

Francesca CARDINALE

place and date of birth: Turin (IT), 25 February 1970
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ACADEMIC QUALIFICATIONS:

7/92 Bachelor of Science with honours degree (110/110 *cum laude*) at Turin University
11/93 Italian State qualifying examination in Biology
11/96 Awarded Doctor of Philosophy degree in Biology (Corso di Dottorato in Biologia e Biotecnologia dei Funghi)
9/00–10/08 Research associate in Plant Pathology at DiVaPRA, University of Turin
10/08–06/15 Research associate in Plant Physiology at DISAFA, University of Turin
11/18 "Abilitazione Nazionale" to Full Professor in Plant Physiology

PRESENT APPOINTMENT:

since 03/23 Appointed member of the "Commissione AQ" (DISAFA quality assurance, in charge of the Research area)
since 10/17 Member of the "Commissione monitoraggio e riesame" for the CdS Tecnologie Alimentari, formerly "Commissione Carriere" for the CCLI in Tecnologie Alimentari e Viticoltura ed Enologia
since 07/15 Associate Professor in Plant Physiology at DISAFA, University of Turin
since 09/09 Erasmus programme, DISAFA contact person for Lisbon (PT)

TEACHING EXPERIENCE/TUTORING:

since 11/00:
- *Biotechnologies in phytopathology*, University of Turin, Faculty of Agronomy, Master's degree in Biotecnologie Agrarie Vegetali
- *Plant physiopathology*, University of Turin, Faculty of Agronomy, Master's degree in Agroecologia
- *General biology and plant physiology* University of Turin, Faculty of Agronomy, Laurea degrees in Tecnologie Alimentari, Viticoltura ed Enologia
- *General and food-plant biology*, Laurea degree in Tecnologie Alimentari (current)
11/09 *Physiologie moléculaire végétale* Université de Bourgogne, Dijon (France). Enseignante invitée - Host: Prof. A. Pugin
09/15 *Hormonal perception, signalling and cross-talk in molecular plant-microbe interactions and responses to abiotic stress* cycle of seminars. University of Vilnius, Lithuania - Host: Prof. I. Meskiene

Direct scientific and experimental supervision of undergraduate (19 "Tesi di Laurea Magistrale" already defended in Agriculture, Biology, Biotechnologies) **and graduate students** (7 Theses in "Biology and Biotechnology of Fungi" or "Agricultural, Forest and Food Sciences" already defended, one ongoing). Scientific supervisor of several exchanging PhD students (from foreign countries) during secondment periods.

RESEARCH EXPERIENCE:

9/00–10/07 Research associate in Plant Pathology, DiVaPRA, University of Turin
Work subject: Molecular mechanisms of cross-protection between biotic and abiotic stress
Post-transcriptional regulation of ethylene biosynthesis
Phosphorylation events upon elicitor treatment
9/98–9/00 Post-doctoral fellow at the Institut für Mikrobiologie und Genetik,

Supervisor: Biozentrum Dr. Bohrgasse, Wien (Austria)
 Work subject: Prof. H. Hirt
3/97-6/98 MAP kinase signalling in plant-microbe interactions
 Post-doctoral fellow at the Centre de Biologie et Physiologie Végétales,
 Université Paul Sabatier, Toulouse (France)
 Supervisor: Prof. M.T. Esquerré-Tugayé
 Work subject: Molecular mechanisms in plant-microbe interactions; the octadecanoid
 pathway
11/93-11/96 PhD student, DiVaPRA, University of Turin (Italy)
 Supervisor: Prof. A. Matta
 Thesis: "Ricerche sul ruolo patogenetico di xilanasi fungine: loro caratterizzazione
 ed effetti elicitori"
 Dissertation: July 10, 1997
10/94-9/95 Exchanging graduate student at the Weed Science Laboratory, USDA ARS,
 Beltsville (MD) USA
 Supervisor: Dr. J.D. Anderson
 Work subject: Physiology of plant responses to fungal elicitors
9/92-9/93 Training at the Plant Physiopathology laboratory (DiVaPRA, University of
 Turin)
 Supervisor: Prof. A. Matta
 Work subject: Enzymatic elicitors of resistance within the *Capsicum annuum*-
Phytophthora capsici interaction

STAGES:

15-27/5/00 Plant responses to biotic and abiotic stress: molecular mechanisms and
 implications for agriculture. *NATO-Advanced Study Institute, FEBS, NSF*
 Roscoff (France)
25/2-1/3/02 Abiotic stresses in the soil-plant system. *SICA*, Portoferraio (LI) Italy
12-14/06/06 "Statistical analyses of biological data" Bioinformatics school 2006 –
Fondazione per le Biotecnologie, Turin

THIRD MISSION:

Co-founder of StrigoLab Srl, a spin-off of Turin University whose mission is to synthesize and
 distribute bioactive organic molecules among which the phytohormones strigolactones
 (www.strigolab.eu). Inventor on patent application no. 102019000019739 ("Composizione
 biostimolante e suo impiego in agricoltura") submitted on 24/11/2019, granted on 28/09/2021
 as patent N. 102019000019739.

FUNDING (past 10 years):

HORIZON-CL6-2022-ZEROPOLLUTION-01-03 - Innovative concepts and technologies for
 Ecologically sustainable nutrient management in agriculture aiming to prevent, mitigate and
 eliminate pollution in soils, water and air (ECONUTRI). *42 months, participant, Task leader*
H2020-SFS-2018-2020 - Realising dynamic value chains for underutilised crops (RADIANT).
48 months, Participant as UniTO leader
KIC-EIT food Innovation 2020 – Innovative biostimulants for sustainable fruit production
 from vegetable crops (BIOSUVEG), *12 months, Participant (UniTO coordinator)*
H2020 PRIMA Multi-topic 2018, 1.2.1 - Adapting Mediterranean vegetable crops to climate
 change-induced multiple stress (VEG-ADAPT). *36 months, WP co-leader (UniTO coordinator)*
MANUNET Transnational Call 2017 - Development of a demonstrator to produce next
 generation plant biostimulants based on root exudates (DEMETRE) Project No.
 [MNET17/NMCS-0034]. *24 months, Participant*
H2020-SFS-01-2016 - A novel and integrated approach to increase multiple and combined
 stress tolerance in plants using tomato as a model (TOMRES) Grant Agreement No. [727929].
42 months, WP leader (UniTO coordinator)
Strategic Research Grants, UniTO - Compagnia di S. Paolo 2014 - Smart molecular tools
 from the plant hormones Strigolactones to improve crop yields (STRIttools). *24 months, PI*

AGER-SERRES 2013 - Selezione di nuovi portainnesti della vite resistenti agli stress abiotici mediante lo sviluppo e la validazione di marcatori fisiologici e molecolari. 36 months, Participant

COST Action FA1206 2013 - Strigolactones, biological roles and applications (STREAM). 48 months, Dissemination leader

Strategic Research Grants, UniTO - Compagnia di S. Paolo 2012 - Signaling role of strigolactones at the interface between plants, microorganisms and a changing environment (SLEPS). 36 months, Participant

SELECTED LIST OF PUBLICATIONS (*corresponding author):

M. Trasoletti, I. Visentin, E. Campo, A. Schubert, **F. Cardinale*** (2022) Strigolactones as a hormonal hub for the acclimation and priming to environmental stress in plants. *Plant, Cell & Environment* 45(12): 3611-3630, doi: [10.1111/pce.14461](https://doi.org/10.1111/pce.14461)

P. Korwin Krukowski, I. Visentin, G. Russo, D. Minerdi, A. Bendahmane, A. Schubert, F. Cardinale (2022) Transcriptome analysis points to BES1 as a transducer of strigolactone effects on drought memory in *Arabidopsis thaliana*. *Plant & Cell Physiology* pcac058, doi: [10.1093/pcp/pcac058](https://doi.org/10.1093/pcp/pcac058)

V. Santoro, M. Schiavon, I. Visentin, M. Martin, D. Said-Pullicino, F. Cardinale, L. Celi (2022) Tomato plant responses induced by sparingly available inorganic and organic phosphorus forms are modulated by strigolactones. *Plant and Soil* 474: 355–372, doi: [10.1007/s11104-022-05337-0](https://doi.org/10.1007/s11104-022-05337-0)

V. Fiorilli, M. Forgia, A. de Saint Germain, G. D'Arrigo, D. Cornu, P. Le Bris, S. Al-Babili, F. Cardinale, C. Prandi, F. Spyrakis, F.-D. Boyer, M. Turina, L. Lanfranco (2022) A structural homologue of the plant receptor D14 mediates responses to strigolactones in the fungal phytopathogen *Cryphonectria parasitica*. *New Phytologist* 234(3): 1003-1017, doi: [10.1111/nph.18013](https://doi.org/10.1111/nph.18013)

D. Zhang, X. Shen, H. Zhang, X. Huang, H. He, J. Ye, **F. Cardinale**, J. Liu, J. Liu, G. Li (2021) Integrated transcriptomic and metabolic analyses reveal that ethylene enhances peach susceptibility to *Lasiodiplodia theobromae*-induced gummosis. *Horticulture Research* 9: uhab019, doi: [10.1093/hortre/uhab019](https://doi.org/10.1093/hortre/uhab019)

V. Santoro, M. Schiavon, I. Visentin, C. Constán-Aguilar, **F. Cardinale**, L. Celi (2021) Strigolactones affect phosphorus acquisition strategies in tomato plants. *Plant, Cell & Environment* 44(11): 3628-3642, doi: [10.1111/pce.14169](https://doi.org/10.1111/pce.14169)

M. Sedaghat, Y. Emam, A. Mokhtassi-Bidgoli, S. Hazrati, C. Lovisolo, I. Visentin, **F. Cardinale**, Z. Tahmasebi-Sarvestani (2021) The potential of the synthetic strigolactone analogue GR24 for the maintenance of photosynthesis and yield in winter wheat under drought: investigations on the mechanisms of action and delivery modes. *Plants* 10(6): 1223, doi: [10.3390/plants10061223](https://doi.org/10.3390/plants10061223)

F. Cardinale, C. Prandi (2021) *Strigolactones: Methods and Protocols*. Book series: Methods in Molecular Biology, vol. 2309, Springer Science editions, NY, USA, 261 pp., ISSN 1064-3745, doi: 10.1007/978-1-0716-1429-7

E. Sánchez, P. Cubas, **F. Cardinale**, I. Visentin (2021) Evaluation of the Bioactivity of Strigolactone-Related Molecules by a Quantitative Luminometer Bioassay. In: *Strigolactones: Methods and Protocols* (F. Cardinale, C. Prandi eds). Book series: Methods in Molecular Biology, Springer Science editions, NY, USA, pp. 191-200, doi: 10.1007/978-1-0716-1429-7_15

P. Korwin Krukowski, J. Ellenberger, S. Röhlen-Schmittgen, A. Schubert, **F. Cardinale** (2020) Phenotyping in *Arabidopsis* and crops—are we addressing the same traits? A case study in tomato. *Genes* 11(9): 1011, doi: [10.3390/genes11091011](https://doi.org/10.3390/genes11091011)

V. Santoro, M. Schiavon, F. Gresta, A. Ertani, **F. Cardinale**, C. J. Sturrock, L. Celi, A. Schubert (2020) Strigolactones control root system architecture and tip anatomy in *Solanum lycopersicum* L. plants under P starvation. *Plants* **9**(5): 612, doi: 10.3390/plants9050612

I. Visentin, C. Pagliarani, E. Deva, A. Caracci, V. Turečková, A. Novák, C. Lovisolo, A. Schubert, **F. Cardinale*** (2020) A novel strigolactone-miR156 module controls stomatal behaviour during drought recovery. *Plant, Cell & Environment*, **43**(7): 1613-1624, doi: 10.1111/pce.13758

C. Rameau, S. Goormachtig, **F. Cardinale**, T. Bennett, P. Cubas (2019) Strigolactones as Plant Hormones. In: *Strigolactones - Biology and Applications*. H. Koltai, C. Prandi eds. Springer Nature Switzerland AG 2019, pp. 47-88. ISBN 978-3-030-12152-5 ISBN 978-3-030-12153-2 (eBook) <https://doi.org/10.1007/978-3-030-12153-2>

E. Sanchez, E. Artuso, C. Lombardi, I. Visentin, B. Lace, W. Saeed, M.L. Lolli, P. Kobauri, Z. Ali, F. Spyraakis, P. Cubas, **F. Cardinale**, C. Prandi (2018) New insights into Structure Activity Relationship of strigolactones *via* a novel, quantitative *in planta* bioassay. *Journal of Experimental Botany* **69**(9): 2333-2343, doi: 10.1093/jxb/ery092

M. Ferrero, C. Pagliarani, O. Novák, A. Ferrandino, **F. Cardinale**, I. Visentin, A. Schubert (2018) Exogenous strigolactone interacts with abscisic acid-mediated accumulation of anthocyanins in grapevine berries. *Journal of Experimental Botany* **69**(9): 2391-2401, doi: 10.1093/jxb/ery033

G.H. Carlsson, D. Hasse, **F. Cardinale**, C. Prandi, I. Andersson (2018) The elusive ligand complexes of the DWARF14 strigolactone receptor. *Journal of Experimental Botany* **69**(9): 2345-2354, doi: 10.1093/jxb/ery036

F. Cardinale*, P. Korwin Krukowski, A. Schubert, I. Visentin (2018) Strigolactones: mediators of osmotic stress responses with a potential for agrochemical manipulation of crop resilience. *Journal of Experimental Botany* **69**(9): 2291-2303, doi: 10.1093/jxb/erx494

V. Scala, I. Visentin, **F. Cardinale*** (2017) Evaluating fumonisin gene expression in *Fusarium verticillioides*. In: *Mycotoxigenic Fungi. Methods and Protocols*. A. Moretti, A. Susca eds. Book series: Methods in Molecular Biology, Humana Press, NY, USA. pp 249-257 ISSN: 1064-3745, ISBN: 978-1-4939-6705-6, doi: 10.1007/978-1-4939-6707-0

I. Visentin, M. Vitali, M. Ferrero, Y. Zhang, C. Ruyter-Spira, O. Novák, M. Strnad, C. Lovisolo, A. Schubert, **F. Cardinale*** (2016) Low levels of strigolactones in roots as a component of the systemic signal of drought stress in tomato. *New Phytologist* **212**(4): 954-963, doi: 10.1111/nph.14190

D. Giordano, S. Provenzano, A. Ferrandino, M. Vitali, C. Pagliarani, F. Roman, **F. Cardinale**, S.D. Castellarin, A. Schubert (2016) Characterization of a multifunctional caffeoyl-CoA O-methyltransferase activated in grape berries upon drought stress. *Plant Physiology and Biochemistry* **101**: 23-32, doi: 10.1016/j.plaphy.2016.01.015

J. Liu, H. He, M. Vitali, I. Visentin, T. Charnikhova, I. Haider, A. Schubert, C. Ruyter-Spira, H. Bouwmeester, C. Lovisolo, **F. Cardinale*** (2015) Osmotic stress represses Strigolactone biosynthesis in *Lotus japonicus* roots: exploring the interaction between Strigolactones and ABA under abiotic stress. *Planta* **241**(6): 1435-1451, doi: 10.1007/s00425-015-2266-8

V. Scala, P. Giorni, M. Cirilini, M. Ludovici, I. Visentin, **F. Cardinale**, A.A. Fabbri, C. Fanelli, M. Reverberi, P. Battilani, G. Galaverna, C. Dall'Asta (2014) LDS1-produced oxylipins are negative regulators of growth, conidiation and fumonisin synthesis in the fungal maize pathogen *Fusarium verticillioides*. *Frontiers in Microbiology* **5**: 669, doi: 10.3389/fmicb.2014.00669

G. Testa, M. Blandino, **F. Cardinale**, A. Reyneri (2014) Grain yield enhancement through fungicide application on maize hybrids with different susceptibility to Northern Corn Leaf Blight. *Cereal Research Communications* **43**(3): 415-425, doi: 10.1556/CRC.2014.0050

C. Prandi, **F. Cardinale** (April 2014) Strigolactones: a new class of plant hormones with multifaceted roles. In: eLS 2014, John Wiley & Sons Ltd: Chichester <http://www.els.net/>, doi: 10.1002/9780470015902.a0023754

J. Liu, M. Novero, T. Charnikhova, A. Ferrandino, A. Schubert, C. Ruyter-Spira, P. Bonfante, C. Lovisolo, H.J. Bouwmeester, **F. Cardinale*** (2013) *CAROTENOID CLEAVAGE DIOXYGENASE 7* modulates plant growth, reproduction, senescence, and determinate nodulation in the model legume *Lotus japonicus*. *Journal of Experimental Botany* **64**(7): 1967-1981

V. Montis, M. Pasquali, I. Visentin, P. Karlovsky, **F. Cardinale*** (2013) Identification of a *cis*-acting factor modulating the transcription of *FUM1*, a key fumonisin-biosynthetic gene in the fungal maize pathogen *Fusarium verticillioides*. *Fungal Genetics and Biology* **51**: 42-49, doi: 10.1016/j.fgb.2012.11.009 ISSN: 1087-1845

J. Liu, C. Lovisolo, A. Schubert, **F. Cardinale*** (2013) Signalling role of Strigolactones at the interface between plants, (micro)organisms and a changing environment. *Journal of Plant Interactions* **8**(1): 17-33, doi:10.1080/17429145.2012.750692

N. Gaiji, **F. Cardinale**, C. Prandi, P. Bonfante, G. Ranghino (2012) The computational-based structure of Dwarf14 provides evidence for its role as potential strigolactone receptor in plants. *BMC Research Notes* **5**: 307

I. Visentin, S. Gentile, D. Valentino, P. Gonthier, G. Tamietti, **F. Cardinale** (2012) *Gnomoniopsis castanea* sp. nov. (Gnomoniaceae, Diaporthales) as a causal agent of nut rot in sweet chestnut. *Journal of Plant Pathology* **94**(2): 411-419, doi: 10.4454/JPP.FA.2012.045

I. Visentin, V. Montis, K. Döll, C. Alabouvette, G. Tamietti, P. Karlovsky, **F. Cardinale*** (2012) The transcription of genes in the biosynthetic pathway for fumonisin mycotoxins is epigenetically and differentially regulated in the fungal maize pathogen *Fusarium verticillioides*. *Eukaryotic Cell* **11**: 252-259, doi: 10.1128/EC.05159-11 ISSN: 1535-9778

D. Francia, A. Chiltz, F. Lo Schiavo, A. Pugin, P. Bonfante, **F. Cardinale*** (2011) AM fungal exudates activate MAP kinases in plant cells in dependence from cytosolic Ca²⁺ increase. *Plant Physiology and Biochemistry* **49**(9): 963-969, ISSN: 09819428, doi: 10.1016/j.plaphy.2011.04.00

V. Fiorilli, M. Catoni, D. Francia, **F. Cardinale**, L. Lanfranco (2011) The arbuscular mycorrhizal symbiosis reduces disease severity in tomato plants infected by *Botrytis cinerea*. *Journal of Plant Pathology* **93**(1): 237-242, ISSN: 1125-4653, doi: 10.4454/jpp.v93i1.299

I. Visentin, D. Valentino, **F. Cardinale**, G. Tamietti (2010) DNA-based tools for the detection of *Fusarium* spp. pathogenic on maize. In: Molecular identification of fungi, Y. Gherbawy and K. Voigt (Eds.) Springer-Verlag Berlin Heidelberg, pp 107-129, doi: 10.1007/978-3-642-05042-8. ISBN: 978-3-642-05041-1. e-ISBN: 978-3-642-05042-8

A. Fammartino, B. Verdaguer, J. Fournier, G. Tamietti, F. Carbonne, M.-T. Esquerré-Tugayé, **F. Cardinale*** (2010) Coordinated transcriptional regulation of the divinyl ether biosynthetic genes in tobacco by signal molecules related to defense. *Plant Physiology and Biochemistry* **48**: 225-231

I. Visentin, G. Tamietti, D. Valentino, E. Portis, P. Karlovsky, A. Moretti, **F. Cardinale*** (2009) The ITS region as a taxonomic discriminator between *Fusarium verticillioides* and *F. proliferatum*. *Mycological Research* **113**: 1137-1145

F. Cardinale*, A. Fammartino, G. Tamietti, I. Feussner, M.-T. Esquerré-Tugayé (2009) Oxylipins and relevant enzymes in plant defence. In: International Treatise Series on Advances in Plant Physiology, A. Hemantaranjan (Ed.) Scientific Publishers, Jodhpur (India), Volume **11**, pp. 215-253 ISSN: 0972-9917 ISBN: 978-81-7233-631-8

D. Francia, D. Demaria, O. Calderini, D. Valentino, L. Ferraris, S. Arcioni, G. Tamietti, **F. Cardinale*** (2008). Do pathogen-specific defense mechanisms contribute to wound-induced resistance in tomato? (Addendum) *Plant Signaling & Behavior* **3** (5): 1-2

D. Francia, D. Demaria, O. Calderini, S. Arcioni, L. Ferraris, D. Valentino, G. Tamietti, **F. Cardinale*** (2007). Wounding induces resistance to pathogens with different lifestyles in tomato: role of ethylene in cross-protection. *Plant, Cell & Environment* **30**: 1357-1365

A. Schweighofer, V. Kazanaviciute, E. Scheikl, M. Teige, R. Doczi, H. Hirt, M. Schwanninger, F. Mauch, A. Buchala, **F. Cardinale**, I. Meskiene (2007) The PP2C-type phosphatase AP2C1, which negatively regulates MPK4 and MPK6, modulates innate immunity, jasmonic acid and ethylene levels in *Arabidopsis*. *Plant Cell* **19**: 2213-2224

A. Fammartino, **F. Cardinale***, C. Göbel, L. Mène-Saffrané, J. Fournier, I. Feussner, M.-T. Esquerré-Tugayé (2007) Characterisation of a divinyl ether biosynthetic pathway specifically associated with pathogenesis in *Nicotiana tabacum*. *Plant Physiology* **143**: 378-388

F. Cardinale, L. Ferraris, D. Valentino, G. Tamietti (2006) Induction of systemic resistance by a hypovirulent *Rhizoctonia solani* isolate in tomato. *Physiological and Molecular Plant Pathology* **69**: 160-171

L. Ferraris, **F. Cardinale**, D. Valentino, P. Roggero, G. Tamietti (2004) Immunological discrimination of *Phytophthora cinnamomi* from other *Phytophthorae* pathogenic on chestnut. *Journal of Phytopathology* **152**: 193-199

F. Cardinale, I. Meskiene, F. Ouaked, H. Hirt (2002) Convergence and divergence of stress-induced MAPK signaling pathways at the level of two distinct MAP kinase kinases. *Plant Cell* **14**: 703-711

F. Cardinale, A. Matta (2001) Basic xylanases from the fungal tomato pathogen *Fusarium oxysporum* f.sp. *lycopersici*. *Journal of Plant Pathology* **83**: 27-36

F. Cardinale, C. Jonak, W. Ligterink, T. Boller, H. Hirt (2000) Differential activation of four specific MAPK pathways by distinct elicitors. *Journal of Biological Chemistry* **275**(47): 36734-36740

S. Kiegerl, **F. Cardinale**, C. Siligan, A. Gross, A. Liwosz, S. Eklöf, S. Till, L. Bögre, H. Hirt, I. Meskiene (2000) SIMKK, a mitogen-activated protein kinase (MAPK) kinase, is a specific activator of the salt-stress induced MAPK SIMK. *Plant Cell* **12**(11): 2247-2258

C. Jonak, S. Kiegerl, W. Ligterink, C. Siligan, E. Baudouin, J. Beyerly, **F. Cardinale**, C. Hausl, K. Zwerger, I. Meskiene, H. Hirt (2000) MAP kinases in plant signal transduction: versatile tools for signaling stress, cell cycle, and more. In: *Plant tolerance to abiotic stresses in agriculture: role of genetic engineering*, J.H. Cherry, D.R. Locy & A. Richter (eds) Kluwer Academic Publishers, Dordrecht (The Netherlands) pp. 67-79 Proceedings of the NATO Advanced Research Workshop, Mragowa, Poland, 13-18 June 1999 Series: [NATO Science Partnership Sub-Series: 3](#): Vol. 83, 376 p. ISBN: 978-0-7923-6566-2

F. Cardinale, W. Ligterink, E. Baudouin, J. Beyerly, C. Hausl, C. Jonak, S. Kiegerl, I. Meskiene, C. Siligan, K. Zwerger, H. Hirt (1999) MAP kinase activation in plant defense. *Biologia* **54** (7): 56-57

L. Ferraris, **F. Cardinale**, A. Matta (1996) *In vitro* production of cell wall degrading enzymes by *Phytophthora capsici* Leon. *Phytopathologia mediterranea* **35**: 199-206

F. Cardinale, G. Berta (1995) Influence of ericoid and arbuscular mycorrhizal fungi on the root system topology of a micropropagated woody plant species (*Prunus cerasifera* L.). *Allionia* **33**: 87-92

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