

BIOGRAPHICAL SKETCH

NAME: Angela Roberta Lo Piero

eRA COMMONS USER NAME (credential, e.g., agency login): not necessary

POSITION TITLE: Full Professor in Agricultural Genetics

EDUCATION/TRAINING

INSTITUTION AND LOCATION	DEGREE (if applicable)	Completion Date MM/YYYY	FIELD OF STUDY
University of Catania, Catania, ITALY	Master degree	11/1988	Biology
University of Catania, Catania, ITALY	Volunteer researcher	11/1990	Biochemistry and Molecular biology
University of Catania, Catania, ITALY	PhD student	11/1993	Biochemistry and Molecular biology
Johns Hopkins University, Baltimore, U.S.A., Department of Biological Chemistry	One year guest researcher	08/1992	Molecular biology
University of Catania, Catania, ITALY	PhD	11/1993	Biochemistry and Molecular biology

A. Personal Statement

Professor Angela Roberta Lo Piero was born on 17th January 1966 in Catania. She took the degree in Biological Sciences in 1988 at University of Catania (110/110 cum lode). In the 1990, she was PhD student in "Biochemistry and Comparative Physiology" at the University of Catania (1990-1993). Guest researcher at the Department of Biological Chemistry, Johns Hopkins University, Baltimore, U.S.A., (August 1991- August 1992). In 1993, she was awarded a PhD in "Biochemistry and Comparative Physiology". She was Adjunct Professor in Plant Biochemistry, Faculty of Agricultural Science, University of Catania, (1993-1995). She was Associate Professor at University of Catania since 1995 until 2014. In 2014, she got the Associate Professor qualification in Agricultural Genetics. Currently, she is **Full Professor** in Agricultural (AGRI-06/A).

Professor Angela Roberta Lo Piero is the **coordinator of Erasmus agreements** with the Universidad Miguel Hernández de Elche and the Valencian Institute of Agricultural Research Genomics Center, Moncada, Spain. She has supervised 57 experimental Master's theses (from 1999 to 2025) and 8 non-experimental Bachelor's theses (from 2007 to 2023). She has served as tutor for 5 PhD students and co-tutor for an additional 5 PhD students. She is currently supervising 1 PhD student and co-supervising 1 PhD student. She is **member of the Doctoral Faculty Board** in *Biotechnology*, University of Catania. She is member of "Epigenetic Mechanisms of Crop Adaptation to Climate Change" (EPI-CATCH) (CA19125) COST Action and of COST Action CA22144 "Sustainable use of salt-affected lands" (SUSTAIN), working group 2 - Plant responses to salinity at the shoot and the root level. She lead and participated in several national research projects, including: - PRIN 2017 ADAPT Project on agro-climatic influences on grapevine microbiomes and gene expression (2019–2022);- S.I.R.P.A. Project (2019–2022) on citrus resistance to mal secco, focusing on transcriptome and epigenome comparisons;- WATER4AGRI FOOD Project (2020–2023), exploring transcriptomic and

epigenomic analysis for drought-tolerant crops; - AGRIVITA Project (2023–2025) on host-pathogen interactions in citrus affected by mal secco disease.

She has served as **referee** for journals with high impact factor. She is a member of the "Agiunitech" spin-off of the Department of Agriculture, Food and Environment of the University of Catania. **Editorial board** member of the following journals: *Frontiers in Plant Science* – (section Plant breeding), *Plants*, *Frontiers in Bioscience-Elite*. Professor Lo Piero delivered **oral presentations** at national (7) and international conferences (4) in the field of plant functional genomics and stress responses.

B. Positions, Scientific Appointments, and Honors

(**Present - 2023**): Full Professor of Agricultural Genetics (AGRI-06/A), Department of Agriculture, Food and Environment, University of Catania.

(**2023 – 2014**): Associate Professor of Agricultural Genetics (AGRI-06/A), Department of Agriculture, Food and Environment, University of Catania.

(**2014 – 2008**): Assistant Professor in Agricultural Genetics (AGRI-06/A), Department of Agriculture, Food and Environment, University of Catania.

(**2008 – 1995**): University Researcher in Agricultural Biochemistry (AGRI-06/B), Department of Agriculture, Food and Environment, University of Catania.

(**1995 – 1993**): Adjunct Professor of Agricultural Biochemistry (AGRI-06/B), Department of Agriculture, Food and Environment, University of Catania.

Roles in national and international scientific societies:

(**Present–2023**) Member of the COST Action CA22144 “Sustainable use of salt-affected lands (SUSTAIN)”, Working Group 2 – “Plant responses to salinity at the shoot and root level”

(**Present–2022**) Member of the COST Action CA19125 “Epigenetic mechanisms of Crop Adaptation To Climate Change”

(**Present–2018**) Member of the Teaching Committee of the Italian Society of Agricultural Genetics (SIGA)

(**2023–2021**) Member of the Board of Auditors (*Consiglio dei Sindaci*) of the Italian Society of Agricultural Genetics (SIGA)

(**2021–2019**) Member of the Executive Board of the Italian Society of Agricultural Genetics (SIGA)

(**2018–2011**) University of Catania representative in the Inter-University Network of PhD Programs in Agricultural Genetics and Plant Biotechnology

Institutional roles

2026–2018 - Member of the Presidium of the Quality of the University of Catania

2025 – Member of Expert Evaluation Committee (Commissione Esperti della Valutazione) (Disciplinary Profile), Periodic accreditation of University of Tuscia, Viterbo, Italy.

2025 - Included in the List of Experts to be used as External Reviewers for the VQR 2020–2024 (Valutazione della Qualità della Ricerca, Research Quality Assessment).

2024 - Included in the "List of eligible GEV candidates" for the 2020–2024 VQR (Valutazione della Qualità della Ricerca, Research Quality Assessment).

2021 - Included in the the Register of Evaluation Experts (AVA) (Disciplinary Profile), resolution No. 295, December 21th, 2021.

2020 - Included in the "List of eligible GEV candidates" for the 2015–2019 VQR (Valutazione della Qualità della Ricerca, Research Quality Assessment).

2020 - Included in the List of experts for the evaluation of proposals relating to the additional PhD scholarships envisaged under the National Operational Research and Innovation Program 2014–2020 and the Research and Innovation "Stralcio" Plan 2015–2017.

2015 - Evaluator for the William Harvey Research Institute WHRI-ACADEMY (COFUND Marie Curie) Fellowship Programme

C. Contributions to Science

Professor Lo Piero produced more than 70 published manuscripts and 4 book chapters.

Briefly, the **current research** interest are:

- **Integrative -Omics and Priming Strategies for Understanding and Mitigating Abiotic and Biotic Stresses in Plants**

Professor Lo Piero's research focuses on the molecular and genomic mechanisms of plant stress responses, aiming to improve crop resilience through sustainable strategies. Key areas include abiotic stress adaptation (drought, salinity, heavy metals), plant–pathogen interactions, priming and biocontrol approaches, and the use of natural biostimulants. She also investigates genotype–environment interactions in grapevine, linking transcriptomics and pedoclimatic variability to phenotypic traits.

Main Publications:

- 1) SCIALÒ E., SICILIA A., **LO PIERO A.R.** Sodium nitroprusside as a priming agent induces drought stress tolerance in *Citrus* (2025) *Current Plant Biology*, 43, art. no. 100508.
- 2) SCIALÒ E., SICILIA A., CONTINELLA A., GENTILE A., **LO PIERO A.R.** Transcriptome Profiling and Weighted Gene Correlation Network Analysis Reveal Hub Genes and Pathways Involved in the Response to Polyethylene-Glycol-Induced Drought Stress of Two *Citrus* Rootstocks (2024) *Biology*, 13 (8), art. no. 595
- 3) SANTORO D.F., SICILIA A., TESTA G., COSENTINO S.L., **LO PIERO A.R.** (2022). Global leaf and root transcriptome in response to cadmium reveals tolerance mechanisms in *Arundo donax* L *BMC Genomics*, 23(1), 427.
- 4) SICILIA A., SANTORO D.F., TESTA G., COSENTINO S. L., **LO PIERO A.R.** (2020). Transcriptional response of giant reed (*Arundo donax* L.) low ecotype to long-term salt stress by Unigene-based RNAseq. *Phytochemistry*, 177, 112436.
- 5) SICILIA A., VILLANO C., AVERSANO R., DI SERIO E., NICOLOSI E., FERLITO F., **LO PIERO A.R.** Study of red vine phenotypic plasticity across central-southern Italy sites: an integrated analysis of the transcriptome and weather indices through WGCNA (2024) *Frontiers in Plant Science*, 15, art. no. 1498649
- 6) SICILIA, A., CATARA, V., DIMARIA, G., SCIALÒ, E., RUSSO, M., GENTILE, A., **LO PIERO, A.R.** Transcriptome analysis of lemon leaves (*Citrus limon*) infected by *Plenodomus tracheiphilus* reveals the effectiveness of *Pseudomonas mediterranea* in priming the plant response to mal secco disease (2023) *Journal of Plant Interactions*, 18 (1), art. no. 2243097.
- 7) SANTORO, D.F., PUGLISI, I., SICILIA, A., BAGLIERI, A., LA BELLA, E., **LO PIERO, A.R.** Transcriptomic profile of lettuce seedlings (*Lactuca sativa*) response to microalgae extracts used as biostimulant agents (2023) *AoB PLANTS*, 15 (4), art. no. plad043, .

● Gene expression and regulatory analysis of anthocyanin biosynthesis pathway

An ongoing research focus is the regulation of anthocyanin biosynthesis in blood oranges, exploring how environmental factors like cold stress and fungal infection, along with epigenetic modifications, influence pigment accumulation. Through the characterization of key flavonoid pathway genes and analysis of gene expression across cultivars and conditions, this work reveals the complex interplay between gene regulation, metabolism, and environmental cues in determining citrus fruit coloration and quality.

Main Publications

- 1) SICILIA A., CATARA V., SCIALÒ E., **LO PIERO A. R.** (2021). Fungal infection induces anthocyanin biosynthesis and changes in DNA methylation configuration of blood orange [*Citrus sinensis* L. (Osbeck)]. *Plants*, 2021, 10, 244-253.
- 2) SICILIA A., SCIALÒ E., PUGLISI I., **LO PIERO A. R.** (2020). Anthocyanin biosynthesis and DNA methylation dynamics in sweet orange fruit [*Citrus sinensis* L. (Osbeck)] under cold stress. *Journal of Agricultural and Food Chemistry*, doi.org/10.1021/acs.jafc.0c02360

Moreover, Professor Lo Piero research interests also were:

- Cloning and in vitro expression of recombinant proteins (2006-2009)
- Protein engineering through site-directed mutagenesis (2009-2011)
- Study of tolerance to biotic and abiotic stress in transgenic plants expressing resistance genes (2015-2017)

Complete list of published papers: <https://www.scopus.com/authid/detail.uri?authorId=6602294242>