

PERSONAL INFORMATION Francesco Mercati



Enterprise	University	EPR
<input type="checkbox"/> Management Level	<input type="checkbox"/> Full professor	<input type="checkbox"/> Research Director and 1st level Technologist / First Researcher and 2nd level Technologist / Principal Investigator
<input type="checkbox"/> Mid-Management Level	<input type="checkbox"/> Associate Professor	<input checked="" type="checkbox"/> Level III Researcher and Technologist
<input type="checkbox"/> Employee / worker level	<input type="checkbox"/> Researcher and Technologist of IV, V, VI and VII level / Technical collaborator	<input type="checkbox"/> Researcher and Technologist of IV, V, VI and VII level / Technical collaborator

WORK EXPERIENCE

2013 - current position

Level III Researcher

National Research Council, Institute of Biosciences and Bioresources (IBBR), UOS Palermo (Italy)

- Biodiversity investigation and valorization, marker assisted selection studies, investigation of genes associated to trait of interest mainly related to the response to abiotic and biotic stress and to adaptation. Next-generation sequencing (NGS) technologies and their implications for plant genetics.
Business or sector: Biotechnology and biodiversity.

2012 - 2013

Post-doc fellowship

University *Mediterranea* of Reggio Calabria (Italy)

- Genetic characterization through SSR and SNP markers of a large collection of Italian grapevine, and population genetic analysis of a wide collection of *Vitis vinifera* varieties in the AGER Project (grant n 2010-2104).
Business or sector: Biotechnology and biodiversity.

2006 - 2007

Fellowship

University of Palermo (Italy)

- Expression analysis in soil bacteria (*Streptomyces*) of genes producing secondary metabolites of interest, such as antibiotic and PGP (Plant Growth Promoting).
Business or sector: Biotechnology, microbiology and pharmacy.

2004 - 2005

Fellowship

MIUR - BAT (British American Tobacco) Italy

- Genotoxicity and cytotoxicity evaluation of standard Cigarette Smoke Condensate (CSC) developed by BAT (British American Tobacco) Italy in the MIUR high-level training project titled "Applications of new technologies - nanomaterials and biotechnologies - to tobacco products" (protocol n. 345, 03/06/2004).
Business or sector: Biotechnology and nanomaterials.

EDUCATION AND TRAINING

2017

Licensed as Associate Professor in Plant Genetics

ASN - MIUR (Italy)

Sector 07/E1 agricultural chemistry, agricultural genetics and pedology - SSD AGR/07

- 2008-2012 **PhD in Biology Applied to Agri-Food and Forest systems**
University *Mediterranea* of Reggio Calabria (Italy)
Marker assisted selection, QTLs, molecular biology skills
- 2003 **Licensed as a Biologist profession**
University of Pisa (Italy)
Cytogenetics and molecular biology skills
- 1995-2002 **Master's Degree (110/110)**
University of Pisa (Italy)
Cytogenetics and molecular biology skills

WORK ACTIVITIES

Editorial activity

Editor for the journals listed below:

- Frontiers Plant Science, ISSN 1664462X, Q1 -Plant Science (SJR)
- Genes, ISSN 20734425, Q2 - Genetics (SJR);
- BMC Plant Biology, ISSN 14712229, Q1 - Plant Science (SJR);
- CELLS, ISSN 20734409, Q1 - Biochemistry, Genetics and Molecular Biology (miscellaneous) (JRC);
- PLANTS, ISSN 22237747, Q1 - Plant Science (SJR).

Reviewer:

for several journal: <https://publons.com/researcher/860031/francesco-mercati>;
for "Croatian Science Foundation" and "Czech Science Foundation".

PERSONAL SKILLS

Mother tongue(s) Italian

Other language(s) English - listening and speaking: very good command; reading and writing: fluent.

Job-related skills Strong background in plant genetics and molecular biology and related laboratory skills. In particular he has a high experience on plant biodiversity characterization using the main molecular markers, and Next-generation sequencing (NGS) technologies (such as RNAseq, WGS, GBS, etc).

Digital skills Excellent knowledge of the different operative systems, browsers, databases and genome browser available. Strong experience for the commonly programs used in biodiversity and association studies for population genetics and QTLs analysis, respectively, and for specific pipeline utilized in the data processing and bioinformatics analysis, such as plink, R/bioconductor, galaxy, etc.

ADDITIONAL INFORMATION

Publications

Total number of publications in peer-review journals: 63 (below a list of publications in the last five years), in fourteen year academic career. For the all publications see: <https://www.scopus.com/authid/detail.uri?authorId=36086442100>.

More than 50 conference presentations/posters at National and International congress.

Scopus ID: 36086442100; ORCID: 0000-0003-1356-2881.

Total number of citations: 1.167

H-index (Scopus): 21

- Puccio, G., Ingraffia, R., **Mercati, F**[&]. et al. Transcriptome changes induced by Arbuscular mycorrhizal symbiosis in leaves of durum wheat (*Triticum durum* Desf.) promote higher salt tolerance. *Sci Rep* 13, 116 (2023). DOI: doi.org/10.1038/s41598-022-26903-7.
[&]Corresponding author.
- Dong Y, Duan S, Xia Q, Liang Z, Dong X, Margaryan K, Musayev M, Goryslavets S, Zdunic G, Bert P, Lacombe T, Maul E, Nich P, Bitskinashvili K, Bisztray G, Drori E, Lorenzis G, Cunha J, Popescu C, Arroyo-Garcia R, Arnold C, Ergul A, Zhu Y, Ma C, Wang S, Liu S, Tang L, Wang C, Li D, Pan Y, Li J, Yang L, Li X, Xiang G, Yang Z, Chen B, Dai Z, Wang Y, Arakelyan A, Kuliyeve V, Spotar G, Girollet N, Delrot S, Ollat N, This P, Marchal C, Sarah G, Laucou V, Bacilieri R, Rockel F, Guan P, Jung A, Riemann M, Ujmajuridze L, Zakalashvili T, Maghradze D, Hohn M, Jahnke G, Kiss E, Deak T, Rahimi O, Hubner S, Grassi F, **Mercati F**, Sunseri F, Eiras-Dias J, Dumitru A, Carrasco D, Rodriguez-Izquierdo A, Munoz G, Uysal T, Ozer C, Kazan K, Xu M, Wang Y, Zhu S, Lu J, Zhao M, Wang L, Jiu S, Zhang Y, Sun L, Yang H, Weiss E, Wang S, Zhu Y, Li S, Sheng J, Chen W. Dual domestications and origin of traits in grapevine evolution. *Science* 2023 379: 892-901. DOI:10.1126/science.add8655.

- Faddetta T, Polito G, Abbate L, Alibrandi P, Zerbo M, Caldiero C, Reina C, Puccio G, Vaccaro E, Abenavoli MR, Cavalieri V, **Mercati F**, Palumbo Piccionello A, Gallo G. Bioactive Metabolite Survey of Actinobacteria Showing Plant Growth Promoting Traits to Develop Novel Biofertilizers. *Metabolites*. 2023; 13(3):374. DOI: 10.3390/metabo13030374
- Catarcione G, Paolacci AR, Alicandri E, Gramiccia E, Taviani P, Rea R, Costanza MT, De Lorenzis G, Puccio G, **Mercati F**, Ciaffi M. Genetic Diversity and Population Structure of Common Bean (*Phaseolus vulgaris* L.) Landraces in the Lazio Region of Italy. *Plants*. 2023; 12(4):744. DOI: 10.3390/plants12040744.
- Sunseri F, Aci MM, Mauceri A, Caldiero C, Puccio G, Mercati F, Abenavoli MR. Short-term transcriptomic analysis at organ scale reveals candidate genes involved in low N responses in NUE-contrasting tomato genotypes. *Front Plant Sci*. 2023 Mar 3;14:1125378. DOI: 10.3389/fpls.2023.1125378.
- Fiore MC, Blangiforti S, Preiti G, Spina A, Bosi S, Marotti I, Mauceri A, Puccio G, Sunseri F, **Mercati F**. Elucidating the Genetic Relationships on the Original Old Sicilian Triticum Spp. Collection by SNP Genotyping. *International Journal of Molecular Sciences*. 2022; 23(21):13378. DOI: 10.3390/ijms232113378. [Corresponding author](#).
- Guarino S, **Mercati F**, Fatta Del Bosco S, Motisi A, Abbate L. Rootstocks with Different Tolerance Grade to Citrus Tristeza Virus Induce Dissimilar Volatile Profile in Citrus sinensis and Avoidance Response in the Vector Aphis gossypii Glover. *Plants*. 2022; 11(24):3426. DOI: 10.3390/plants11243426. [Corresponding author](#).
- Catalano C, Abbate L, Fatta Del Bosco S, Motisi A, Carimi F, De Michele R, **Mercati F**, D'Onghia AM, Carra A (2022) Different Cell Types Affect the Transition from Juvenile to Mature Phase in Citrus Plants Regenerated through Somatic Embryogenesis. *Plants*. 11(14):1811. DOI: <https://doi.org/10.3390/plants11141811>.
- Puccio G, Crucitti A, Tiberini A, Mauceri A, Taglienti A, Palumbo Piccionello A, Carimi F, van Kaauwen M, Scholten O, Sunseri F, Vosman B, **Mercati F** (2022) WRKY Gene Family Drives Dormancy Release in Onion Bulbs. *Cells*. 24;11(7):1100. DOI: 10.3390/cells11071100. [Corresponding author](#).
- Raji MR, Lotfi M, Tohidfar M, Ramshini H, Sahebani M, Alifar M, Baratian M, **Mercati F**, De Michele R, Carimi F (2022) Multiple fungal diseases resistance induction in Cucumis melo through co-transformation of different pathogenesis related (PR) protein genes. *Sci hort*. 297,110924. DOI: 10.1016/j.scienta.2022.110924.
- Mauceri A, Aci MM, Toppino L, Panda S, Meir S, **Mercati F**, Araniti F, Lupini A, Panuccio MR, Rotino GL, Aharoni A, Abenavoli MR, Sunseri F (2022) Uncovering Pathways Highly Correlated to NUE through a Combined Metabolomics and Transcriptomics Approach in Eggplant. *Plants* 11,700. DOI: 10.3390/plants11050700
- Faddetta T, Abbate L, Alibrandi P, Arancio W, Siino D, Strati F, De Filippo C, Fatta Del Bosco S, Carimi F, Puglia AM, Cardinale M, Gallo G, **Mercati F** (2021) The endophytic microbiota of Citrus limon is transmitted from seed to shoot highlighting differences of bacterial and fungal community structures. *Sci Rep*. 11(1):7078. DOI: 10.1038/s41598-021-86399-5.
- Tiberini A, Fontana I, **Mercati F**, Adams I, Fox A, Tomassoli L (2021) Complete genome sequence of a new isolate of caper latent virus in caper. *Arch Virol* 166(9):2619-2621. DOI: 10.1007/s00705-021-05146-3.
- **Mercati F**, De Lorenzis G, Mauceri A, Zerbo M, Brancadoro L, D'Onofrio C, Morcia C, Barbagallo MG, Bignami C, Gardiman M, de Palma L, Ruffa P, Novello V, Crespan M, Sunseri F (2021) Integrated Bayesian Approaches Shed Light on the Dissemination Routes of the Eurasian Grapevine Germplasm. *Front Plant Sci*. 5;12:692661. DOI: 10.3389/fpls.2021.692661. [Corresponding author](#).
- Sparacio A, **Mercati F**, Sciara F, Pisciotta A, Capraro F, Sparla S, Abbate L, Mauceri A, Planeta D, Corona O, Crespan M, Sunseri F, Barbagallo MG (2021) Moscato Cerletti, a rediscovered aromatic cultivar with oenological potential in warm and dry areas. *Oeno One* 55(3):123-140. DOI: 10.20870/oenone.2021.55.3.4605
- Guarino S, Abbate L, **Mercati F**, Fatta Del Bosco S, Motisi A, Arif MA, Cencetti G, Palagano E, Michelozzi M (2021) Citrus varieties with different tolerance grades to tristeza virus show dissimilar volatile terpene profiles. *Agronomy* 11(6):1120. DOI: 10.3390/agronomy11061120. [Corresponding author](#).
- Mauceri A, Abenavoli MR, Toppino L, Panda S, **Mercati F**, Aci MM, Aharoni A, Sunseri F, Rotino GL, Lupini A (2021) Transcriptomics reveal new insights into molecular regulation of nitrogen use efficiency in Solanum melongena. *J Exp Bot*. 28;72(12):4237-4253. DOI: 10.1093/jxb/erab121
- Salimonti A, Forgione I, Sirangelo TM, Puccio G, Mauceri A, **Mercati F**, Sunseri F, Carbone F (2021) A Complex Gene Network Mediated by Ethylene Signal Transduction TFs Defines the Flower Induction and Differentiation in *Olea europaea* L. *Genes* 9;12(4):545. DOI: 10.3390/genes12040545.

- **Mercati F**, Sunseri F (2020) Genetic diversity assessment and marker-assisted selection in crops. *Genes*, 11(12):1–4, 1481
- Abbate L, **Mercati F**[#], Di Noto G, Heuertz M, Carimi F, Fatta del Bosco S, Schicchi R (2020) Genetic distinctiveness highlights the conservation value of a Sicilian manna ash germplasm collection assigned to *Fraxinus angustifolia* (Oleaceae). *Plants*, 9, 1035. DOI: 10.3390/plants9081035. [&][Corresponding author](#); [#] [First author in co-authorship](#).
- Fiore MC, Raimondo FM, **Mercati F**, Digangi I, Sunseri F, Scialabba A (2020) Preserving Biodiversity in Marginal Rural Areas: Assessment of Morphological and Genetic Variability of a Sicilian Common Bean Germplasm Collection. *Plants*, 9, 1035. DOI: 10.3390/plants9080989.
- Marullo R, **Mercati F**, Vono G (2020) DNA Barcoding: A Reliable Method for the Identification of Thrips Species (Thysanoptera, Thripidae) Collected on Sticky Traps in Onion Fields. *Insects*, 11, 489. DOI: 10.3390/insects11080489.
- Toppino L, Barchi L, **Mercati F**, Acciarri N, Perrone D, Martina M, Gattolin S, Sala T, Fadda S, Mauceri A, Ciriaci T, Carimi F, Portis E, Sunseri F, Lanteri S, Rotino GL (2020) A New Intra-Specific and High-Resolution Genetic Map of Eggplant Based on a RIL Population, and Location of QTLs Related to Plant Anthocyanin Pigmentation and Seed Vigour. *Genes*, 11, 745. DOI: 10.3390/genes11070745.
- Haddad B, Gristina AS, **Mercati F**, Saadi AE, Aiter N, Martorana A, Sharaf A, Carimi F (2020) Molecular Analysis of the Official Algerian Olive Collection Highlighted a Hotspot of Biodiversity in the Central Mediterranean Basin. *Genes*, 11, 303. DOI: 10.3390/genes11030303.
- Carrubba A, Abbate L, Sarno M, Sunseri F, Mauceri A, Lupini A, **Mercati F** (2020) Characterization of Sicilian rosemary (*Rosmarinus officinalis* L.) germplasm through a multidisciplinary approach. *Planta*, 251, 37. DOI: 10.1007/s00425-019-03327-8.
- **Mercati F**[&], Fontana I, Gristina AS, Martorana A, El Nagar M, De Michele R, Fici S, Carimi F (2019) Transcriptome analysis and codominant markers development in caper, a drought tolerant orphan crop with medicinal value. *Scientific Reports*, 9, 10411. DOI: 10.1038/s41598-019-46613-x. [&][Corresponding author](#).
- Santonoceto C, Mauceri A, Lupini A, Gresta F, Chiera E, Sunseri F, **Mercati F**, Anastasi U (2019) Morpho-agronomic characterization and genetic variability assessment of a guar germplasm collection by a novel SSR panel. *Industrial Crops and Products*, 138, 111568. DOI: 10.1016/j.indcrop.2019.111568.
- Lupini A, Aci MM, Mauceri A, Luzzi G, Bagnato S, Menguzzato G, **Mercati F**, Sunseri F (2019) Genetic diversity in old populations of sessile oak from Calabria assessed by nuclear and chloroplast SSR. *Journal of Mountain Science*, 6(5): 1111-1120. DOI: 10.1007/s11629-018-5335-1.
- Fiore MC, **Mercati F**[&], Spina A, Blangiforti S, Venora G, Dell'Acqua M, Lupini A, Preiti G, Monti M, Pè ME, Sunseri F (2019) High-throughput genotype, morphology, and quality traits evaluation for the assessment of genetic diversity of wheat landraces from Sicily. *Plants*, 8, 116. DOI: 10.3390/plants8050116. [&][Corresponding author](#).
- Abbate L, Panno S, **Mercati F**[&], Davino S, Fatta Del Bosco S (2019) Citrus rootstock breeding: response of four allotetraploid somatic hybrids to Citrus tristeza virus induced infections. *European Journal of Plant Pathology*, 153: 837–847. DOI: 10.1007/s10658-018-1599-0. [&][Corresponding author](#).
- Tranchida-Lombardo V, **Mercati F**, Avino M, Punzo P, Fiore MC, Poma I, Patanè C, Guarracino MR, Sunseri F, Tucci M, Grillo S (2019) Genetic diversity in a collection of Italian long storage tomato landraces as revealed by SNP markers array. *Plant Biosystems*, 153: 288- 297. DOI: 10.1080/11263504.2018.1478900.
- De Lorenzis G, **Mercati F**, Bergamini C, Cardone MF, Lupini A, Mauceri A, Caputo AR, Abbate L, Barbagallo MG, Antonacci D, Sunseri F, Brancadoro L (2019) SNP genotyping elucidates the genetic diversity of Magna Graecia grapevine germplasm and its historical origin and dissemination. *Frontiers in Plant Science*, 10, 7. DOI: 10.1186/s12870-018-1576-y.
- Faddetta T, Abbate L, Renzone G, Palumbo Piccionello A, Maggio A, Oddo E, Scaloni A, Puglia AM, Gallo G, Carimi F, Fatta Del Bosco S, **Mercati F**[&] (2018) An integrated proteomic and metabolomic study to evaluate the effect of nucleus-cytoplasm interaction in a diploid citrus cybrid between sweet orange and lemon. *Plant Molecular Biology*, 98:407–425. DOI: 10.1007/s11103-018-0787-9. [&][Corresponding author](#).
- Allegra A, Gallotta A, Carimi F, **Mercati F**, Inglese P, Martinelli F (2018) Metabolic profiling and post-harvest behavior of “dottato” fig (*Ficus carica* L.) fruit covered with an edible coating from *O. ficus-indica*. *Frontiers in Plant Science*, 9:1321. DOI: 10.3389/fpls.2018.01321
- Haddad B, Carra A, Saadi A, Haddad N, **Mercati F**, Gristina AS, Boukhalifa S, Djillali A, Carimi F (2018) In vitro propagation of the relict laperinne’s olive (*Olea europaea* L. subsp. *Laperrinei*). *Plant Biosystems*, 152:621-630. DOI: 10.1080/11263504.2017.1306002.

- Sunseri F, Lupini A, Mauceri A, De Lorenzis G, Araniti F, Brancadoro L, Dattola A, Gullo G, Zappia R, **Mercati F** (2018) Single nucleotide polymorphism profiles reveal an admixture genetic structure of grapevine germplasm from Calabria, Italy, uncovering its key role for the diversification of cultivars in the Mediterranean Basin. *Australian Journal of Grape and Wine Research*, 24: 345-359. DOI: 10.1111/ajgw.12339. [&]Corresponding author.
- Polat İ, Baysal Ö, **Mercati F**, Gümrükcü E, Sülü G, Kitapçı A, Araniti F, Carimi F (2018) Characterization of *Botrytis cinerea* isolates collected on pepper in Southern Turkey by using molecular markers, fungicide resistance genes and virulence assay. *Infection, Genetics and Evolution*, 60:151:159. DOI: 10.1016/j.meegid.2018.02.019. [#]First author in co-authorship.

**Projects
(active and in progress)**

- 1) AGRITECH - National Research Centre for Agricultural Technologies, Spoke 1, in the frame of the National Recovery and Resilience Plan (PNRR) of Italy, that is a part of the Next Generation EU (NGEU) funded by MUR. Principal investigator for the Spoke 1 - cluster grapevine. Total amount of financing: € 1.980.000,00; in progress.
- 2) ECOBOOST - Boosting functional biodiversity to maximize ecosystem services for Mediterranean crop production (<https://prima-med.org/results-of-prima-call-section-2-2021-multi-topic/>), funded by PRIMA - SECTION 2 2021 – MULTI-TOPIC. Collaborator. Total amount of financing: € 1.900.000, 00; in progress.
- 3) BIAS -Innovative biofertilizers for sustainable agriculture to protect human health and the environment (project number 082015000275), funded by Sicily Region through the European Regional Development Fund (PO-FESR Sicilia 2014-2020). Principal Investigator. Total amount of financing: € 1.713.818,20; in progress.
- 4) MIGLIORE - Use of improved varieties of horticultural species for sustainable agriculture with a low environmental impact (project number 94250045690), funded by Sicily Region through the European Regional Development Fund (PSR Sicilia 16.1). Principal Investigator. Total amount of financing: € 500.000,00; in progress.
- 5) ANCIENT - Enhancement of ancient varieties of wheat and development of a molecular traceability system (project number 94250045419), funded by Sicily Region through the European Regional Development Fund (PSR Sicilia 16.1). Principal Investigator. Total amount of financing: € 500.000,00; in progress

**Administrative role
and position responsibility**

- 2014 - currently open. Member of the Task Force Infrastructure at the CNR-IBBR (protocol no. 0002348 27/03/2014); Via Giovanni Amendola, 165/A – 70126, Bari (BA).
- 2013 - 2017. Member of the Scientific Technical Committee (CTS) of CeRTA srl (protocol no. 351/2013 of 18/10/2013), Regional Centers for Agri-food Technologies -, c / o University of Foggia, Via Gramsci, 89/91 - 71122 - Foggia (FG).
- 2010 - 2013. Founding partner of Enbiotech S.r.l., tax code and number registration 05881510829 at the register of companies of Palermo, date registration in the ordinary section 04/08/2010. Share capital company file no. T 121952279 - Enbiotech s.r.l, REA number: PA - 281758.

Palermo, 20 September 2023

Francesco Mercati