Anita Zamboni

Curriculum vitae et studiorum

1. Contact details

University of Verona
Biotechnology Department
Strada Le Grazie, 15, 37134 Verona, Italy

e.mail: anita.zamboni@univr.it

2. Degrees

(2003-2006) Phd in Agro-Industrial Biotechnology, University of Verona. Thesis: "Correlation between resveratrol biosynthesis and the transcriptional profile of grapevine cell culture (*Vitis* spp.).

(1996-2002) Master degree in Agro-Industrial Biotechnology, University of Verona. Thesis: "Cloning and molecular characterization of expansin gene family members in *Petunia hybrida*".

3. Positions

21/12/2018- Associate Professor, AGR/13, Biotechnology Department, University of Verona.

21/12/2015- 20/12/2018 Assistant Professor (RTDb), AGR/13, Biotechnology Department, University of Verona.

01/12/2012- 30/11/2015 Assistant Professor (RTDa), AGR/13, Biotechnology Department, University of Verona.

01/03/2010-30/11/2012 Technician, Biotechnology Department, University of Verona.

31/12/2008-28/02/2010 Technician, Department for Sciences, Technologies and Markets of Grapevine and Wine (disused), University of Verona.

01/04/2008-31/12/2008 Research fellow, Department for Sciences, Technologies and Markets of Grapevine and Wine (disused), University of Verona: "Molecular physiology of nitrogen nutrition in *Vitis* spp. Identification and functional analysis of genes involved in transport of NO_3^- e NH_4^+ and effects of nitrogen forms on the development and quality traits. Scientific responsible: Prof. Zeno Varanini

01/04/2006-31/03/2008 Research fellow, Scientific and Technology (disused), University of Verona: “Transcriptome analysis in *Vitis vinifera* through microarray experiments”. Scientific responsible: Prof. Mario Pezzotti.

01/12/2005-31/03/2006 Collaboration to “Ecocypre” project. l’Istituto Agrario di San Michele all’Adige (TN). Scientific responsible: dott. Nicola La Porta

01/12/2002-30/11/2005 Research fellow at Istituto Agrario di San Michele all’Adige (TN), project: “Resveratrol”. Tutor: dott. Fulvio Mattivi, scientific responsible: Dr. Riccardo Velasco.

4. Publications

International journals

1) Fasani E, Zamboni A, Sorio D, Furini A, Dal Corso G. Metal Interactions in the Ni hyperaccumulating population of *Noccaea caerulescens* Monte Prinzera. Biology, 2023, 12: 1537.
2) Bastianelli C, Pesante G, Ambrosini S, Zamboni A, Frison N. Upcycling of PHA-producing bacteria for biostimulants production and polyhydroxyalkanoates recovery. Science of the Total Environment, 2023, 888: 164238.
3) Zanini L, Tomasi N, Casagrande D, Danuso F, Buoso S, Zamboni A, Varanini Z, Pinton R, Blanchini F. A mechanistic mathematical model for describing and predicting the dynamics of high-affinity nitrate intake into roots of maize and other plant species. Physiologia Plantarum, 2023, 175: e14021.
4) Ciurli A, Giagnoni L, Pastorelli R, Sega D, Zamboni A, Renella G, Varanini Z. A novel P nanofertilizer has no impacts on soil microbial communities and soil microbial activity. Applied Soil Ecology, 2022, 178: 104570.
5) Ambrosini S, Prinsi B, Zamboni A, Espen L, Zanzoni S, Santi C, Varanini Z, Pandolfini T. Chemical characterization of a collagen-derived protein hydrolysate and biostimulant activity assessment of its peptidic components. Journal of Agricultural and Food Chemistry, 2022, 70: 11201-11211.
6) Piccinelli F, Sega D, Melchior A, Ruggieri S, Sanadar M, Varanini Z, Zamboni A. Regreening properties of the soil slow-mobile H_2bpcd/Fe^{3+} complex: steps forward to the development of a new environmentally friendly Fe fertilizer. Frontiers in Plant Science, 2022, 134: 964088.
7) Corsi S, Ruggeri G, Zamboni A, Prinsi B, Espen L, Ferrante A, Noseda M, Varanini Z, Scarafoni A. A bibliometric analysis of the scientific literature on biostimulants. Agronomy, 2022, 12: 1257.
8) Buoso S, Zamboni A, Franco A, Comisso M, Guzzo F, Varanini Z, Pinton R, Tomasi N, Zanin L. Nodulating white lupins take advantage of the reciprocal interplay between N and P nutritional responses. Physiologia Plantarum, 2022, 174: e13607.
9) Martini F, Beghini G, Zanin L, Varanini Z, Zamboni A, Ballottari M. The potential use of *Chlamydomonas reinhardtii* and *Chlorella sorokiniana* as biostimulants on maize plants. Algal Research, 2021, 60: 102515.
10) Tolve R, Tchuenbou-Magaia FL, Verderese D, Simonato B, Puggia D, Galgano F, Zamboni A, Favati F. Physico-chemical and sensory acceptability of no added sugar chocolate spreads fortified with multiple micronutrients. Food Chemistry, 2021, 364: 130386.

11) Battista F, Masala C, Zamboni A, Varanini Z, Bolzonella D. Valorisation of Agricultural Digestate for the Ammonium Sulfate Recovery and Soil Improvers Production. Waste and Biomass Valorization, 2021, 12: 6903–6916.
12) Ambrosini S, Sega D, Santi C, Zamboni A, Varanini Z, Pandolfini T. Evaluation of the potential use of a collagen-based protein hydrolysate as a plant multi-stress protectant. Frontiers in Plant Science, 2021, 12: 600623.
13) Marastoni L, Lucini L, Miras-Moreno B, Trevisan M, Sega D, Zamboni A, Varanini Z. Changes in physiological activities and root exudation profile of two grapevine rootstocks reveal common and specific strategies for Fe acquisition. Scientific Reports, 2020, 10: 18839.
14) Sega D, Baldan B, Zamboni A, Varanini Z. $FePO_4$ NPs Are an Efficient Nutritional Source for Plants: Combination of Nano-Material Properties and Metabolic Responses to Nutritional Deficiencies. Frontiers in Plant Science, 2020, 11: 586470.
15) Mascia M, Sega D, Zamboni A, Varanini Z. Nitrogen starvation differentially influences transcriptional and uptake rate profiles in roots of two maize inbred lines with different NUE. International Journal of Molecular Sciences, 2019, 20: 4856.
16) Sega D, Ciuffreda G, Mariotto G, Baldan B, Zamboni A, Varanini Z. $FePO_4$ nanoparticles produced by an industrially scalable continuous-flow method are an available form of P and Fe for cucumber and maize plants. Scientific reports, 2019, 9: 11252.
17) Livigni S, Lucini L, Sega D, Navacchi O, Pandolfini T, Zamboni A, Varanini Z. The different tolerance to magnesium deficiency of two grapevine rootstocks relies on the ability to cope with oxidative stress. BMC Plant Biology, 2019, 19: 14.
18) Zanin L, Tomasi N, Zamboni A, Sega D, Varanini Z, Pinton R. Water-extractable humic substances speed up transcriptional response of maize roots to nitrate. Environmental and Experimental Botany, 2018, 147: 167-178.
19) Varanini Z, Cesco S, Tomasi N, Pinton R, Guzzo F, Zamboni A, Schloter-Hai B, Schloter, M, Giagnoni L, Arenella M, Nannipieri P, Renella G. Nitrate induction and physiological responses of two maize lines differing in nitrogen use efficiency: effects on N availability, microbial diversity and enzyme activity in the rhizosphere. Plant and Soil, 2018 422: 331-347.
20) Zamboni A, Celletti S, Zenoni S, Astolfi S, Varanini Z. Root physiological and transcriptional response to single and combined S and Fe deficiency in durum wheat. Environmental and Experimental Botany, 2018, 143: 172-184.
21) Pii Y, Zamboni A, Santo SD, Pezzotti M, Varanini Z, Pandolfini T. Prospect on ionomic signatures for the classification of grapevine berries according to their geographical origin. Frontiers in Plant Science, 2017, 8: 640.
22) Santi C, Zamboni A, Varanini Z, Pandolfini T. Growth stimulatory effects and genome-wide transcriptional changes produced by protein hydrolysates in maize seedlings. Frontiers in Plant Science 2017, 8: 433.
23) Zanin L, Venuti S, Zamboni A, Varanini Z, Tomasi N, Pinton R. Transcriptional and physiological analyses of Fe deficiency response in maize reveal the presence of Strategy I components and Fe/P interactions. BMC Genomics, 2017, 18: 154.
24) Pii Y, Alessandrini M, Dall'Osto L, Guardini K, Prinsi B, Espen L, Zamboni A, Varanini Z. Time-resolved investigation of molecular components involved in the induction of NO_3^- high affinity transport system in maize roots. Frontiers in Plant Science, 2016, 7: 1657.
25) Zanin L, Venuti S, Tomasi N, Zamboni A, Francisco RMB, Varanini Z, Pinton R. Short-term treatment with the urease inhibitor N-(n-butyl) thiophosphoric triamide (NBPT) alters urea assimilation and modulates transcriptional profiles of genes involved in

primary and secondary metabolism in maize seedlings. Frontiers in Plant Science, 2016, 7: 845.
26) Zamboni A, Zanin L, Tomasi N, Avesani L, Pinton R, Varanini Z, Cesco S. Early transcriptomic response to Fe supply in Fe-deficient tomato plants is strongly influenced by the nature of the chelating agent. BMC Genomics, 2016, 17: 35.
27) Zanin L, Tomasi N, Zamboni A, Varanini Z, Pinton R. The Urease Inhibitor NBPT Negatively Affects DUR3-mediated Uptake and Assimilation of Urea in Maize Roots. Frontiers in Plant Science, 2015, 6: 1007.
28) Zanin L, Zamboni A, Monte R, Tomasi N, Varanini Z, Cesco S, Pinton R. Transcriptomic analysis highlights reciprocal interactions of urea and nitrate for nitrogen acquisition by maize roots. Plant and Cell Physiology, 2015, 56: 532-548.
29) Pii Y, Alessandrini A, Guardini K, Zamboni A, Varanini Z. Induction of high-affinity NO_3^- uptake in grapevine roots is an active process correlated to the expression of specific members of the NRT2 and plasma membrane H^+-ATPase gene families. Functional Plant Biology, 2014, 41: 353-365.
30) Cavallini E, Zenoni S, Finezzo L, Guzzo F, Zamboni A, Avesani L, Tornielli GB. Functional diversification of grapevine MYB5a and MYB5b in the control of flavonoid biosynthesis in a petunia anthocyanin regulatory mutant. Plant and Cell Physiology, 2014, 55(3): 517-534.
31) Zamboni A, Astolfi S, Zuchi S, Pii Y, Guardini K, Tononi P, Varanini Z. Nitrate induction triggers different transcriptional changes in a high and a low nitrogen use efficiency maize inbred line. Journal of Integrative Plant Biology, 2014, 56: 1080-1094.
32) Fasoli M, Dal Santo S, Zenoni S, Tornielli GB, Farina L, Zamboni A, Porceddu A, Venturini L, Bicego M, Murino V, Ferrarini A, Delledonne M, Pezzotti M. The Grapevine Expression Atlas Reveals a Deep Transcriptome Shift Driving the Entire Plant into a Maturation Program. Plant Cell, 2012, 24: 3489-3505.
33) Nikolic M, Cesco S, Monte R, Tomasi N, Gottardi S, Zamboni A, Pinton R, Varanini Z. Nitrate transport in cucumber leaves is an inducible process involving an increase in plasma membrane H^+-ATPase activity and abundance. BMC Plant Biology, 2012, 12: 66.
34) Zamboni A, Zanin L, Tomasi N, Pezzotti M, Pinton R, Varanini Z, Cesco S. Genome-wide microarray analysis of tomato roots showed defined responses to iron deficiency. BMC Genomics, 2012, 13: 101.
35) Milli A, Cecconi D, Bortesi L, Persi A, Rinalducci S, Zamboni A, Zoccatelli G, Lovato A, Zolla L, Polverari A. Proteomic analysis of the compatible interaction between *Vitis vinifera* and *Plasmopara viticola*. Journal of Proteomics, 2012, 75: 1284-1302.
36) Toffali K, Zamboni A, Anesi A, Stocchero M, Pezzotti M, Levi M, Guzzo F. Novel aspects of grape berry ripening and post-harvest withering revealed by untargeted LC-ESI-MS metabolomics analysis. Metabolomics, 2011, 7: 424-436.
37) Di Carli M, Zamboni A, Pè ME, Pezzotti M, Lilley KS, Benvenuto E, Desiderio A. Two-dimensional differential in gel electrophoresis (2D-DIGE) analysis of grape berry proteome during postharvest withering. Journal of Proteome Research, 2011, 10: 429-446.
38) Zamboni A, Di Carli M, Guzzo F, Stocchero M, Zenoni S, Ferrarini A, Tononi P, Toffali K, Desiderio A, Lilley KS, Pè ME, Benvenuto E, Delledonne M, Pezzotti M. Identification of putative stage-specific grapevine berry biomarkers and omics data integration into networks. Plant Physiology, 2010, 154: 1439-1459.
39) Polesani M, Bortesi L, Ferrarini A, Zamboni A, Fasoli M, Zadra C, Lovato A, Pezzotti M, Delledonne M, Polverari A. General and species-specific transcriptional responses to

downy mildew infection in a susceptible (*Vitis vinifera*) and a resistant (*V. riparia*) grapevine species. BMC Genomics, 2010, 11: 117.
40) Zamboni A, Gatto P, Cestaro A, Pilati S, Viola R, Mattivi F, Moser C, Velasco R. Grapevine cell early activation of specific response to DIMEB, a resveratrol elicitor. BMC Genomics, 2009, 10: 1471.
41) Zamboni A, Minoia L, Ferrarini A, Tornielli GB, Zago E, Delledonne M, Pezzotti M. Molecular analysis of post-harvest withering in grape by AFLP transcriptional profiling. Journal of Experimental Botany, 2008, 59: 4145-4159.
42) Polesani M, Desario F, Ferrarini A, Zamboni A, Pezzotti M, Kortekamp A, Polverari A cDNA-AFLP analysis of plant and pathogen genes expressed in grapevine infected with Plasmopara viticola. BMC Genomics, 2008, 9: 142.
43) Zamboni A, Vrhovsek U, Kassemeyer H-H, Mattivi F, Velasco R. Elicitor-induced resveratrol production in cell cultures of different grape genotypes (Vitis spp.). Vitis, 2006, 45: 63-68.
44) Zenoni S, Reale L, Tornielli GB, Lanfaloni L, Porceddu A, Ferrarini A, Moretti C, Zamboni A, Speghini A, Ferranti F, Pezzotti M. Downregulation of the *Petunia hybrida* alpha-expansin gene PhEXP1 reduces the amount of crystalline cellulose in cell walls and leads to phenotypic changes in petal limbs. Plant Cell 2004, 16: 295-308.

National journals

Zenoni S., Zamboni A., Dal Santo S., Fasoli M., Pezzotti M, Giovanni Battista Tornielli. Lo sviluppo delle conoscenze genomiche in vite e il loro potenziale utilizzo nella viticoltura attuale e futura. Review n. 17, Italus Hortus 19(2): 29-40.

Book chapter

1) Zenoni S., Zamboni A., Porceddu A., Pezzotti M. (2009) The role of expansins A in petunia development. PETUNIA, Evolutionary, Developmental and Physiological Genetics, 2009, Tom Gerats & Judith Strommer Editors, Springer, pp. 249-268. ISBN: 978-0-387-84795-5

2) Tomasi N., Monte R., Rizzardo C., Venuti S., Zamboni A., Cesco S., Pinton R., Varanini Z. (2009). Effects of water-extractable humic substances on molecular physiology of nitrate uptake in two maize inbred lines with different nitrogen use efficiency. UC Davis: Department of Plant Sciences, UC Davis. http://escholarship.org/uc/item/3qn459bc.

3) Tornielli G.B., Zamboni A., Zenoni S., Delledonne M., Pezzotti M. Transcriptomics and metabolomics for the analysis of grape berry development. The Biochemistry of the Grape Berry, 2011, Hernâni Gerós, Manuela Chaves & Serge Delrot Editors, pp. 218-240.

4. Other information related to the research activity

Research visits

24 August 2015 – 19 September 2015: analysis of uptake and distribution of ^{26}Mg by maize roots by Laser Ablation (LA) Inductively Coupled Plasma Mass Spectrometry (ICP-MS). Grant: Cooperint 2015, Programma di Internazionalizzazione di Ateneo. The project was developed in collaboration with Prof. Søren Husted, Department of Plant and Environmental Sciences, University of Copenhagen, 24-08-2015 - 18-09-2015.

February-March 2003: acquisition of methods regarding the production of solid and liquid grapevine cell cultures in collaboration with Dr. Dr. Hanns-Heinz Kassemeyer (Phytopathologie Pflanzenschutz/Plant Pathology & Plant Protection; Staatliches Weinbauinstitut, Freiburg, Germany)

International/National congress participation

2006: 9th International Conference on Grape Genetics and Breeding, 2-6 July, Udine, Italy.

2006: Plant Genomics European Meetings, 11-14 October, Venice, Italy.

2008: XXVI SICA Annual Congress, 30 September- 03 October, Palermo, Italy.

2009: Summer School, Mineral Nutrition in photosynthetic organisms: molecular, physiological and ecological aspects, 17-20 June, Maratea, Italy

2009: International Plant Nutrition Colloquium XVI, 26-30 August, Sacramento, CA.

2009: XXVII SICA Annual Congress, 15-18 September, Matera, Italy.

2009: Cost 858 Viticulture Final Meeting, 27-30 October, Bordeaux, France.

2010: XXVIII SICA Annual Congress, 20-21 September, Piacenza, Italy.

2011: XXIX SICA Annual Congress, 21-23 September, Foggia, Italy.

2012: IAPN, International Symposium on Magnesium in crop production, food quality and human health, 8th-9th May 2012, Goettingen, Germany.

2012: XXX SICA Annual Congress, 18-19 September, Milano, Italy.

2013: International Plant Nutrition Colloquium XVII, August 19th-22th, Istanbul, Turkey.

2013: XXXI SICA Annual Congress, 16-17 September, Napoli, Italy.

2014: Annual Meeting of the European Society for New Methods in Agricultural Research, Bolzano, 03-06 September, Bolzano, Italy.

2014: XXXI SICA Annual Congress, 07-09 September, Bolzano, Italy.

2014: 58th Italian Society of Agricultural Genetics Annual Congress, Alghero, 15-18 September, Alghero, Italia

2016: X International Symposium On Grapevine Physiology and Biotechnology, Verona, 13-16 June, Verona, Italy.

2016: XXXIV SICA Annual Congress, 05-07 October, Perugia, Italy.

2017: XXXV SICA Annual Congress, 11-13 September, Udine, Italy.

2017: The 3rd World Congress on the use of Biostimulants in Agriculture, 27-30 November, Miami.

2019: The 4th World Congress on the use of Biostimulants in Agriculture, 18-21 November, Barcellona.

National congress participation as invited speaker

Zamboni A., Minoia L., Chimento A., Di Carli M., Desiderio A., Benvenuto E., Guzzo F., Toffali K., Varanini Z., Delledonne M., Pezzotti M. Characterization of the post-harvest withering process in grape analyzing changes in transcript, protein and metabolite profiles. XXVI SICA Annual Congress. Palermo, Italy- 30 September- 3 October, 2008.

Zamboni A., Di Carli M., Guzzo F., Stocchero M., Zenoni S., Chimento A., Toffali K., Desiderio A., Ferrarini A., Benvenuto E., Delledonne M., Pezzotti M. Grapevine ripening and post-harvest withering processes: a system biology approach. 53° Annual Congress of Italian Society of Genetica Agraria. Torino, Italy, 16-19 September, 2009.

Zamboni A., Zanin L., Tomasi N., Pezzotti N., Pinton R., Varanini Z., Cesco S. Modulation of gene expression in tomato roots of Fe-deficient plants in response to the resupply with natural iron chelates. XVIII SICA Annual Congress. Piacenza, 20-21 September, 2010.

Zamboni A., Di Carli M., Guzzo F., Stocchero M., Zenoni S., Ferrarini A., Tononi P., Toffali K., Desiderio A., Lilley K.S., Pè M.E., Benvenuto E., Delledonne M., Pezzotti M. Identification of putative stage-specific grapevine berry biomarkers and omics data integration into networks. "Gian Tommaso Scarascia Mugnozza". Premio Convegno congiunto AGI-SIBV-SIGA. Assisi, 19-22 September, 2011.

Zamboni A., Pii Y., Pandolfini T., Livigni S., Sega D., Varanini Z. Caratterizzazione molecolare del trasporto del Mg in radice di vite: prime evidenze. XXXI SICA Annual Congress. Napoli, 16-17 September, 2013.

Editorial activities

- Member of editorial boarding of BMC Plant Biology, Frontiers in Plant Science e Plants.
- Participation in editorial committee: Proceedings of the X International Symposium on Grapevine Physiology and Biotechnology (ISHS), Acta Horticulture, Number 1188, November 2017. ISBN 9789462611832.

Referee for international peer-reviewed journals

- Acta Physiologiae Plantarum
- Agronomy
- American Journal of Enology and Viticulture
- Aquatic Botany
- Archives of Agronomy and Soil Science
- Biology and Fertility of Soils
- BMC Genomics
- BMC Plant Biology
- BMC Research Notes
- Frontiers in Plant Science
- Horticulture Research
- Journal of the American Society for Horticultural Science
- Journal of Experimental Botany
- Journal of Integrative Plant Biology
- Journal of Plant Interactions
- Journal of Plant Physiology
- Journal of Soil Science and Plant Nutrition
- International Journal of Molecular Science
- Nanoimpact
- Plants
- Plant and Soil
- Plant Cell Reports
- Plant Molecular Biology Reporter
- Plant Physiology and Biochemistry
- Plant Science
- PlosOne
- Scientific Reports
- Tree Genetics and Genome

5. Teaching activities

Supervisor of two students of PhD in Biotechnology, University of Verona (cycle 36° and 37°).

2021/2022 – today: Lecture in “Viticulture soils and rootstocks in grapevine cultivation” (3 CFU), Master's degree in Viticulture, Oenology and the Wine Market (interuniversity).

2020/2021 – today: Lecture in “Biotechnologies for a sustainable agricultural plant production” (6 CFU), Master Master's degree in Agri-Food Biotechnology, Biotechnology Department, University of Verona.

2016/2017 - today: Lecturer in “Agricultural Biochemistry” (6 CFU), Bachelor's degree in Viticultural and Oenological Science and Technology, Biotechnology Department, University of Verona.

2013/2014 and 2014/2015: Lecturer in “Agricultural Biochemistry” (5 CFU), Bachelor's degree in Viticultural and Oenological Science and Technology, Biotechnology Department, University of Verona.

Other activities

- Member of Teaching Staff of Master's degree in Viticulture, Oenology and the Wine Market (interuniversity), 2021 – .
- Member of Teaching Staff of Biotechnology, Biotechnology Department, University of Verona, 2020 – .
- Member of Teaching Staff of PhD in Biotechnology, University of Verona, 2019 – .
- Member of Teaching Staff of Bachelor's degree in Viticultural and Oenological Science and Technology, Biotechnology Departement, Univeristy of Verona, 2013 – .

6. Prizes

10/05/2011 Florence: Premio antico fattore 2011, Accademia dei Georgofili, to Mario Pezzotti (with Anita Zamboni, Mariasole Di Carli, Flavia Guzzo, Matteo Stocchero, Sara Zenoni, Alberto Ferrarini, Paola Tononi, Ketti Toffali, Angiola Desiderio, Kathryn Lilley, Enrico Pè, Eugenio Benvenuto e Massimo Delledonne) for the work: “Identification of putative stage-specific grapevine berry biomarkers and omics data integration into networks” (**Plant Physiol.** 2010 154(3): 1439-1459)

20/09/2011 Assisi: "Gian Tommaso Scarascia Mugnozza" Award for Agricultural Genetics to Anita Zamboni and Di Carli Mariasole for the work: Zamboni A., Di Carli M., Guzzo F., Stocchero M., Zenoni S., Ferrarini A., Tononi P., Toffali K., Desiderio A., Lilley K.S., Pè M.E., Benvenuto E., Delledonne M., Pezzotti M. Identification of putative stage - specific grapevine berry biomarkers and omics data integration into networks. **Plant Physiol.** 2010, 154: 1439-1459.

Verona, 9/11/2024

