban Forestry & Urban Greening (2018); Atmospheric Pollution Research, Chemosphere, Environmental Pollution, Environmental Science and Pollution Research, Scientific Reports, SN Applied Sciences, Symbiosis (2019); Diversity; Ecological Indicators; Environmental Monitoring and Assessment; Forest Ecology and Management; International Journal of Research in BioSciences; Lichenologist; Microorganisms; Borziana - Mediterranean Journal of Cryptogamy; Science of the Total Environment (2020); American Journal of Agricultural and Biological Sciences; Borziana - Mediterranean Journal of Cryptogamy; Flora; Fungal Biology; Journal of Arid Environments; Phytion-International Journal of Experimental Botany; Symbiosis; Science of the Total Environment (2021); Environmental Science and Pollution Research; Journal of Environmental Management; Plants (2022).

SCIENTIFIC SOCIETIES MEMBERSHIP

- Member of the International Association for Lichenology (August 2021-ongoing).
- Member of the British Lichen Society (January 2021-ongoing).
- Member of the IDA working group of the Marie-Curie Alumni Association (November 2019-ongoing).
- Member of the Spanish-Portuguese chapter of the Marie-Curie Alumni Association (November 2019-ongoing).
- Member of the International Symbiosis Society (2015-ongoing).
- Member of the Italian Lichen Society (1998-ongoing).

COMMITTEES’ COORDINATION AND MEMBERSHIP

- Dissemination grant manager and member of the core group of the Management Committee of the COST action CA21138 “Joint effects of CLimate Extremes and Atmospheric depositioN on European FORESTs (CLEANFOREST)” (October 2022-ongoing).
- Co-chair of the Communication Committee of the International Association for Lichenology (November 2021-ongoing).
- Member for Portugal and member of the core group of the Management Committee of the COST action CA18207 “Biodiversity of temperate forest taxa orienting management sustainability by unifying perspectives” (August 2020-ongoing).
- Coordinator of the internship program of the ERC project RUTTER (<https://www.rutter-project.org/internship-program.html>) (September 2020-ongoing).
- Short-Term Scientific Mission Coordinator of the COST Action CA18207 “Biodiversity of temperate

- forest taxa orienting management sustainability by unifying perspectives” (July 2021-ongoing).
- Member of the Executive Committee and Secretary of the International Symbiosis Society (July 2018-September 2022).
- Coordinator of the scientific committee of the International Biology Olympiad, 2021 (<https://ibo2021.com/>).
- 12 October 2020 – Member of the evaluation committee of the Marie Skłodowska-Curie fellow Lourdes Morillas for the FCIências.ID Foundation (Universidade de Lisboa).
- Member of the CBA/cE3c Scientific Committee, Universidade de Lisboa, Portugal (2012-2018).
- Member of the Steering Committee and Treasurer of the Italian Lichen Society (2008-2017).
- Member of the Italian Lichen Society Congresses Scientific Committee (2008-2017).
- Member of the Steering Committee of the working group on Lichenology of the Italian Botanical Society.

OTHER ACTIVITIES

- Communication Manager of the Italian Lichen Society (September 2021-ongoing), Facebook manager since 2011; Twitter manager since 2019.
- Speaker at the round table “Debate sobre os apoios do ICNF ao bem-estar animal”, at the “1ª Conferência de bem-estar animal”, 15 December 2021, Lisbon, Portugal.
- Moderator of the session “Conservation Biology/Climate Changes/Lichens in extreme environments” at the International Association for Lichenology 9th Symposium, online, 1-6 August 2021.
- Web manager of the site of the ERC project "Rutter - Making the Earth global" (www.rutter-project.org), responsible for the Twitter account and the Facebook page of the project.
- Co-organizer of the weekly Forum of the Plant-Soil Ecology group at the Universidade de Lisboa (October 2020-July 2021).
- Member of the evacuation team in case of fire at the workplace (2014-ongoing).
- “Lab coach”, mentor and controller of the lab activities and users (May-July 2019).
- Co-author of the national guidelines “Air Quality — Biomonitoring with lichens — Accumulation of atmospheric contaminants in lichen transplants: from the collection to the preparation of samples” in cooperation with the Italian Lichen Society and ISPRA - Italian National Institute for Environmental Protection and Research (2018-2019).
- Organizer of the weekly internal seminars and journal club of the “Environmental Stress & Functional Ecology” group (University of Lisbon, 2011-2014).
- Member of the Communication group of the Italian Lichen Society (2013-ongoing).
- Translator from Portuguese to Italian for the company Science4you.
- Member of the Italian Lichen Society working group on Biomonitoring, National representative in the European Committee for Standardization (CEN) for: biomonitoring methods with mosses and lichens. CEN/TC 264/WG 31: Biomonitoring of air - determination of biological index of epiphytic lichens.
- Representative of PhD students in the Department Council of the University of Siena and in the Students’ Residence Santa Chiara (2007-2009).

AWARDS

Award for the best poster “Munzi S. 2022. The office in the garden and other sustainable tales” in the Environmental sustainability – Sustainable research practice – Economics’ category awarded during the 2022 MCAA Annual Conference and General Assembly, 26-27 March 2022, Lisbon (Portugal).

Co-author of the best poster (presented by V. Castellari) “Castellari V., Nascimbene J., Munzi S., 2021. Più a lungo è meglio? Impatto della durata del tempo di adattamento al buio sulle misure di fluorescenza in talli lichenici” awarded during the XXXIII congress of the Italian Lichen Society, 20-22 September 2021, online.

Awarded the prize for the best poster at the XXXII congress of the Società Lichenologica Italiana, Bologna, 18-20 September 2019 with “Munzi S., Máguas C., Giovanetti M., Lichens and bees: a vestigial relationship?”.

Awarded the “Prémio de Investigação Cidade de Almada (Research prize of Almada city)”, 17 July 2015, with the project “Bioindicadores ecológicos em meio urbano: uma nova abordagem metodológica aplicada à cidade de Almada (Munzi S., Correia O., Branquinho C., Pinho P.)”.

Co-author of the poster granted the second prize for the best poster (presented by L. Paoli) "Paoli L., Munzi S., Fiorini E., Sorbo S., Basile A., Loppi S., 2012. Antimony toxicity in the lichen *Xanthoria parietina* (L.) Th.Fr." awarded during the 6th International Workshop on Biomonitoring of Atmospheric Pollution, 15-19 October 2012, Çeşme-İzmir, Turkey.

Co-author of the best oral presentation (presented by C. Branquinho) “Branquinho C., Augusto S., Pinho P., Munzi S., 2012. Biomonitoring – uma ferramenta de gestão da qualidade do ar”. Seminário de Sustentabilidade promovida pela empresa SECIL, 5-6 June 2012, Centro de Formação de Maceira, Maceira, Portugal.

GRANTS

Awarded a participation grant for the “MSCA Satellite Event ESOF 2022”, Leiden (The Netherlands), 11-12 July 2022.

Awarded a participation grant for the training school “Assessing Multi-Taxon Diversity in Forest Ecosystems” funded by the COST Action “Biodiversity of Temperate Forest Taxa Orienting Management Sustainability by Unifying Perspectives” CA18207, Arezzo (Italy), 28-30 September 2021.

Awarded a registration grant funded by the British Lichen Society for participating in the IAL9, the 9th meeting of the International Association for Lichenology, 1-6 August 2021, online.

Awarded a travel grant for participating in the 3rd GreenInUrbs Training School funded by the COST Action “GreenInUrbs”, 10-14 October 2016, Duisburg, Germany.

Awarded a Symposium Grant for participating in the British Lichen Society International Symposium, 10-11 January 2014, Nottingham, UK.

PROJECTS AS PI

22 May - 8 June 2022 – “The Graphidaceae of the collection of A. Pires de Lima (1916-1917): botanical and historical value” under the SYNTHESYS Project (EU Horizon Europe Integrating Activity Programme, www.synthesys.info), visit at the NHM of London 22 May-8 June 2022.

2014 July - 2019 July – “The secret of a winning strategy: common mechanisms in different symbioses” (Secret Mechanisms IF/00964/2013) funded by the Fundação para a Ciência e a Tecnologia (Portuguese Science and Technology Foundation).

2015 May – “Protecting the lichens of the Shennongjia Reserve (China) in order to protect the endangered Golden Snub-nosed Monkey” under the SYNTHESYS Project (EU FP7 Integrating Activity Programme, www.synthesys.info).

2014 September-November – Proponent of the project “Lichens as a tool for environmental management in urban forests: the case study of Parco Nord Milano” under the COST action FP1204.

2012 April-2014 March - Marie Curie Intra-European Fellowship. Role of enzymatic activity in lichen tolerance under nitrogen stress (EU FP7 PIEF-GA-2011-301785).

2013 March – 2013 December - Transnational Access in the Increase Project (An Integrated Network on Climate Research Activities on Shrubland Ecosystems) (EU FP7 <http://www.increase-infrastructure.eu/>).

2013 May – 2013 November - Examining cellular and enzymatic activity and proteomics in nitrogen-treated lichens (EU FP7 ExpeER 2013 - <http://www.expeeronline.eu>).

2012 May - Long-term effects of Nitrogen deposition in lichen ecophysiology (EU FP7 ExpeER 2012 - <http://www.expeeronline.eu>).

PROJECTS AS PARTICIPANT

September 2021- February 2022 – Supervisor at the Universidade de Lisboa of the “Wood vinegar for sustainable agriculture” grant under the program “GoForIT” funded by Fondazione CRUI (Italy) in collaboration with the University of Siena.

2020-2023 - Stepping up and bringing out the scientific excellence and innovation capacity in soil Research of the University of Lisbon (SOILdarity), TWINNING project (grant agreement No 952051).

2019-ongoing - Science and Technology Management Fellow of the ERC project “Making the Earth Global: Early Modern Nautical Rutters and the Construction of a Global Concept of the Earth” (grant agreement No 833438).

2019-2021 – Supervisor of “Med-N-Change-Assessing the interactive effects of N addition and climate change on soil processes through the biological soil crust in Mediterranean ecosystems” (H2020-MSCA-IF-2015, No 793965).

2016-2018 - ChangeTracker-Tracking climate change in drylands based on ecological indicators. Science and Technology Foundation (PTDC/AAG-GLO/0045/2014).

2015-2018 - Strengthening Portuguese research and innovation capacities in the field of excess reactive nitrogen (NitroPortugal), TWINNING project (TWINN 692331).

2016-2017 - Disentangling evolutionary relationships across morphologically and ecologically diverse lichen genus *Solenopsora*. Bilateral program Portugal-Slovak Republic.

2014-2017 – Consultant in the project “Effects of climate change and nitrogen deposition on establishment, growth and nutrition composition of some epiphyte lichens in a high-altitude mountain” with the Prof. Chuanhua Wang, Three Gorges University, Yichang, China. Visiting period 20 May-13 June 2014.

July 2012 - ÉCLAIRE project: Effects of Climate Change on Air Pollution and Response Strategies for European Ecosystems (FP7-ENV-2011 n° 282910).

2011-2015 - In-Nitro: conceptualizing the effects of increased nitrogen availability in a Mediterranean ecosystem. Fundação para a Ciência e a Tecnologia (PTDC/BIA-ECS/122214/2010).

2010-2012 – Stima delle ricadute di metalli in traccia mediante la valutazione dell'IBLe del bioaccumulo nei talli lichenici. In cooperation with the University of La Tuscia (Viterbo, Italy).

2011 - 2012 - Modeling Ecosystem Structure and Functional Diversity as early-warning indicators of Desertification and Land-degradation: from regional to local level. PTDC/AAC-CLI/104913/2008. Funding entity: Portuguese Government. Coordinated by Centro de Biologia Ambiental da FCUL; Partners: Autoridade Florestal Nacional (AFN) and Centro de Recursos Naturais e Ambiente - Instituto Superior

Técnico (CERENA/IST).

2010-2011- GISA – Integrated Management of Environment and Health in the Alentejo Litoral Region. Financing: by Private companies: Petróleos de Portugal-PETROGAL, S.A.; REPSOL Polímeros, Lda.; Administração do Porto de Sines, S.A.; Águas de Santo André, S.A.; Apiparques–Gestão de Parques Industriais, S.A.; Carbogal–Carbonos de Portugal, S.A.; EDP–Gestão da Produção de Energia, S.A.; EuroR sinas–Indústrias Químicas, S.A.; Kimaxtr –Produtos de Construção S.A.; Repsol Polímeros, Lda.; REN–Atlântico, Terminal de GNL, S.A. Local authorities: Municipality of Sines, Santiago do Cacém, Odemira, Grândola and Alcácer do Sal. Project Coordinated by: CCDR-A. CBA-FCUL Financing: 200 061 €. CBA-FCUL. Coordinator: Cristina Branquinho. Other Scientific Partners: INESRE, a CCDR-A, o IST-CERENA, o ISCTE, ARS Lisboa e Vale do Tejo e a ARS Alentejo.

Part of the Italian Lichenological Society working group for setting international standard for lichen monitoring (CEN-European Committee for Standardization).

2011 – Studying the impact of climate change and of its vulnerabilities in several ecological indicators in an urban environment. Project between the Almada municipality and the CBA. Coordinator: Otília Correia.

2010-2013 - “Evaluating the atmospheric deposition of heavy metals and PCDD/Fs in the surroundings of the SECIL-Outão industry using biomonitors”; Funding entity: Companhia Geral de cal e cimento SECIL. Coordinator: Cristina Branquinho, CBA-FCUL.

2010-2012 – “Lichen and Plant biodiversity of a Cu mine site in the south of Portugal” by SOMINCOR, sociedade mineira de Neves Corvo, SA. Coordinator: Cristina Branquinho.

2010 - Transnational cooperation between Portugal and Italy (CNR). Biomonitoring of soil and atmospheric pollution at mine sites in Mediterranean areas: responses from cellular to ecosystem level. Financed by FCT-Portugal and CNR-Italy. Portuguese coordinator: Cristina Branquinho, CBA-FCUL.

2008 - National expert for lichens in the project "Le aree importanti per le piante nelle regioni d'Italia" (Important plant areas in Italian regions), by the Italian Ministry of Environment, Italian Botanical Society and the University "La Sapienza".

December 2005 - July 2006 - Cooperation with Prof. Stergios A. Pirintsos of the Department of Biology, University of Crete, Greece in the project "Pythagoras II - Investigation of possible relationships between genetic diversity and abundance-distribution patterns of endemic plant species in Mediterranean Ecosystems".

March - July 2004 - Working on the project "Rete di Biomonitoraggio permanente in Italia centrale con l'Indice di Biodiversità Lichenica (IBL). Progetto pilota per l'Umbria", by University "La Sapienza" and the Regional Agency for Environmental Protection.

September 2003 – September 2006 - Working in the University of Roma Tre on the project “Indice di Biodiversità Lichenica (IBL) nella città di Roma: determinazione e analisi dei fattori correlati” (Index of Lichen Diversity in the city of Rome: analysis of correlated factors).

OUTREACH ACTIVITIES

22 October 2022 – BioBlitz for lichen identification organized by Biodiversity4all in the Quinta de Recreio do Marquês de Pombal, Oeiras, Portugal.

16 May 2022 - Dissemination activity about lichens and symbiosis at the school Escola Integrada de Abrigada.

11 May 2022 – Organizing the paleogeography contest during the session “Chatear Camões” at the festival Pint of Science 2022, 8ª Colina Marquês, Lisbon, Portugal.

- 9 March 2022 – Dissemination activity about lichens and symbiosis at the school Ibn Mucana (Alcabideche) under the program “Cientificamente provável”.
- November 2021 – ongoing – Participant in the project “Cartas com ciência” program of letter exchanges between scientists and students in Portuguese-speaking countries (<https://en.cartascomciencia.org/>)
- November 2021 – Production of an educational video and a booklet in the framework of “Science is Wonderful! 2021” devoted to schools and supported/produced by the European Commission (<https://audiovisual.ec.europa.eu/en/video/I-214450>; <https://mednchange.weebly.com/changinglichens.html>).
- 22-26 November 2021 – Participation in “Meet the scientist!” at “Science is Wonderful! 2021” virtual exhibition in the ambit of the European Research and Innovation Days, organized by the European Commission.
- 22 November 2021- “From the ocean to the digital text” activity organized in the framework of the Semana da Ciência e da Tecnologia 2021 (<https://www.cienciaviva.pt/semanact/2021/>)
- 15 November 2021 – Participation in the MSCA Stories (<https://msca21.eu/index.php/stories/>) during the Marie Skłodowska Curie Conference, organized by the European Commission, 15-16 November 2021, online.
- 16 October 2021 – BioBlitz for lichen identification organized by Biodiversity4all in the first edition of the FIC.A – Festival Internacional de Ciência, Quinta de recreio do Marquês de Pombal, Oeiras, Portugal.
- 16 October 2021 – “Simbiose na simbiose” with Lourdes Morillas, first edition of the FIC.A – Festival Internacional de Ciência, Oeiras, Portugal.
- 24 September 2021 – Organizer of the activity “Navigating the Unknown: Accounts of the First Oceanic Voyages”, Pavilhão do Conhecimento, Lisbon, in collaboration with Ciência Viva for the European Researchers’ Night 2021.
- 24 September 2021 - BioBlitz for lichen identification in the ISCTE Lisbon, organized by Biodiversity4all as part of the European BioBlitz 2021 and the European Researchers’ Night 2021.
- 24 September 2021 – “How much do you know about climate change and lichens?” (Morillas L.; Munzi S.) online quiz (<https://mednchange.weebly.com/>) for the European Researchers’ Night 2021.
- 14 September 2021 – “Navegadores, ecólogos sem sabe-lo” activity promoted for the Ecology Day 2021, Universidade de Lisboa. <https://www.ecologyday.eu/pt/programa/navegadores-ecologos-sem-sabe-lo>
- 14 September 2021 – Quiz “Measure your knowledge about the relationship between lichens and climate!” (Morillas L.; Munzi S.) presented at the Ecology Day 2021. <https://mednchange.weebly.com/quiz.html>
- 20 June 2021 - BioBlitz for lichen identification in Parque da Paz, organized by Biodiversity4all and Almada municipality.
- 9 June 2021 – “Biological Individualism: changes and challenges” co-presented with Davide Vecchi. Hi-Phi seminar, organized by the Department for the History and Philosophy of Science, online.
- 4 June 2021 – Webinar “Licheni e azoto, una relazione difficile” presented in the seminar series “Licheni a portata di click”, organized by the Società Lichenologica Italiana.
- 5 May 2021 – Participation in the virtual open day of the Faculty of Science of the Universidade de Lisboa with the presentation of the project and the online game (<https://mednchange.weebly.com/>; https://youtu.be/_Zh9pTAdEmw).
- 27 November 2020 – Participation in the European Researchers’ Night with the activity “Invisíveis mas em todo o lado: os microrganismos”. https://www.youtube.com/playlist?list=PL_ZdAxvbx5CNfePzDF_07DvFn3WoYq3_i
- 27 November 2020 – Participation in the European Researchers’ Night with the activity “Research kiosk: Dogs and humans, a history with science!”.
- 27 November 2020 – Participation in the European Researchers’ Night with the activity “Biodiversity Patrol”. <https://mednchange.weebly.com/>
- 27 November 2020 – Participation in the European Researchers’ Night with the activity “How can biodiversity help ecosystems to endure global change?” (Morillas L., Munzi S.). <https://youtu.be/MtKM3Rrx7s0>
- 10 October 2020 – BioBlitz for lichen identification in “Oeiras tem vida | Agenda da natureza” a series of activities organized by Oeiras municipality.
- 22-24 September 2020 – Proposer and participant with Lourdes Morillas of the activity “Soil lichens & ecosystems” at “Science is Wonderful! 2020” virtual exhibition in the ambit of the European Research and Innovation Days, organized by the European Commission.
- 16 September 2020 – “Biodiversity patrol” educational videogame presented with Lourdes Morillas at the

Ecology Day activities (<https://www.ecologyday.eu/pt/programa/educational-videogame>; <https://mednchange.weebly.com>)

- 18 February 2020 – Giving the lecture “Um, ninguém e cem mil: viver num mundo simbiótico” at the school Escola Secundária Fernando Namora, Lisbon, Portugal.
- 10 January 2020 – No-Rutter seminar “Rutters in Lichenland”, Universidade de Lisboa.
- 30 October 2019 – Participation in the “Creative Minds” contest at the “Dia da Investigação” as co-author of: Giovanetti M., Máguas C., Munzi S. “Lichen derived features in honey” and Morillas L., Munzi S. “N₂O detection in soils”. Universidade de Lisboa, Portugal.
- 30 October 2019 – Poster presentation: Morillas L., Munzi S., Cruz C. “Interactive effects of N addition and climate change on soil processes in Mediterranean ecosystems: Med-N-Change” at the “Dia da Investigação”, Universidade de Lisboa.
- 27 September 2019 – Participant at the European Researchers' Night with the activity "A simbiose e a cidade", Museu Nacional de História Natural e da Ciência, Lisbon.
- 15 September 2019 – Participant at the BioBlitz organized for the “Ecology Day 2019”, EcoCascais, Cascais, Portugal.
- 10-11 July 2019 - “Lichens, sentinels of the environment” workshops at the VI Encontro Internacional Casa das Ciências - Educação científica e desenvolvimento económico, Universidade de Lisboa.
- 24 April 2019 – Giving the lecture “Um, ninguém e cem mil: viver num mundo simbiótico” at the school “Externato João Alberto Faria”, Arruda dos Vinhos, Portugal.
- 25 March 2019 – Presenting the workshop “Líquenes, as sentinelas da natureza” at the Secondary School “Escola Secundária de Miraflores”, Lisbon, Portugal.
- 17 September 2018 – Presenting at the International Microorganism Day the activity “Simbioses: Consegues viver, aprender, brincar sozinho? Onde estão os teus amigos?”, Centro Ciência Viva de Lagos, Portugal.
- 29 September 2017 – Participant at the European Researchers' Night with the activity “I can’t live without you!”.
- 24-28 July 2017 - Scientific Summer Camp “Ciência Viva no laboratório”: one-week lab activity with young students “Quem diz que os líquenes não “falam”? Interpretar os sinais destes bioindicadores sobre o ecossistema”, 5th edition.
- 10 July 2017 – “Líquenes, as sentinelas da natureza” IV Encontro Internacional Casa das Ciências - Educação científica e desenvolvimento económico, Universidade de Lisboa.
- November-December 2016 – Consultant in the project “LICHENAIR - Wear your Lichen” developed in the Master course “MA Material Futures” (<http://davepiscitelli.com/lichenair.html>).
- 8 July 2016 – Participation in the scientific week “Verão na Ulisboa” with the activity “Lichens, sentinels of the environment”.
- 18-22 July 2016 - Scientific Summer Camp “Ciência Viva no laboratório”: one-week lab activity with young students “Quem diz que os líquenes não “falam”? Interpretar os sinais destes bioindicadores sobre o ecossistema”, 4th edition.
- 20-24 July 2015 – Scientific Summer Camp “Ciência Viva no laboratório”: one week lab activity with young students “Quem diz que os líquenes não “falam”? Interpretar os sinais destes bioindicadores sobre o ecossistema”, 3rd edition.
- February-June 2015 – “Ciência Viva nos patios” a programme developed for primary schools.
- 26 September 2014 – Participant at the European Researchers' Night with the activity “Diz-me o que vês, dir-te-ei o que respiras”.
- 2011-ongoing – Creator and administrator of the official and unofficial Facebook pages of the Italian Lichen Society.
- 2013-2016 – Creator and administrator of the Facebook page “3D my Marie Curie fellowship” (<https://www.facebook.com/3dmariecurie?ref=hl>) and administrator of the page of the Environmental Stress and Functional Ecology group.
- 7-11 July 2014 – Scientific Summer Camp “Ciência Viva no laboratório”: one-week lab activity with young students “Quem diz que os líquenes não “falam”? Interpretar os sinais destes bioindicadores sobre o ecossistema”, 2nd edition.
- 2012-2013 – Participation in the project “Uma mina de biodiversidade” (A mine of biodiversity), a series of dissemination activities including the production of a printed guide, a website (<http://biodiversidade-somincor.pt/web/index.php/en/>), a wildlife film (<https://vimeo.com/78904290>; English version: <https://vimeo.com/92727893>) and a workshop.
- 24-28 July 2013 – Scientific Summer Camp “Ciência Viva no laboratório”: one-week lab activity with young

students “Quem diz que os líquenes não “falam”? Interpretar os sinais destes bioindicadores sobre o ecossistema”, 1st edition.

July 2013 – Summer Science “Ciência Viva no Verão”: field excursion “Flora da Duna de Montalvo: viver com os pés na areia”.

31 May-1 June 2013 – Workshop “Biominar” about the biodiversity of Neves-Corvo Region, funded by Somincor-Sociedade Mineira de Neves Corvo and Lundim-Mining Corporation. The field tour “Líquenes: Os vigilantes da Natureza” was guided by S. Munzi and P. Pinho for participants.

4-17 March 2013 – Training tutor of 10 students from Puskás Tivadar Technical High School (Romania) under the Leonardo da Vinci Mobility Programme.

15 March 2013 – Presenting my work to a visiting class of a high school of Leiria (Portugal).

September 2012 – Summer Science “Ciência Viva no Verão”: field excursion with lab activity “Investigação e Aplicação da ciência nos habitats do Sul de Portugal num percurso pelo montado”.

June 2010 – Field excursion to Oasi di Burano (Tuscany, Italy) in cooperation with the Italian Lichen Society and the Società Botanica Italiana.

PUBLICATIONS ON INTERNATIONAL SCIENTIFIC JOURNALS

2022

Fedeli R., Vannini A., Celletti S., Maresca V., Munzi S., Cruz C., Alexandrov D., Guarnieri M., Loppi S., 2022. Foliar application of wood distillate boosts plant yield and nutritional parameters of chickpea. *Annals of Applied Biology*. <https://doi.org/10.1111/aab.12794>

Morillas L., Roales J., Cruz C., **Munzi S.**, 2022. Lichen as multipartner symbiotic relationships. *Encyclopedia* 2(3), 1421-1431. <https://doi.org/10.3390/encyclopedia2030096>

Andreetta A., Morillas L., **Munzi S.**, 2022. Terrestrial ecosystem nitrogen fluxes via the atmosphere-land system. *Frontiers in Environmental Science* 10(902547). 10.3389/fenvs.2022.902547

Morillas L., Roales J., Cruz C., **Munzi S.**, 2022. Non-toxic increases in nitrogen availability can improve the ability of the soil lichen *Cladonia rangiferina* to cope with environmental changes. *Journal of Fungi* 8, 333. <https://doi.org/10.3390/jof8040333>

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Burrascano S., Trentanovi G., Paillet Y., ... **Munzi S.**, ..., 2021. Handbook of field sampling for multi-taxon biodiversity studies in European forests. *Ecological Indicators*, 132, 108266. <https://doi.org/10.1016/j.ecolind.2021.108266>

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Munzi S., 2021. "Licheni e internet al tempo della pandemia" post-congress event "Comunicare la botanica", 116° Congresso della Società Botanica Italiana onlus, VII International Plant Science Conference, 8 - 10 September 2021, online.

Munzi S., 2021. "We are all lichens – Challenging boundaries -" in the Master course in Advanced Topics in Microbiology, Faculdade de Ciência da Universidade de Lisboa, Portugal.

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Invited participant at the debate "Biophilosophy in practice - new perspectives in the epistemology of the life sciences", 29 January 2020, Faculdade de Ciência da Universidade de Lisboa, Portugal.

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