PERSONAL INFORMATION

Valentina Ciccolini

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https://www.researchgate.net/profile/Valentina_Ciccolini

Skype valecicco

Sex Female | Year of birth 1986 | Nationality Italian

I am a Postdoctoral research fellow at the Scuola Superiore Sant'Anna (Pisa) with focus on the development of innovative formulations for biofertilizers for crops based on a consortium of beneficial microorganisms. I am also involved in an international project aiming at assessing the capability of soil microorganisms (fungi and bacteria) and plants to degrade pharmaceuticals in wastewaters. In the recent past, I have worked on the valorisation of nutraceutical properties of cereals and pseudocereals through the application of beneficial microorganisms, as biofertilizers, or through the application of innovative technique of agronomic biofortification.

I got a PhD in Agrobiosciences at the Scuola Superiore Sant'Anna with focus on diversity, phylogeny and functionality of nitrifying and denitrifying bacteria, oxidizing archaea and arbuscular mycorrhizal fungi (AMF) in a Mediterranean restored peatland area.

I have a 6+ years' experience in soil sampling activities, DNA extraction from different matrices (e.g., soil, plant tissue), characterization of molecular diversity of microbial communities, phylogenetic analyses, monitoring of greenhouse gases emissions from agricultural soils. I am highly knowledgeable in measuring micro- and macronutrients contents and nutraceutical compounds in vegetal and food samples.

I gained a thorough experience in planning and managing field and laboratory experiments, in the elaboration and statistical analysis of data (uni- and multivariate statistics) and in the writing of scientific papers and reports.

Having interests in all aspects of the biological and chemical fields of study, I am currently interested in opportunities related to food safety, biotechnology, and to environmental protection.

RESEARCH AND WORK EXPERIENCE

Aug. 2017– still

Post-Doc Research Fellow

Title: "Improvement of the yield, the nutritional and the nutraceutical quality of crops through the application of beneficial microbial inoculants"

Scuola Superiore Sant'Anna in Pisa, Italy

- Set-up of field experiments with cereals, minor cereals and pseudocereals inoculated with beneficial microorganisms (i.e., arbuscular mycorrhizal fungi-AMF)
- Evaluation of wheat phenological stages and main yield parameters
- Determination of fungal development within roots (i.e., AMF root colonization)
- Characterization of the molecular diversity of AMF communities within soil and roots
- Characterization of Fe and Zn content and main nutraceuticals parameters (i.e., total polyphenols, total flavonoids) in wheat flour and bread using spectrophotometric assays
- Manipulation of microorganisms (risk group 1)
- Set-up of hydroponic experiments to evaluate the uptake of pharmaceuticals by plants species
- Set-up of laboratory experiments to assess the capability of microorganisms (fungi and bacteria) to degrade pharmaceuticals
- Statistical analysis of data and writing of reports and scientific articles
- Supervision of undergraduate and graduate students in lab activities

Research and Education

Aug. 2015 – Jul.2017

Post-Doc Research Fellow
Title: "Enhancement of the epigenetic properties of ancient Tuscan genotypes of wheat biofortified with iron and zinc"

Scuola Superiore Sant'Anna in Pisa, Italy

- Set-up of field experiments with cereals, minor cereals and pseudocereals inoculated with beneficial microorganisms (i.e., arbuscular mycorrhizal fungi-AMF)
- Evaluation of wheat phenological stages and main yield parameters
- Determination of fungal development within roots (i.e., AMF root colonization)
- Characterization of the molecular diversity of AMF communities within soil and roots
- Characterization of main nutraceuticals parameters (i.e., total polyphenols, total flavonoids) in wheat flour and bread using spectrophotometric assays
- Manipulation of microorganisms (risk group 1)
- Statistical analysis of data and writing of reports and scientific articles
- Supervision of undergraduate and graduate students in lab activities

Research and Education

Apr. 2015 – Jul. 2015

Research Assistant Fellow
Title: "Agronomic biofortification of ancient wheat genotypes and definition of their nutraceutical profile"

Scuola Superiore Sant'Anna in Pisa, Italy

- Set-up of field experiments with ancient varieties of wheat biofortified with Fe and Zn and inoculated with beneficial microorganisms
- Statistical analysis of data and writing of reports and scientific articles

Research and Education

Oct. 2013 – Feb. 2014

Ph.D. Visiting student

Plant Ecology Laboratory, Faculty of Science and Technology, University of Tartu, Estonia (EE)

- Molecular Biology, Pyrosequencing, Bioinformatics skills

Research and Education

May 2010 – Aug. 2010

Erasmus traineeship

Faculty of Earth and Life Sciences, Institute of Ecological sciences, Vrije Universiteit, Amsterdam, The Netherlands (NL)

- DNA and RNA extraction, purification, cloning and Sanger sequencing
- PCR to establish the infection status of the Collembola
- Preparation of antibiotic treatment to cure bacterial Wolbachia infection
- Preparation of micro-injection to experimentally transfect different Collembola species

Research and Education

Set. 2009 – Nov. 2009

Chemical analyst

Unione Italiana Vini – Laboratory Unit of Siena (Italy)

- Chemical analysis of wines and olive oils

Laboratory analysis

EDUCATION AND TRAINING

Jan. 2012-Jul. 2015

Ph.D. degree in Agrobiosciences: Agriculture, Environment and Landscape, *cum laude*

EQF 8

Scuola Superiore Sant'Anna in Pisa, Italy

- Thesis title: "Effects of land-use intensification on soil microbial diversity and CO_2 emissions in Mediterranean peaty soils"

EQF 8

Jan.2011 – Dec.2011

Advanced Education Course for MSc in Waste Management

Scuola Superiore Sant'Anna in Pisa, Italy

- Thesis title: "Preliminary study for the realization of a phytotreatment plant for surface waters from the Massaciuccoli basin (PI)"

EQF 7

Oct. 2008 – Feb.2011

MSc in Evolutionary Biology, *cum laude*

University of Siena, Italy

- Thesis title: "Attempts at introducing and removing *Wolbachia* endosymbionts in springtail hosts"

Oct. 2005 – Dec. 2008

BSc in Biology, *cum laude*

EQF 6

University of Siena, Italy

- Thesis title: "Ecotoxicolgical analysis on *Caretta caretta* using non-destructive biomarkers"

PROJECTS

During my experience as Research Fellow at Scuola Superiore Sant'Anna I have been actively involved in the following national and international projects:

2016 - 2018

PRINCE (Tuscan pasta and bakery products for people with gluten intolerance and celiac disease)

Funded by Tuscany region through EU funds

- Set-up of field experiments with millet and buckwheat on the application of beneficial microorganisms (i.e. arbuscular mycorrhizal fungi) for production of functional food without gluten
- Sampling and data collection
- Evaluation of main yield parameters
- Determination of fungal development within roots (i.e., AMF root colonization)

2016 - 2018

GRANT (ancient wheat varieties, new cultivation techniques)

Funded by Tuscany region through EU funds.

- Set-up of field experiments with ancient varieties of wheat
- Evaluation of wheat phenological stages and main yield parameters
- Sampling and data collection
- Writing of technical reports

2017 - 2018

TuSCANA (Nutritional and nutraceutical characteristics of Tuscan bread wheat varieties)

Funded by Tuscany region through EU funds.

- Drafting of a book on the nutritional and nutraceutical characteristics of Tuscan bread wheat varieties
- Organization of several meetings for the presentation of the book

2017 - 2018

FERTIBIO (BIOlogic FERTIlizers for Tuscan agriculture: process development for producing innovative formulations of biofertilizers based on microorganisms and biomaterials)

Funded by Tuscany region through EU funds.

- Literature research on innovative formulations for biofertilizers based on consortium of beneficial microorganisms
- Organization of educational events about biofertilizers
- Writing of technical reports

2015 - 2017

F.A.T.E.Pre.Sco (Valorization of the epigenetic properties of old varieties of Tuscan wheat bio-fortified with iron and zinc in the prevention of chronic heart failure)

Funded by Tuscany region through EU funds.

- Set-up of field experiments with ancient varieties of wheat biofortified with Fe and Zn and inoculated

with beneficial microorganisms (i.e., arbuscular mycorrhizal fungi-AMF)
• Evaluation of wheat phenological stages and main yield parameters
• Determination of fungal development within roots (i.e., AMF root colonization)
• Characterization of Fe and Zn content and main nutraceuticals parameters (i.e., total polyphenols, total flavonoids) in wheat flour and bread using spectrophotometric assays
•Statistical analysis of data and writing of reports and scientific articles

2015-2017

PHARM-SWAP MED (Removal of PHARMaceuticals from treated wastewaters in the Soil-WAter-Plant continuum in the MEDiterranean basin)

A joint Italian-Israeli research project

• Set-up of laboratory experiments to assess the capability of microorganisms (fungi and bacteria) to degrade pharmaceuticals
• Set-up of hydroponic experiments to evaluate the uptake of pharmaceuticals by plants species
• Statistical analysis of data and writing of reports and scientific articles

PERSONAL SKILLS

Mother tongue: Italian

Other language(s)

	UNDERSTANDING		SPEAKING		WRITING
	Listening	Reading	Spoken interaction	Spoken production	
English	C2	C2	C2	C2	C2
"CERTIFICATE OF ADVANCED IN ENGLISH" (CAE – ESOL CERTIFICATION) – June 2017 (mark: 199/200) Certificate of knowledge of English – Level C2 (issued by the University of Pisa) – July 2017					
French	A1	A2	A1	A1	A1

Technical skills and competences

- Set-up and running of field and greenhouse trials
- Trouble shooting
- Physical and chemical analyses of soil and chemical analyses of plant material
- DNA and RNA extraction, PCR, purification, cloning and Sanger sequencing, 454-sequencing
- Manipulation of microorganisms (risk group 1)
- Bioinformatics skills
- Advanced experience with spectrophotometer
- Monitoring of greenhouse gases emissions from agricultural soils
- Phylogenetics and statistics (i.e., uni- and multivariate data analyses)
- Listing and specifying equipment, materials, reagents, chemical standards, and biological specimens
- Instrument and method calibration and standardization
- Sample Collection, handling and preservation
- Data acquisition and calculations
- Writing of scientific papers and reports

Computer skills and competences

Reference management: Mendeley
Molecular Data Analysis (Evolution): CLUSTALX, Bioedit (v.7.1.0), Seaview, MAFFT, Mussle, Mega
Assessment and comparison of community composition data: EstimateS (v. 8.2.0)
Sequence Analysis: NCBI Research, BLAST
Statistics: SPSS 16.0 (experience with ANOVA and ANCOVA analyses), free software R (basic knowledge)
Multivariate statistics: CANOCO v.5, Plymouth Routines In Multivariate Ecological Research (Primer) v6, Permanova for Primer
Courses attended:
"Experimental methodologies in agrobiosciences" by Prof Barberi, Prof. Sebastiani, Dr. Moonen (A.Y. 2011/2012 - Scuola Superiore Sant'Anna (PI) – 36 hours)
"The role of DOC and DON in plant-soil C and N cycling" – Uppsala, Sweden, 23-27 April 2012 – 30 hours

"Real-time PCR from theory to practice" – BIORAD, Milano, 22-25 October 2012 – 24 hours
"Statistical methods for agricultural sciences" – University of Perugia, 13-16 June 2016 – 40 hours
"What a brave new soil!" Summer school (PhD level) – University of Florence - 7-11 July 2014 – 32 hours

Digital competence

SELF-ASSESSMENT				
Information processing	Communication	Content creation	Safety	Problem solving
Proficient user	Proficient user	Proficient user	Proficient user	Proficient user

European Computer Driving Licence (ECDL certification) – May 2006

Mac and Windows user: excellent expertise with Office (Word, Excel, Access and Power Point) and Adobe (Indesign, Illustrator and Photoshop) packages.

Other skills

- In A.Y. 2007-2008 and 2008-2009 I worked as a "Student Tutor"' for the students of Biological Sciences (Faculty of Mathematical, Physical and Natural Sciences, University of Siena).
- I have good organizational, communicative, and interpersonal relationship skills. I like meeting new people and I can relate with people of different nationalities and cultures thanks to my experience abroad. I always adopt a very professional approach in my work and I enjoy being involved in new projects and challenges.

Driving licence

Driving licence B, car owner

ADDITIONAL INFORMATION

Papers published in peer-reviewed journals

Ciccolini, V., Pellegrino, E., Coccina, A., Fiaschi, A. I., Cerretani, D., Sgherri, C., Quartacci, M.,Ercoli, L. (2017). Biofortification with Iron and Zinc Improves Nutritional and Nutraceutical Properties of Common Wheat Flour and Bread. Journal of Agricultural and Food Chemistry, 65: 5443-5452 (IF 3.154). doi: 10.1021/acs.jafc.7b01176

Ciccolini, V., Ercoli, L., Davison, J., Vasar, M., Öpik, M., Pellegrino, E. (2016). Land-use intensity and host plant simultaneously shape the composition of arbuscular mycorrhizal fungal communities in a mediterranean drained peatland. FEMS Microbiology Ecology (IF 3.720). http://dx.doi.org/10.1093/femsec/fiw186

Ciccolini, V., Bonari, E., Ercoli, L., Pellegrino, E. (2016). Phylogenetic and multivariate analyses to determine the effect of agricultural land-use intensification and soil physico-chemical properties on N-cycling microbial communities in drained Mediterranean peaty soils. Biology and Fertility of Soils 52: 811-824 (IF 3.683). doi:10.1007/s00374-016-1121-9

Ciccolini V., Bonari E., Pellegrino E. (2015) Land-use intensity and soil properties are determinants of fungal communities in Mediterranean peaty soils drained for agricultural purposes. Biology and Fertility of Soils, 51: 719-731 (IF 3.683). doi: 10.1007/s00374-015-1013-4

Pellegrino, E., Bosco, S., **Ciccolini**, V., Pistocchi, C., Sabbatini, T., Silvestri, N., Bonari, E. (2014). Agricultural abandonment in Mediterranean reclaimed peaty soils: long-term effects on soil chemical properties, arbuscular mycorrhizas and CO2 flux. Agriculture, Ecosystems & Environment, 199: 164-175 (IF 4.099). http://dx.doi.org/10.1016/j.agee.2014.09.004

Books

Ercoli L., **Ciccolini V.**, Pellegrino E. (2018) "Frumenti teneri toscani: caratteri nutrizionali e nutraceutici di varietà iscritte al repertorio regionale". ISBN 979-12-200-2803-5

Papers published in proceedings of international conferences

Ciccolini, V., Giannini, V., Bosco, S., Pellegrino, E., Pistocchi, C., Sabbatini, T., Silvestri, N., Baiocchetti, A., Difonzo, A., Giannecchini, L., Bonari, E. (2013). Restoration of a Mediterranean drained peatland: the case study of the Massaciuccoli Lake Basin (Tuscany, IT). Extended Abstract Aware Approaches In Wetland Restoration, 21-25

Oral presentations at conferences

Ciccolini V., Coccina A., Pellegrino E., Ercoli L. Agronomic biofortification affects iron and zinc concentration and nutraceuticals in wheat flour and bread. XLV Convegno della Società Italiana di Agronomia. Sassari, 20-22 September 2016

Ciccolini, V., Öpik M., Bonari E., Pellegrino E.
Arbuscular mycorrhizal fungal diversity in Mediterranean drained peaty soils is affected by host plant and intensification of agricultural land-use.
8th International Conference On Mycorrhiza (ICOM8). Flagstaff, AZ, USA, 3-7 August 2015

Pellegrino E., Silvestri N., **Ciccolini** V., Bonari E.
Wetland management: microbial composition and structure in a peatland secondary succession. 4th International Congress Eurosoil 2012. Bari, Italy, 2-6 July 2012

Proceedings of national and international conferences

Ercoli L., Piazza G., **Ciccolini** V., Bonari E., Pellegrino E.
Increase of iron and zinc concentration in grain of bread wheat field-inoculated with arbuscular mycorrhizal fungi. XLV Convegno della Società Italiana di Agronomia. Sassari, 20-22 Sept. 2016

Ciccolini V., Öpik M., Bonari E., Pellegrino E.
Effects of land-use intensification and host identity on arbuscular mycorrhizal fungal communities in Mediterranean peaty soils. First Global Soil Biodiversity Conference. Assessing soil biodiversity and its role for ecosystem services". Dijon, France, 2-5 Dec. 2014

Mantino A., **Ciccolini** V., Pellegrino E., Bonari E.
Impact on soil quality of a land-use gradient in a Mediterranean area. XLIII Convegno Nazionale Società Italiana Di Agronomia. Pisa, Italy, 17-19 Sept. 2014

Ciccolini V., Pellegrino E., Öpik M., Bonari E.
Land use changes in a Mediterranean restored peatland: effects on arbuscular mycorrhizal fungal biodiversity. XLIII Convegno Nazionale Società Italiana Di Agronomia. Pisa, Italy, 17-19 Sept. 2014

Rossetto R., Bosco S., Carloni I., **Ciccolini** V., Giannini V., Pellegrino E., Pistocchi C., Sabbatini T., Silvestri N., Baiocchetti A, Difonzo A., Giannecchini L., Bonari E.
Large Scale Phyto-Treatment for ecosystem Restoration: The San Niccolò experiment. Flowpath 2014 – National Meeting on Hydrogeology Viterbo, Italy, 18-20 June 2014

Pistocchi C., Bosco S., **Ciccolini** V., Giannini V., Pellegrino E., Rossetto R., Sabbatini T., Silvestri N., Giannecchini L., Baiocchetti A., Di Fonzo A., Bonari E. Restoration of a Mediterranean drained peatland: the case study of the Massaciuccoli Lake Basin (Tuscany, Italy).
Wetland Systems: Ecology, Functioning and Management, pp: 145-146. Padua, 1-4 Sept. 2013

Ciccolini V., Giannini V., Pistocchi C., Bosco S., Pellegrino E., Sabbatini T., Rossetto R., Cantini V., Giannecchini L., Baiocchetti A, Difonzo A., Silvestri N., Bonari E.
Restoration of a Mediterranean drained peatland: the case study of the Massaciuccoli Lake Basin (Tuscany, Italy). AWARE: Approaches in Wetland Restoration. Warsaw, Poland, 20-25 April 2013

Ciccolini V., Pellegrino E. Bosco S., Silvestri N., Sabbatini T., Bonari E.
Impact of Intensive agriculture on arbuscular mycorrhizas assemblages And CO2 flux partitioning in a Mediterranean peatland. FEMS conference. Leipzig, Germany, 21-25 July 2013

Pellegrino E., **Ciccolini** V., Silvestri N., Bonari E.
New Insights In Mediterranean Peatlands: Molecular Phylotaxonomic Diversity of Bacteria, fungi, arbuscular mycorrhizas and microorganisms linked to N cycle as affected by land use change. FEMS conference. Leipzig, Germany, 21-25 July 2013

Invited reviewer

Applied Soil Ecology (IF 2.786)
Fungal Ecology (IF 3.219)
Italian Journal of Agronomy (IF 0.687)

Journal of Agricultural and Food Chemistry (IF 3.154)
Nutrient Cycling in Agroecosystems (IF 1.843)
PeerJ (IF 2.200)
PlosONE (IF 3.540)
Science of the Total Environment (IF 4.900)

Autorizzo il trattamento dei miei dati personali ai sensi del D.lgs. 196 del 30 giugno 2003.

Pisa, 31/01/2018

Signature