

Zeno Varanini

Curriculum vitae e studiorum

University of Verona
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1 - CURRICULUM

2006-to date: full professor in Agricultural Chemistry at the University of Verona
2000-2006: full professor in Agricultural Chemistry at the University of Udine.
1990–2000: Associate professor in Agricultural Chemistry at the University of Udine.
1987-90: Associate professor in Agricultural Chemistry at the Tuscia University in Viterbo.
1986-87: CNR scholarship at the Institut fur Botanik at the Technische Hochschule in Darmstadt (Prof. Ulrich Luttge).
1983-87: Research assistant at the Department of Agricultural Biotechnology, University of Padua.
1978-83: Scholarship granted by university of Padua at the Institute of Agricultural Chemistry, Agricultural faculty, University of Padua.
1978: Degree in Agriculture at the University of Padua (110/110).

2- SCIENTIFIC COMMITTEES AND COMMISSIONS

2024-ad oggi: Member of Evaluation group (Nucleo di Valutazione di Ateneo) of Udine University (lettera prot. 2024-UNUD001-0136347 del 07/10/2024 Direzione Risorse umane e affari generali, UniUD) a.a 2024/2025-2025/2026-2026/2027.

2021-2024: Member of Evaluation group (Nucleo di Valutazione di Ateneo) of Udine University (letter prot. 93119 del 28/09/2021 Direzione Risorse umane e affari generali, UniUD) per il triennio accademico 2021/2022-2022/2023-2023/2024:

Member of Evaluation group (Nucleo di Valutazione di Ateneo) of Torino University (D.R. n. 3163 del 26/07/2018) a.a. 2018/2019-2019/2020-2020/2021.

2017-2020: Member of the working group "Scientific research: funding, evaluation and high education" of Federazione Italiana Scienze della Vita (FISV).

2015-2017: member of the Group Evaluation Experts (GEV) for Agricultural and Veterinary Sciences GEV for the process of Evaluation of Research Quality (VQR-2011/14) in Italy carried out by the National Agency for the Evaluation of Universities and Research Institutes (ANVUR). Coordinator of the sub-GEV group Agricultural Science

2012-2013: Vice-Director Department of Biotechnology, University of Verona

2011-2013: member of the Group Evaluation Experts (GEV) for Agricultural and Veterinary Sciences GEV for the process of Evaluation of Research Quality (VQR-2004/10) in Italy carried out by the National Agency for the Evaluation of Universities and Research Institutes (ANVUR). Coordinator of the sub-GEV group Agricultural Science

2011-2014: member of the steering committee for the project BIOGESTECA - Green biotechnological and technological platform for an highly sustainable agricultural system - (Regione Lombardia, budget 5.125.791 €)

2008-12: president of the CIVR 07 (Agricultural and Veterinary Sciences) Committee at the University of Verona

2007-2010: Director of the Department of Science, technology and markets of grapevine and wine, University of

Verona

2006-2007: coordinator of the board of University of Verona on Viticulture and Enology.

2002-2010: member of the Scientific board of the CNR Institute for the study of ecosystem (Pallanza, Italy).

2000-2003: member of the steering committee of the national project on agro-industry waste recycling (MURST– C.N.R legge 95/95, settore ambiente).

1994-99: member (elected) of the CNR National Board for Agricultural Science (Rome, Italy).

1994-95: member of the CNR study group relative to the feasibility of a project on “Advanced studies in the field of sustainable agriculture”.

1988-95: member of the Scientific Board of the CNR Research Center on Soil Colloids (Florence, Italy).

3- RESEARCH PROJECTS

2021-2023: coordinator of Joint Project between Università di Verona and Fabbrica cooperativa Cerea perfosfati: Iron (Fe) innovative fertilizers for a sustainable solution of crop Fe chlorosis.

2019-2023: responsible of Università di Verona research unit for the project “Field to field: valorisation of biomolecules from soybean drink by-products as defence products and biostimulants for an improved sustainability of crops cultivation”. Project CARIPLO - Circular Economy for a sustainable future – 2018.

2017-2019: coordinator of Joint Project between Università di Verona and Fabbrica cooperativa Cerea perfosfati: Effects of synthetic iron phosphate nanoparticles in the plant-soil system: towards an improvement of plant nutrient use efficiency?

2014-2016: coordinator of Joint Project between Università di Verona and Fabbrica cooperativa Cerea perfosfati: Nanostructured material as fertilizers: effect of iron phosphates and carbon dots on plant growth and nutrition;

2013-2014: coordinator of the Joint Project between Verona University and Vitroplant srl: Iron-chlorosis in grapevine: characterization of molecular and physiological rootstock responses and adaptation to calcareous soil environment

2011-2013: national coordinator of the PRIN-MIUR 2009 project: Ammonium uptake and assimilation: an integrated physiological and molecular research using maize plants grown in hydroponics and in the soil.

2010-2012: coordinator of the Joint Project between Verona University and Unione Italiana Vini: Magnesium in grapevine nutrition: physiological and molecular characterization of its transport mechanisms in rootstocks displaying different degrees of tolerance to its deficiency.

2008-2010: coordinator of the Joint Project between Verona University and Unione Italiana Vini: Innovative chemical and molecular methodologies for characterizing the mechanisms of mineral nutrition in vine and studying the effects of fertilization and terroir on the quality of grapes and wine

2007-2009: national coordinator of the PRIN-MIUR 2007 project: “Nitrogen flows in the rhizosphere-plant system: an integrated approach to identify the physiological and molecular control mechanisms”.

2005-2007: national coordinator of the PRIN-MIUR 2005 project: “Nitrogen acquisition in maize: analysis of the processes interacting in the soil-plant system”.

2002-04: national coordinator of the PRIN-MIUR 2002 project “Acquisition of oxoanionic nutrients by crop plants: physiological and molecular analysis of the effect of modulators and interfering substances present at the rhizosphere”.

2000-02: national coordinator of the MURST-COFIN 2000 project "Molecular physiology of nitrogen nutrition: regulation of nitrogen fluxes in the rhizosphere-root-shoot system".

1998-99: national coordinator of the MURST-COFIN 1998 project "Physiological and molecular determinants of nitrogen fluxes in the plant-soil system".

1994-96: in charge of the Research Group “Soil-root-plant interaction in crops” (MURST 40%).

1993-96: In charge of the RAISA-CNR Research Unit on the “Modulation of membrane activities by molecular signals in the root-rhizosphere system”.

4- AFFILIATIONS AND EDITORIAL ACTIVITIES

Member of Accademia dei Georgofili (Florence)

2010-2013: Past-President of of AISSA (Italian Association of Agricultural Scientific Societies).

2006-10 President of AISSA (Italian Association of Agricultural Scientific Societies).

Member of Accademia di Agricoltura Scienze e Lettere di Verona

Member of Italian Society for Advancement of Sciences

Member of Italian Society of Agricultural Chemistry (SICA), secretary-treasurer in 1985-1987 ; elected as vice-president in 2003 he was in charge as president (years 2006-2007) and past-president (years 2008-2009)

Member of Italian (SIFV) and European (FESPP) Society of Plant Physiology

Member of the International Humic Substances Society (IHSS)

Member of the Organizing Committees of the XVII SICA National Congress (Portoferraio 30/09-1/10 1999).

Member of the Organizing Committee of the 11th "Symposium on Iron Nutrition and Interactions in Plants" (Udine 23-28/06 2002).

Member of the Organizing Committee of the ESNA 2014 meeting (Bolzano 3-6/09 2014)

President of the Organizing Committee of the XXX SICA National Congress (Bolzano 07-09/09 2014)

Editor, with colleagues Prof. Roberto Pinton and Prof. Paolo Nannipieri, of the book "The Rhizosphere: biochemistry and organic substances on the soil-plant interface", ISBN 0-8247-0427-4. Eds. Marcel Dekker Inc., New York (2000). Editor with the same colleagues of the second edition of the book (ISBN 0-8493-3855-7) published by CRC Press, Boca Raton (2007).

Guest editor for Journal of Plant Nutrition vol 26 (10&11) Marcel Dekker Inc., New York (2003)

5- RESPONSABILITIES AS EVALUATOR AND REFEREE

Prof. Zeno Varanini has been charged to evaluate national research projects (COFIN and PRIN) of the Italian Ministry for University and Research (MIUR), of the Italian Council of Research (C.N.R.), of Padua University, Cariverona Foundation, Agence Nationale de la recherche (France) and BARD (The United States – Israel Binational Agricultural Research and Development Fund), Serbian Ministry of research and technology.

He is referee for the journals: Acta Physiologiae Plantarum, Agrochimica, Annals of Botany, BMC Plant Biology, BMC Genomics, Biology and fertility of soil, Frontiers in Plant Science, Journal of Agricultural and Food chemistry, Journal of Plant Nutrition, Journal of Plant Physiology, Plant Cell Report, Plant and Soil, Plos One, Soil Biology and Biochemistry.

6- RESEARCH

Zeno Varanini has published:

92 papers on ISI journals

18 papers on other scientific journals

16 chapters on books with international editorial committee

4 chapters on books with national editorial committee

1 monograph

Prof. Zeno Varanini has an h-index of 33 and 2807 citations (fonte WoS, 10/02/2025).

List of publications

Papers on ISI journals

- 1) A. Ciurli, L. Giagnoni, D. Segà, R. Pastorelli, Z. Varanini, G. Renella, A. Zamboni: A novel FePO₄ nanosized fertilizer is as effective as triple superphosphate in sustaining the growth of cucumber plants. *Pedosphere* (2025) in corso di stampa.
- 2) M. Peli, S. Ambrosini, D. Sorio, F. Pasquarelli, A. Zamboni, Z. Varanini: The soil application of a plant-derived protein hydrolysate speeds up selectively the ripening-specific processes in table grape. *Physiologia Plantarum* (2025) 177: e70033
- 3) G. Rodegher, S. Ambrosini, T. Pandolfini, S. Zanzoni, A. Zamboni, Z. Varanini: The simultaneous application of fulvic acid and protein hydrolysate biostimulants enhances cucumber responses to Fe deficiency. *Current Plant Biology* (2024) 40: art. n. 100411.
- 4) L. Zanin, N. Tomasi, D. Casagrande, F. Danuso, S. Buoso, A. Zamboni, Z. Varanini, R. Pinton, F. Blanchini: 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.
- 5) A. Ciurli, L. Giagnoni, R. Pastorelli, D. Segà, A. Zamboni, G. Renella, Z. Varanini: A novel P nanofertilizer has no impacts on soil microbial communities and soil microbial activity. *Applied soil ecology* (2022), 178, 104570-104576
- 6) S. Ambrosini, B. Prinsi, A. Zamboni, L. Espen, S. Zanzoni, C. Santi, Z. Varanini, T. Pandolfini: 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
- 7) F. Piccinelli, D. Segà, A. Melchior, S. Ruggieri, M. Sanadar, Z. Varanini, A. Zamboni: Regreening properties of the soil slow-mobile H₂bpcd/Fe³⁺ complex: Steps forward to the development of a new environmentally friendly Fe fertilizer. *Frontiers in Plant Science* (2022) 13:964088. doi: 10.3389/fpls.2022.964088
- 8) S. Corsi, G. Ruggeri, A. Zamboni, B. Prinsi, L. Espen, A. Ferrante, M. Nosedà, Z. Varanini, A. Scarafoni: A bibliometric analysis of the scientific literature on biostimulants. *Agronomy* (2022), 12, 1257. <https://doi.org/10.3390/>
- 9) S. Buoso, A. Zamboni, A. Franco, M. Commisso, F. Guzzo, Z. Varanini, R. Pinton, N. Tomasi, L. Zanin: Nodulating white lupins take advantage of the reciprocal interplay between N and P nutritional responses. *Physiologia Plantarum* (2021). 174(1), e13607. <https://doi.org/10.1111/ppl.13607>
- 10) F. Martini, G. Beghini, L. Zanin, Z. Varanini, A. Zamboni, M. Ballottari: The potential use of *Chlamydomonas reinhardtii* and *Chlorella sorokiniana* as biostimulants on maize plants. *Algal Research* 60, 102515 (2021). <https://doi.org/10.1016/j.algal.2021.102515>
- 11) F. Battista, C. Masala, A. Zamboni, Z. Varanini, D. Bolzonella: Valorisation of Agricultural

Digestate for the Ammonium Sulfate Recovery and Soil Improvers Production. Waste Biomass Valorization (2021). <https://doi.org/10.1007/s12649-021-01486-y>

- 12) S. Ambrosini, D. Sega, C. Santi, A. Zamboni, Z. Varanini, T. Pandolfini: Evaluation of the Potential Use of a Collagen-Based Protein Hydrolysate as a Plant Multi-Stress Protectant. *Frontiers in Plant Science* 12:600623 (2021) doi: 10.3389/fpls.2021.600623
- 13) L. Marastoni, L. Lucini, B. Miras, ÄÊMoreno, M. Trevisan, D. Sega, A. Zamboni, Z. Varanini: Changes in physiological activities and root exudation profile of two grapevine rootstocks reveal common and specific strategies for Fe acquisition. *Scientific Reports*, 10: 18839 (2020) doi: 10.1038/s41598-020-75317-w
- 14) D. Sega, B. Baldan, A. Zamboni, Z. Varanini: FePO₄ NPs Are an efficient nutritional source for plants: combination of nano-material properties and metabolic responses to nutritional deficiencies. *Front. Plant Sci.* 11:586470. (2020) doi: 10.3389/fpls.2020.586470
- 15) M. Mascia, D. Sega, A. Zamboni, Z. Varanini: Nitrogen Starvation Differentially Influences Transcriptional and Uptake Rate Profiles in Roots of Two Maize Inbred Lines with Different NUE. *International Journal of Molecular Sciences*, 20, 4856 (2019) doi:10.3390/ijms20194856
- 16) D. Sega, G. Ciuffreda, G. Mariotto, B. Baldan, A. Zamboni Z. Varanini: FePO₄ nanoparticles produced by an industrially scalable continuous-flow method are an available form of P and Fe for cucumber and maize plants. *Scientific Reports*, 9: 11252 (2019)
- 17) L. Zanin, N. Tomasi, S. Cesco, Z. Varanini, R. Pinton Humic Substances Contribute to Plant Iron Nutrition Acting as Chelators and Biostimulants. *Frontiers in Plant Science* 10:675 (2019) doi: 10.3389/fpls.2019.00675
- 18) S. Livigni, L. Lucini, D. Sega, O. Navacchi, T. Pandolfini, A. Zamboni, Z. Varanini: The different tolerance to magnesium deficiency of two grapevine rootstocks relies on the ability to cope with oxidative stress. *BMC Plant Biology*, 19: 148 (2019)
- 19) A. Lupini, F. Araniti, A. Mauceri, M. P. Princi, A. Sorgonà, F. Sunseri, Z. Varanini, M. R. Abenavoli: Coumarin enhances nitrate uptake in maize roots through modulation of plasma membrane H⁺-ATPase activity. *Plant Biology* 20: 390-398 (2018)
- 20) L. Zanin, N. Tomasi, A. Zamboni, D. Sega, Z. Varanini, R. Pinton: Water-extractable humic substances speed up transcriptional response of maize roots to nitrate. *Environmental and Experimental Botany*, 147: 167-178 (2018)
- 21) Z. Varanini, S. Cesco, N. Tomasi, R. Pinton, F. Guzzo, A. Zamboni, B. Schlöter-Hai, M. Schlöter, L. Giagnoni, M. Arenella, P. Nannipieri, G. Renella: 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*, 422: 331-347 (2018)
- 22) A. Zamboni, S. Celletti, S. Zenoni, S. Astolfi, **Z. Varanini**: Root physiological and transcriptional response to single and combined S and Fe deficiency in durum wheat. *Environmental and Experimental Botany*, 143: 172-184 (2017)

<http://dx.doi.org/10.1016/j.envexpbot.2017.09.002>

- 23) Y. Pii, A. Zamboni, S. Dal Santo, M. Pezzotti, **Z. Varanini**, T. Pandolfini: Prospect on ionic signatures for the classification of grapevine berries according to their geographical origin. *Frontiers in Plant Science*, 8:640 doi: 10.3389/fpls.2017.00640 (2017)
- 24) C. Santi, A. Zamboni, **Z. Varanini**, T. Pandolfini: Growth stimulatory effects and genome-wide transcriptional changes produced by protein hydrolysates in maize seedlings. *Frontiers in Plant Science*, 8:433 doi:10.3389/fpls.2017.00433, (2017)
- 25) L. Zanin, S. Venuti, A. Zamboni, **Z. Varanini**, N. Tomasi, R. Pinton: Transcriptional and physiological analyses of Fe deficiency response in maize reveal the presence of Strategy I components and Fe/P interactions. *BMC Genomics*, 18 (1), art. no. 154, (2017)
- 26) Y. Pii, M. Alessandrini, L. Dall'Osto, K. Guardini, B. Prinsi, L. Espen, A. Zamboni and **Z. Varanini** (2016) Time-resolved investigation of molecular components involved in the induction of NO₃⁻ high affinity transport system in maize roots. *Frontiers in Plant Science*, 7:1657. doi: 10.3389/fpls.2016.01657
- 27) L. Zanin, Venuti, N. Tomasi, A. Zamboni, R.M.B. Francisco, Z. Varanini, R. Pinton: 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*, 7: 845 (2016)
- 28) A. Zamboni, L. Zanin, N. Tomasi, L. Avesani, R. Pinton, **Z. Varanini**, S. Cesco: Early transcriptomic response to Fe supply in Fe-deficient tomato plants is strongly influenced by the nature of the chelating agent. *BMC Genomics*, 17 (1), art. n. 35 (2016)
- 29) L. Zanin, N. Tomasi, A. Zamboni, **Z. Varanini**, R. Pinton: The Urease Inhibitor NBPT Negatively Affects DUR3-mediated Uptake and Assimilation of Urea in Maize Roots. *Frontiers in Plant Science* 6:1007. doi: 10.3389/fpls.2015.01007 (2015)
- 30) N. Tomasi, R. Monte, **Z. Varanini**, S. Cesco, R. Pinton: Induction of nitrate uptake in Sauvignon Blanc and Chardonnay grapevines depends on the scion and is affected by the rootstock. *Australian Journal of Grape and Wine Research*, 21: 331-338 (2015) doi:10.1111/ajgw.12137
- 31) L. Zanin, A. Zamboni, R. Monte, N. Tomasi, **Z. Varanini**, S. Cesco, R. Pinton: Transcriptomic analysis highlights reciprocal interactions of urea and nitrate for nitrogen acquisition by maize roots. *Plant and Cell Physiology*, 56: 532-548 (2015) doi:10.1093/pcp/pcu202
- 32) S. I. Pathan, M. T. Ceccherini, G. Pietramellara, M. Puschenreiter, L. Giagnoni, M. Arenella, **Z. Varanini**, P. Nannipieri, G. Renella: Enzyme activity and microbial community structure in the rhizosphere of two maize lines differing in N use efficiency. *Plant and Soil*, 387: 413-424 (2015)
- 33) A. Zamboni, S. Astolfi, S. Zuchi, Y. Pii, K. Guardini, P. Tononi, **Z. Varanini**: Nitrate induction triggers different transcriptional changes in a high and a low nitrogen use efficiency maize inbred line. *Journal of integrative plant biology*. 56: 1080–1094 (2014)

- 34) N. Tomasi, T. Mimmo, R. Terzano, M. Alfeld, K. Janssens, L. Zanin, R. Pinton, **Z. Varanini**, S. Cesco: Nutrient accumulation in leaves of Fe-deficient cucumber plants treated with natural Fe complexes. *Biology and Fertility of Soils*, 50: 973-982 (2014).
- 35) Y. Pii, M. Alessandrini, K. Guardini, A. Zamboni, **Z. Varanini**: Induction of high-affinity NO₃⁻ 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*, 41: 353-365 (2014)
- 36) N. Tomasi, M. De Nobili, S. Gottardi, L. Zanin, T. Mimmo, **Z. Varanini**, V. Römheld, R. Pinton, S. Cesco: Physiological and molecular characterization of Fe acquisition by tomato plants from natural Fe complexes. *Biology and fertility of soils*, 49:187-200 (2013).
- 37) C. Rizzardo, N. Tomasi, R. Monte, **Z. Varanini**, F.F. Nocito, S. Cesco, R. Pinton: Cadmium inhibits the induction of high-affinity nitrate uptake in maize (*Zea mays* L.) roots. *Planta*, 236: 1701-1712 (2012).
- 38) M. Nikolic, S. Cesco, R. Monte, N. Tomasi, S. Gottardi, A. Zamboni, R. Pinton, **Z. Varanini**: Nitrate transport in cucumber leaves is an inducible process involving an increase in plasma membrane H⁺-ATPase activity and abundance. *BMC Plant Biology*, 12: 66, doi:10.1186/1471-2229-12-66 (2012).
- 39) A. Zamboni, L. Zanini, N. Tomasi, M. Pezzotti, R. Pinton, **Z. Varanini**, S. Cesco: Genome-wide microarray analysis of tomato roots showed defined responses to iron deficiency. *BMC Genomics*, 13: 101, doi: 10.1186/1471-2164-13-101 (2012).
- 40) N. Tomasi, T. Kretzschmar, L. Espen, L. Weisskopf, A.T. Fuglsang, M.G. Palmgren, G. Neuman, **Z. Varanini**, R. Pinton, E. Martinoia, S. Cesco: Plasma membrane H⁺-ATPase-dependent citrate exudation from cluster roots of phosphate-deficient white lupin. *Plant Cell & Environment*, 32: 465-475 (2009).
- 41) S. Zuchi, S. Cesco, **Z. Varanini**, R. Pinton, S. Astolfi: Sulphur deprivation limits Fe-deficiency responses in tomato plants. *Planta*, 230: 85-94 (2009).
- 42) N. Tomasi, C. Rizzardo, R. Monte, S. Gottardi, R. Terzano, B. Vekemans, M. de Nobili, **Z. Varanini**, R. Pinton, S. Cesco: Micro-analytical, physiological and molecular aspects of Fe acquisition in leaves of Fe-deficient tomato plants re-supplied with natural Fe-complexes in nutrient solution. *Plant and Soil* 325: 25-38 (2009).
- 43) N. Tomasi, L. Weisskopf, G. Renella, L. Landi, R. Pinton, **Z. Varanini**, P. Nannipieri, J. Torrent, E. Martinoia, S. Cesco: Flavonoids of white lupin roots participate in phosphorus mobilization from soil. *Soil Biology & Biochemistry*, 40: 1971-1974 (2008).
- 44) W. Schmidt, S. Santi, R. Pinton e **Z. Varanini**: Water-extractable humic substances alter root development and epidermal cell pattern in *Arabidopsis*. *Plant and Soil*, 300: 259-267 (2007).
- 45) M. Nikolic, S. Cesco, **Z. Varanini** e R. Pinton: Short-term interactions between nitrate and iron nutrition in cucumber. *Functional Plant Biology*, 34: 402-408 (2007).
- 46) S. Astolfi, S. Zuchi, S. Cesco, L. Sanità di Toppi, D. Pirazzi, M. Badiani, **Z. Varanini** e R. Pinton: Fe deficiency induces sulphate uptake and modulates redistribution of reduced sulphur pool in barley plants. *Functional Plant Biology*, 33: 1055-1061 (2006).

- 47) S. Cesco, A.D. Rombolà, M. Tagliavini, **Z. Varanini** e R. Pinton: Phytosiderophores released by graminaceous species promote ^{59}Fe -uptake in citrus. *Plant and Soil*, 287: 223-233 (2006).
- 48) S. Santi, S. Cesco, **Z. Varanini** e R. Pinton: Two plasma membrane H^+ -ATPase genes are differentially expressed in iron-deficient cucumber plants. *Plant Physiology and Biochemistry*, 43: 287-292 (2005).
- 49) S. Astolfi, S. Zuchi, S. Cesco, **Z. Varanini** e R. Pinton. Influence of iron nutrition on sulphur uptake and metabolism in Maize (*Zea mais* L.) roots. *Soil Science and Plant Nutrition*, 50: 1079-1083 (2004).
- 50) M. Nikolic, S. Cesco, V. Römheld, **Z. Varanini**, R. Pinton: Uptake of iron (^{59}Fe) complexed to water-extractable humic substances by sunflowers leaves. *Journal of Plant Nutrition*, 26: 2243-2252 (2003).
- 51) S. Santi, G. Locci, R. Monte, R. Pinton, **Z. Varanini**: Induction of nitrate uptake in maize roots: expression of a putative high-affinity nitrate transporter and plasma membrane H^+ -ATPase isoforms. *Journal of Experimental Botany*, 54: 1851-1864 (2003).
- 52) S.Cesco, M. Nikolic, V. Römheld, **Z. Varanini**, R. Pinton,: Uptake of ^{59}Fe from soluble ^{59}Fe -humate complexes by cucumber and barley plants. *Plant and Soil*, 241: 121-128 (2002).
- 53) F. Agnolon, S. Santi; **Z. Varanini** e R. Pinton: Enzymatic responses of cucumber roots to different levels of Fe supply. *Plant and Soil*, 241: 35-41 (2002).
- 54) S. Cesco, V. Römheld, **Z. Varanini**, R. Pinton: Solubilization of iron by water-extractable humic substances. *Journal of Plant Nutrition and Soil Science*, 163: 285-290 (2000).
- 55) A.A. Mohamed, I. Khalil, **Z. Varanini** e R. Pinton: Increase in NAD(P)H-dependent generation of active oxygen species and changes in lipid composition of microsomes isolated from roots of zinc-deficient bean plants. *Journal of Plant Nutrition*, 23: 285-295 (2000).
- 56) M.D. Dell'Orto, S. Santi, P. De Nisi, S. Cesco, **Z. Varanini**, G. Zocchi e R. Pinton: Development of Fe-deficiency responses in cucumber (*Cucumis sativus* L.) roots: involvement of plasma membrane H^+ -ATPase activity. *Journal of Experimental Botany*, 51: 695-701 (2000).
- 57) R. Pinton, S. Cesco, G. Iacoletti, S. Astolfi, e **Z. Varanini**: Modulation of NO_3^- uptake by water-extractable humic substances: involvement of root plasma membrane H^+ -ATPase. *Plant and Soil*, 215: 155-161 (1999).
- 58) R. Pinton, S. Cesco, S. Santi, F Agnolon e **Z. Varanini**: Water-extractable humic substances enhance iron deficiency responses by Fe-deficient cucumber plants. *Plant and Soil*, 210: 145-157 (1999).
- 59) G. Vizzotto, R. Pinton, C. Bomben, S. Cesco, **Z. Varanini** e G. Costa: Iron reduction in Fe-stressed plants of *Actinidia deliciosa* genotypes: Involvement of pmFe(III)-chelate reductase and H^+ -ATPase activity. *Journal of Plant Nutrition*, 22: 479-488 (1999).
- 60) A.A. Mohamed, F.Agnolon, S.Cesco, **Z. Varanini** e R.Pinton: Incidence of lime-induced chlorosis: plant response mechanisms and role of water soluble humic substances. *Agrochimica*, 42: 255-262 (1998).
- 61) S. Astolfi, M.G. De Biasi, E. Rugini e **Z. Varanini**: Isolation and preliminary characterization of ATPase from olive calli grown at different auxin/cytokinin ratio. *Biologia Plantarum*, 41: 321-330 (1998).

- 62) R. Pinton, S. Cesco, M. De Nobili, S. Santi e **Z. Varanini**: Water and pyrophosphate-extractable humic substances fractions as a source of iron for Fe-deficient cucumber plants. *Biology and fertility of soils*, 26: 23-27 (1998).
- 63) R. Pinton, S. Cesco, S. Santi e **Z. Varanini**: Soil humic substances stimulate proton release by intact oat seedling roots. *Journal of Plant Nutrition*, 20: 857-869 (1997).
- 64) G. Vizzotto, I. Matosevic, R. Pinton, **Z. Varanini** e G. Costa: Iron deficiency responses in roots of Kiwi. *Journal of Plant Nutrition*, 20: 327-334 (1997).
- 65) G. Vizzotto, R. Pinton, **Z. Varanini** e G. Costa: Sucrose accumulation in developing peach fruit. *Physiologia Plantarum*, 96: 225-230 (1996).
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