

CHIARA PUCCIARIELLO
CURRICULUM VITAE ET STUDIORUM

Current position: Associate Professor of Plant Physiology (BIO/04, 2013) at Scuola Superiore Sant'Anna (SSSA), Piazza Martiri della Libertà 33, 56127 Pisa (Italy);

Elected members of the Academic Senate for Associate Professors at SSSA;

Coordinator of the nanoPLANT laboratory at National Enterprise for nanoScience and nanoTechnology (NEST, Scuola Normale Superiore);

Deputy Coordinator of the Center of Plant Sciences at SSSA;

Coordinator for SSSA of the LM in Molecular Biotechnology, joined with UNIPI;

Member of the PhD boards of Agrobioscience and Agrobiodiversity at SSSA.

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ACADEMIC CAREER

Assistant Professor of Plant Physiology (BIO/04, 2013) at Scuola Superiore Sant'Anna 2014-2017;

Postdoctoral fellowships to study the molecular and physiological plant response to low oxygen stress, Scuola Superiore Sant'Anna 2007-2014;

Marie Curie Intra-European Fellowship and Intra-European Network Fellowship to study the role of the cellular redox state during the symbiotic interaction between *Medicago truncatula* and *Sinorhizobium meliloti*, Centre National de la Recherche Scientifique (Institut Sophia Agrobiotech, France) 2003-2007.

STUDIES

PhD fellow in “Crop Production Science”, Dipartimento di Coltivazione e Difesa delle Specie Legnose, University of Pisa 2000-2003;

Honours degree 110/110 *cum laude* in Agricultural Sciences, University of Pisa 1999.

CURRENT RESEARCH INTERESTS

- Molecular physiology of crop and model plants response to flooding;
- Metagenomic and molecular physiology of plant-microbe interaction under low oxygen;
- Plant-microbe interaction for lunar soil colonisation.

ACADEMIC RECORDS

Co-responsible of “Science, Technology, Engineering and Mathematics – STEM” program promotion for undergraduated girl students, 2021-2023;

Vice-Dean of the Faculty of Experimental Sciences at SSSA, 2021-2023;

Responsible of the SSSA activity for undergraduate orientation for the sector of Plant Science, 2020-2021;

Member of the SSSA Joint Commission, 2020-2022;

Member of the Didactic Commission for the Class of Experimental Sciences at SSSA, 2020-2021;

Secretary of the Italian Society of Plant Biology (SIBV), 2020-2021;

National scientific qualification to function as Associate Professor of Plant Physiology (BIO/04, 2013) and Plant Pathology (AGR/12, 2012) in Italian Universities;

European Community Mobility Programme Grant for the European Nitrogen Fixation Conference (Toulouse, France), 2004;

German Academic Exchange Service (DAAD) Grant for academic study and training in Germany - GSF-Forschungszentrum für Umwelt und Gesundheit (München Germany), 2002.

PARTICIPATION TO FUNDED PROJECTS

Principal investigator in the Italian Space Agency (ASI) project “Promoting pedogenesis through lunar soil-terrestrial organisms interaction for moon fertilization – REGOLIFE”, 2024-2027;

Principal investigator in the PRIN 2022 5W6R57 project “Exploiting tailored plant genotype x microbiome interaction toward sustainable increase of rice productivity and resilience to climate change”, 2023-2025;

Collaborator in the National Research Center “National Research Centre for Agricultural Technologies - Agritech”, 2022-2025;

Collaborator in the PRO3 project “PINS: Plant Imaging & Nanotechnologies for Sustainable Agriculture”, 2022-2024;

Principal investigator in the PNR project “microING - Crop and microbiome biodiversity tailored approach, microengineering augmented, for sustainable production under climate change”, 2022-2024;

Collaborator to the project “INNOPAQ - Sustainable innovation for quality agri-food production” in the framework of Abruzzo Region funding POR FESR 2014-2020;

Collaborator to the NEST laboratory project “nMdC – Carrara nano marble” in the framework of Tuscany Region funding POR FSE 2017-2018;

Programme Partenariat Hubert Curien (PHC) Galilée 2015-2016, Project “Legumes under submergence stress: role of nitric oxide in submergence tolerance”;

Marie Curie Fellowship “GINGER - Glutathione and Gene Regulation” - Centre National de la Recherche Scientifique (CNRS) (Sophia Antipolis, France), 2005-2006;

Intra-European Network Fellowship “SOS – Senescence and Oxidative Stress in Plant Systems” - Centre National de la Recherche Scientifique (CNRS) (Sophia Antipolis, France), 2003-2004;

VISITING PERIODS

VIB - Flanders Interuniversity Institute for Biotechnology, Gent (Belgium) 04-08 2005;

Laboratoire de Génétique Moléculaire Euralis Semences, Toulouse (France) 05-06 2004;

GSF-Forschungszentrum für Umwelt und Gesundheit, München (Germany) 06-09 2002.

PUBLICATIONS

Gómez-Álvarez EM, Salardi-Jost M, Ahumada GD, Perata P, Dell'Acqua M, Pucciariello C (2024) Seed bacterial microbiota in post-submergence tolerant and sensitive barley genotypes. *Functional Plant Biology* 51, FP23166.

Fagerstedt KV, C Pucciariello, O Pedersen, P Perata (2023) Recent progress in understanding the cellular and genetic basis of plant responses to low oxygen hold promise for developing flood-resilient crops, *Journal of Experimental Botany*, erad457;

Gómez-Álvarez EM, Tondelli A, Nghi KN, Voloboeva V, Giordano G, Valè G, Perata P, Pucciariello C (2023) The inability of barley to germinate after submergence depends on hypoxia-induced secondary dormancy, *Journal of Experimental Botany* 74, 4277–4289;

Romano D., Pucciariello C., Di Giovanni A., Stefanini C. (2023) Turning earthworms into moonworms: Earthworms colonization of lunar regolith as a bioengineering approach supporting future crop growth in space. *Helyon* 9, e14683;

Rovere, M., Pucciariello, C., Castella, C., Berger, A., Forgia, M., Guyet, T.A., Bosseno, M., Pacoud, M., Brouquisse, R., Perata, P., Boscari, A. (2023) Group VII Ethylene Response Factors, MtERF74 and MtERF75, sustain nitrogen fixation in *Medicago truncatula* microoxic nodules. *Plant, Cell & Environment* 46, 607;

Ahumada, G.D., Gómez-Álvarez, E.M., Dell'Acqua, M., Bertani, I., Venturi, V., Perata, P., Pucciariello, C. (2022) Bacterial endophytes contribute to rice seedling establishment under submergence. *Frontiers in Plant Science*, 13, 908349;

- Gomez Alvarez E.M., Pucciariello C. (2022) Cereal germination under low oxygen: molecular processes. *Plants*, 11: 460;
- Fernandes T., Melo F., Vieira M. B., Lourenço T. F., Pucciariello C., Saibo N., Abreu I. A., Oliveira, M. M. (2022) Screening for abiotic stress response in rice. In: *Methods in molecular biology* (Clifton, N.J.), 2494: 161–194.
- Pucciariello C., Perata P. (2021) The oxidative paradox in low oxygen stress in plants. *Antioxidants*, 10: 332;
- Nghi K.N., Tagliani A., Mariotti L., Weits D.A., Perata P., Pucciariello C. (2021) Auxin is required for the long coleoptile trait in japonica rice under submergence. *New Phytologist*, 229: 85;
- Pucciariello C. (2020) Molecular mechanisms supporting rice germination and coleoptile elongation under low oxygen. *Plants* 9: 1037;
- Tagliani A., Tran AN, Novi G., Di Mambro R., Pesenti M., Sacchi GA, Perata P., Pucciariello C. (2020) The calcineurin β -like interacting protein kinase CIPK25 regulates potassium homeostasis under low oxygen in *Arabidopsis*. *Journal of Experimental Botany* 71: 2678;
- Pucciariello C., Boscarri A., Tagliani A., Brouquisse R., Perata P. (2019) Exploring legume-rhizobia symbiotic models for waterlogging tolerance. *Frontiers in Plant Science* 10: 578;
- Nghi K.N., Tondelli A., Valè G. Tagliani A., Marè C., Perata P., Pucciariello C. (2019) Dissection of coleoptile elongation in japonica rice under submergence through integrated genome wide association mapping and transcriptional analyses. *Plant, Cell & Environment* 42: 1832;
- Pistelli L, Tonelli M, Pellegrini E, Cotrozzi L, Pucciariello C., Trivellini A, Lorenzini G, Cristina Nali C. (2019) Accumulation of rosmarinic acid and behaviour of ROS processing systems in *Melissa officinalis* L. under heat stress. *Industrial Crops & Products* 138:111469;
- Morgutti S., Negrini N., Pucciariello C., Sacchi G.A. (2019) Role of trehalose and regulation of its levels as a signal molecule in abiotic stresses in plants. In: *Plant Signaling Molecules 1st Edn* (M. Iqbal et al., Eds), Elsevier Inc. (Cambridge, UK);
- Buti M., Pasquariello M., Ronga D., Milc J.A., Pecchioni N., Ho V-T., Pucciariello C., Perata P., Francia E. (2018) Transcriptome profiling of short-term response to chilling stress in tolerant and sensitive *Oryza sativa* ssp. Japonica seedlings. *Functional & Integrative Genomic* 18: 627;
- Ho V.T., Tran A.N., Cardarelli F., Perata P., Pucciariello C. (2017) A calcineurin B-like protein participates in low oxygen signalling in rice. *Functional Plant Biology* 44: 917;
- Pucciariello C., Perata P. (2017) Flooding Tolerance in Plants. In: *Plant Stress Physiology 2nd Edn* (S. Shabala Ed.), CAB International (Oxford, UK): 155;
- Pucciariello C., Perata P. (2017) New insights into reactive oxygen species and nitric oxide signalling under low oxygen in plants. *Plant, Cell & Environment* 11: 31;

- Gonzali E., Loreti E., Cardarelli F., Novi G., Parlanti S., Pucciariello C., Bassolino L., Banti V., Licausi F., Perata P. (2015) The Universal Stress Protein HRU1 mediates ROS homeostasis under anoxia. *Nature Plants* 1: 15151;
- Pucciariello C., Voeselek R., Perata P., Sasidharan R. (2014) Plant responses to flooding. *Frontiers in Plant Science* 5: 226;
- Yasmin S., Mensuali-Sodi A., Perata P., Pucciariello C. (2014) Ethylene influences in vitro regeneration frequency in the FR13A rice harbouring the SUB1A gene. *Plant Growth Regulation* 72: 97;
- Pucciariello C., Perata P. (2013) Quiescence in rice submergence tolerance: An evolutionary hypothesis. *Trends in Plant Science* 18: 377;
- Banti V., Giuntoli B., Gonzali S., Loreti E., Magneschi L., Novi G., Paparelli E., Parlanti S., Pucciariello C., Santaniello A., Perata P. (2013) Low oxygen response mechanisms in green organisms. *International Journal of Molecular Sciences* 14: 4734;
- Licausi F., Pucciariello C., Perata P. (2013) New role for an old rule: NERP- mediated degradation of ERF proteins governs low oxygen response in plants. *Journal of Integrative Plant Biology* 55: pp. 31;
- Fagerstedt K., Blokhina O., Pucciariello C., Perata P. (2013) Flooding tolerance mechanism in roots. In: *Root - The Hidden Half* (A. Eshel and T. Beeckman Eds.). Taylor and Francis (CRC Press) (London, UK): 32.1;
- Pucciariello C., Perata P. (2012) How plants sense low oxygen. *Plant Signaling & Behavior* 7: 813;
- Niroula R.K., Pucciariello C. (*joint first author*), Ho V.T., Novi G., Fukao T., Perata P. (2012) SUB1A dependent and independent mechanisms regulate the flooding tolerance in wild rice species. *Plant Journal* 72: 282;
- Pucciariello C., Banti V., Perata P. (2012) ROS signaling as common element in low oxygen and heat stresses. *Plant Physiology and Biochemistry* 59: 3;
- Pucciariello C., Parlanti S., Banti V., Novi G., Perata P. (2012) Reactive oxygen species-driven transcription in *Arabidopsis* under oxygen deprivation. *Plant Physiology* 159: 184;
- Salvini M., Sani E., Fambrini M., Pistelli L., Pucciariello C., Pugliesi C. (2012) Molecular analysis of a sunflower gene encoding an homologous of the B subunit of a CAAT binding factor. *Molecular Biology Reports* 39: 6449;
- Pucciariello C., Perata P. (2012) Flooding Tolerance In Plants. In: *Plant Stress Physiology* (S. Shabala Ed.), CAB International (Oxford, UK): 148;
- Parlanti S., Kudahettige N.P., Lombardi L., Mensuali-Sodi A., Alpi A., Perata P., Pucciariello C. (2011) - Distinct mechanisms for aerenchyma formation in leaf sheaths of rice genotypes displaying a quiescence or escape strategy for flooding tolerance. *Annals of Botany* 13: 211;

- Povero G., Loreti E., Pucciariello C., Santaniello A., Di Tommaso D., Di Tommaso G., Kapetis D., Zolezzi F., Piaggese A., Perata P. (2011)- Transcript profiling of chitosan-treated Arabidopsis seedlings. *Journal of Plant Research* 124: 619;
- Kudahettige N. P., Pucciariello C., Parlanti S., Alpi A. Perata P. (2011) Regulatory interplay of the Sub1A and CIPK15 pathways in the regulation of α -amylase production in flooded rice plants. *Plant Biology* 13: 611;
- Pucciariello C., Innocenti G., Van de Velde W., Lambert A., Hopkins J., Clément M., Ponchet M., Pauly N., Goormachtig S., Holsters M., Puppo A., Frenedo P. (2009) - (Homo)glutathione depletion modulates host gene expression during the symbiotic interaction between *Medicago truncatula* and *Sinorhizobium meliloti*. *Plant Physiology* 151: 1186;
- Marino D., Pucciariello C., Puppo A., Frenedo P. (2009) – The redox state, a referee of the legume-Rhizobia symbiotic game. *Advances in Botanical Research* 52: 115;
- Zuluaga D., Gonzali S., Loreti E., Pucciariello C., Degl'Innocenti E., Guidi L., Alpi A., Perata P. (2008) - Arabidopsis thaliana MYB75/PAP1 Transcription Factor induces Anthocyanin Production in Transgenic Tomato Plants. *Functional Plant Biology* 35: 606;
- Ferrarini A., De Stefano M., Baudouin E., Pucciariello C., Polverari A., Puppo, A., Delledonne M. (2008) – Expression of *Medicago truncatula* genes responsive to nitric oxide in pathogenic and symbiotic conditions. *Molecular Plant-Microbes Interaction* 21:781;
- Innocenti G., Pucciariello C. (*joint first author*), Le Gleuher M., De Stefano M., Delledonne M., Puppo A., Baudouin E., Frenedo P. (2007) - Glutathione synthesis is regulated by nitric oxide in *Medicago truncatula* roots. *Planta* 225: 1597;
- Pauly N., Pucciariello C., Mandon K., Innocenti G., Jamet A., Baudouin E., Hérouart D., Frenedo P., Puppo A. (2006) - Reactive oxygen and nitrogen species and glutathione: key players in the legume-Rhizobium symbiosis. *Journal of Experimental Botany* 57: 1769;
- Nali C., Pucciariello C., Mills G., Lorenzini G. (2005) – On the different sensitivity of white clover clones to ozone: physiological and biochemical parameters in a multivariate approach. *Water, Air and Soil Pollution* 164: 137;
- Nali C., Pucciariello C., Lorenzini G. (2002) – Mapping ozone critical levels for vegetation in Central Italy. *Water, Air and Soil Pollution* 141: 337;
- Nali C., Pucciariello C., Lorenzini G. (2002) – Ozone distribution in central Italy and its effect on crop productivity. *Agriculture, Ecosystem & Environment* 90: 277.