

Zeno Varanini

Curriculum vitae e studiorum

University of Verona
Department of Biotechnology
Strada le Grazie 15, 37134 Verona
phone 045 8027830
fax 0458027925
e-mail zeno.varanini@univr.it

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

2018-to date: 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-to date: 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

2017 to date: 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, 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:

73 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 24 and 1794 citations

List of publications

Papers on ISI journals

- 1) M. Mascia, D. Segal, 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
- 2) D. Segal, 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)

- 3) 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
- 4) S. Livigni, L. Lucini, D. Segà, 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)
- 5) 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)
- 6) L. Zanin, N. Tomasi, A. Zamboni, D. Segà, 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)
- 7) Z. Varanini, S. Cesco, N. Tomasi, R. Pinton, F. Guzzo, A. Zamboni, B. Schloter-Hai, M. Schloter, 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)
- 8) 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>
- 9) 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)
- 10) 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)
- 11) 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)
- 12) 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
- 13) 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)

- 14) 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)
- 15) 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)
- 16) 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
- 17) 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
- 18) 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)
- 19) 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)
- 20) 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).
- 21) 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)
- 22) 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).
- 23) 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).
- 24) 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).

- 25) 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).
- 26) 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).
- 27) S. Zuchi, S. Cesco, **Z. Varanini**, R. Pinton, S. Astolfi: Sulphur deprivation limits Fe-deficiency responses in tomato plants. *Planta*, 230: 85-94 (2009).
- 28) 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).
- 29) 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).
- 30) 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).
- 31) 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).
- 32) 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).
- 33) S. Cesco, A.D. Rombolà, M. Tagliavini, **Z. Varanini** e R. Pinton: Phytosiderophores released by graminaceous species promote ⁵⁹Fe-uptake in citrus. *Plant and Soil*, 287: 223-233 (2006).
- 34) 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).
- 35) 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).
- 36) M. Nikolic, S. Cesco, V. Römheld, **Z. Varanini**, R. Pinton: Uptake of iron (⁵⁹Fe) complexed to water-extractable humic substances by sunflowers leaves. *Journal of Plant Nutrition*, 26: 2243-2252 (2003).
- 37) 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).
- 38) S. Cesco, M. Nikolic, V. Römheld, **Z. Varanini**, R. Pinton,: Uptake of ⁵⁹Fe from soluble ⁵⁹Fe-humate complexes by cucumber and barley plants. *Plant and Soil*, 241: 121-128 (2002).
- 39) 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).

- 40) 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).
- 41) 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).
- 42) 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).
- 43) R. Pinton, S. Cesco, G. Iacoletti, S. Astolfi, e **Z. Varanini**: Modulation of NO₃⁻ uptake by water-extractable humic substances: involvement of root plasma membrane H⁺-ATPase. *Plant and Soil*, 215: 155-161 (1999).
- 44) 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).
- 45) 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).
- 46) 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).
- 47) 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).
- 48) 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).
- 49) 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).
- 50) 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)
- 51) G. Vizzotto, R. Pinton, **Z. Varanini** e G. Costa: Sucrose accumulation in developing peach fruit. *Physiologia Plantarum*, 96: 225-230 (1996).
- 52) R. Pinton, A. Poles, S. Cesco e **Z. Varanini**: Changes in plasma membrane H⁺-ATPase activity during aeration of maize roots. *Journal of Plant Physiology*. 147, 511-515 (1996).
- 53) S. Santi, G. Locci, R. Pinton, S. Cesco e **Z. Varanini**: Plasma membrane H⁺-ATPase in maize roots induced for NO₃⁻ uptake. *Plant Physiology*. 109: 1277-1283 (1995).
- 54) A. De Marco, R. Pinton, E. Fischer-Schliebs and **Z. Varanini**: Possible interaction between peroxidase and NAD(P)H-dependent nitrate reductase activities of plasma membranes of corn roots. *Journal of Experimental Botany*. 46: 1677-1683 (1995).

- 55) **Z. Varanini**, M.G. De Biasi e R. Pinton: Effect of NO³⁻, Cl⁻ and DIDS on H⁺-ATPase of plasma membrane vesicles isolated from corn roots. *Journal of Plant Physiology*. 146, 423-428 (1995).
- 56) R. Pinton, S. Cesco, S. Santi e **Z. Varanini**: Effect of soil humic substances on surface redox activity of oat roots. *Journal of Plant Nutrition*. 18: 2111-2120 (1995).
- 57) E. Fischer Schliebs, **Z. Varanini** e U. Lüttge: Isolation of H⁺-transport-competent plasma membrane vesicles from corn roots by sucrose gradient centrifugation: effect of membrane protectant agent. *Journal of Plant Physiology* 144: 505-512 (1994).
- 58) A. De Marco, C. Jia, E. Fischer-Schliebs, **Z. Varanini** e U. Lüttge: Evidence for two different nitrate reducing activities at the plasma membrane in roots of *Zea mays* (L.). *Planta* 194: 557-564 (1994).
- 59) **Z. Varanini**, R. Pinton, M.G. De Biasi, S. Astolfi e A. Maggioni: Low molecular weight humic substances stimulate H⁺-ATPase activity of plasma membrane vesicles isolated from oat (*Avena sativa* L.) roots. *Plant and Soil*, 153: 61-69 (1993).
- 60) R. Pinton, **Z. Varanini**, G. Vizzotto e A. Maggioni: Soil humic molecules affect transport properties of tonoplast vesicles isolated from oat roots. *Plant and Soil*, 142: 203-210 (1992).
- 61) A. Maggioni, R. Pinton e **Z. Varanini**: Problemi della nutrizione della pianta legati al rapporto suolo-radice. *Agrochimica*, 35: 245-255 (1991).
- 62) R. Pinton, **Z. Varanini** e A. Maggioni: Proton-translocating ATPase activity in plasma membrane vesicles from roots of grapevine seedlings. *Plant Science*, 69: 139-145 (1990).
- 63) **Z. Varanini**, S. Grego, M.G. De Biasi e M. De Agazio: Spermidine inhibits K⁺ uptake without interfering with the basal activity of plasma membrane proton pump. *Plant Science*, 68: 183-188 (1990).
- 64) R. Pinton, **Z. Varanini** e A. Maggioni: Properties of potassium uptake by seedlings roots of grape cultivars. *Plant and Soil*, 123: 175-179 (1990).
- 65) **Z. Varanini**, G. Polettini, R. Pinton e A. Maggioni: Characterization of a potassium-stimulated ATPase in membrane fraction isolated from roots of grapevine seedlings. *Vitis*, 27: 209-222 (1988).
- 66) R. Pinton, **Z. Varanini**, A. Maggioni e H. Frick: Potassium flux in Corn roots during augmentation of ion uptake. *Journal of Plant Nutrition*, 10: 1975-1982 (1987).
- 67) A. Maggioni, **Z. Varanini**, S. Nardi e R. Pinton: Action of soil humic matter on plant roots, stimulation of ion uptake and effects on (Mg²⁺+K⁺) ATPase activity. *The Science of the Total Environment*, 62: 355-363 (1987).
- 68) **Z. Varanini** e A. Maggioni: Extration and preliminary characterization of microsomal (Mg²⁺+K⁺)-ATPase activity of grapevine roots. *Vitis*, 24: 199-207 (1985).
- 69) A. Maggioni, **Z. Varanini**, F. Macri e A. Vianello: Effects of 2-iodobenzanilide on potassium uptake, H⁺ extrusion and K⁺-stimulated ATPase of corn roots. *Physiologia Plantarum*, 61: 183-188 (1984).
- 70) A. Maggioni, S. Nardi e **Z. Varanini**: Sul rapporto fungicida-pianta ospite: suscettibilità del plasmalemma all'azione della 2-iodobenzanilide. *Agrochimica*, 27: 51-61 (1983).

- 71) A. Maggioni, S. Nardi, **Z. Varanini** e C. Passera: Inibizione dell'assorbimento di ioni in radici di orzo causata da 2-iodobenzanilide. *Agrochimica*, 27: 29-35 (1983).
- 72) **Z. Varanini** e A. Maggioni: Iron reduction and uptake by grapevine roots. *Journal of Plant Nutrition*, 5: 521-529 (1982).
- 73) G. Ferrari, S. Nardi, F. Renosto e **Z. Varanini**: Sequential development of the ion uptake capacity in ageing potato tubers. *Journal of Plant Nutrition*, 4: 399-407 (1981).

A) Chapters on books with international editorial committee

- 74) R. Pinton, S. Cesco, **Z. Varanini**: Role of humic substances in the rhizosphere. In *Biophysico-chemical processes involving natural nonliving organic matter in environmental systems*. p. 341-366. N. Senesi, B. Xing, P.M. Huang eds. John Wiley & Sons, Inc. (2009). ISBN: 978-0-470-41300-5
- 75) **Z. Varanini** e R. Pinton: Root membrane activities relevant to nutrient acquisition at the plant-soil interface. In: *The Rhizosphere: Biochemistry and Organic Substances at the Soil-Plant Interface*, Second edition pp. 151-172. R. Pinton, Z. Varanini, P. Nannipieri eds. CRC Press, Boca Raton (2007). ISBN: 978-0-849-33855-7.
- 76) R. Pinton, S. Cesco, W. Schmidt and **Z. Varanini**: Role of humic substances as rhizospheric signals affecting root growth and mechanisms of nutrient acquisition. *Proc. 13th Meeting of the International Humic Substances Society, Karlsruhe (2006)*, pp. 45-48, ISSN: 1612-118X.
- 77) **Z. Varanini** e R. Pinton: Plant-Soil Relationship: Role of Humic Substances in Iron Nutrition. In: *Iron Nutrition in Plants and Rhizospheric Microorganisms*, pp. 153-168, L.L. Barton and J. Abadía, Eds., New York (2006). ISBN: 978-1-4020-4742-8.
- 78) R. Monte, S. Cesco, G. Locci, R. Pinton e **Z. Varanini**: Induction of nitrate uptake and PM H⁺-ATPase activity along the root axis of maize seedlings. In: *Plant nutrition for food security, human health and environmental protection*. pp. 220-221. C. J. Li et al. eds. Tsinghua University Press, Beijing (China) (2005) ISBN: 7-302-11786-1
- 79) S. Cesco, A.D. Rombolà, M. Tagliavini, **Z. Varanini** e R. Pinton: Root exudates of grasses improve Fe uptake in a citrus rootstock sensitive to Fe-deficiency. In: *Plant nutrition for food security, human health and environmental protection*. pp. 480-481. C. J. Li et al. eds. Tsinghua University Press, Beijing (China) (2005) ISBN: 7-302-11786-1
- 80) **Z. Varanini**: Root membrane activities relevant to plant-soil interactions. In: *Encyclopedia of Plant and Crop Science* pp. 1110-1113. Goodman R.M. ed. Marcel Dekker Inc., New York (2004). ISBN 0-8247-0944-6
- 81) G. Locci, S. Santi, R. Monte, R. Pinton e **Z. Varanini**: Involvement of plasma membrane H⁺-ATPase in nitrate uptake by maize genotypes. In: *Plant nutrition-Food security and sustainability of agro-ecosystems through basic and applied research*; pp. 184-185; Horst W.J. et al eds, Kluwer Academic Publishers, Dordrecht (2001) - ISBN 0-7923-7105-4.
- 82) **Z. Varanini** e R. Pinton: Direct versus indirect effects of soil humic substances on plant growth and nutrition. In: *The rhizosphere: biochemistry and organic substances at the soil-plant*

interface. pp. 141-157. R. Pinton, Z. Varanini, P. Nannipieri, eds., Marcel Dekker Inc., New York (2001) - ISBN 0-8247-0427-4.

- 83) R. Pinton, **Z. Varanini** e P. Nannipieri: The rhizosphere as a site of biochemical interactions among soil, plant and microorganisms. In: The rhizosphere: biochemistry and organic substances at the soil-plant interface, pp. 1-17. R. Pinton, Z. Varanini, P. Nannipieri, eds., Marcel Dekker, Inc., New York (2001)- ISBN 0-8247-0427-4.
- 84) **Z. Varanini** e R. Pinton: Humic substances and plant nutrition. In: Progress in Botany. Vol. 56 pp. 97-117. U. Lüttge ed. Springer Verlag publ. Berlin, Heidelberg 1995.
- 85) A. Maggioni, **Z. Varanini**, R. Pinton e M.G. De Biasi: Humic substances affect transport properties of root membranes. In "Humus, its structure and role in agriculture and environment" pp. 137-144. J. Kubat ed., Elsevier publ. Amsterdam (1992). ISBN 0-444-88980-9
- 86) **Z. Varanini**, R. Pinton, G. Vizzotto e A. Maggioni: Transport properties of microsomal vesicles from peach mesocarp during fruit development. In "Plant membrane transport: The current position" pp. 647-648. J. Dainty, M.I. De Michelis, E. Marrè e F. Rasi Caldogno eds., Elsevier publ. Amsterdam, (1989). ISBN 0-444-81326-4
- 87) R. Pinton, G. Vizzotto, **Z. Varanini**, G. Costa, e A. Maggioni: Sugar transport in mesocarp tissue of developing peach fruit. In "Plant membrane transport: The current position" pp. 645-646. J. Dainty, M.I. De Michelis, E. Marrè e F. Rasi Caldogno eds., Elsevier publ. Amsterdam, (1989). ISBN 0-444-81326-4
- 88) A. Maggioni, **Z. Varanini**, R. Pinton, A.M. Olivieri e C. Giulivo: Relationships between organic matter and available iron in calcareous vineyard soils. In: Studies about Humus, Trans. of International Symposium "Humus et Planta VIII", Praga 1983, Vol. I, 177-181, (B. Novak, ed.). Res. Inst. Crop. Prod, Praga-Ruzyne (1985).
- 89) A. Maggioni e **Z. Varanini**: Free space binding and uptake of ions by excised roots of grapevines. In "Genetic Aspects of Plant Nutrition", pp. 133-137, M.R. Saric' and B.C. Loughman eds., Martinus Nijhoff/Dr. W. Junk publ., The Hague/Boston/Lancaster (1983).

B) Chapters on books with national editorial committee and monograph

- 90) **Z. Varanini** e R. Pinton: Rizosfera:composizione chimico-fisica. In: Microrganismi benefici per le piante. pp. 13-29. A cura di M. Iaccarino. Idelson Gnocchi, Napoli (2006). ISBN 88-7947-438-3.
- 91) M. Cocucci, **Z. Varanini** e R. Pinton: Il suolo la pianta e la rizosfera. In: Fondamenti di chimica del suolo. pp. 173-206. A cura di P. Sequi. Patron, Bologna (2005). ISBN 88-555-2841-6.
- 92) G. Cacco e **Z. Varanini**: Lo zolfo nel sistema suolo pianta. In: Biochimica agraria. pp. 837-864. A cura di L. Scarponi. Patron, Bologna (2003). ISBN-88-555-2713-4
- 93) **Z. Varanini** e P. Nannipieri: Mineralizzazione della sostanza organica e assorbimento dei nutrienti da parte delle piante. In "Ciclo della sostanza organica del suolo: aspetti agronomici, chimici, ecologici e selvicolturali" pp. 79-84. A cura di P. Nannipieri. Patron, Bologna (1993).

- 94) A. Maggioni, **Z. Varanini**, R. Pinton, C. Giulivo e A.M. Olivieri: Stato nutrizionale dei vigneti a D.O.C. dei Colli Euganei. Monografia pp. 219. Provincia di Padova. Padova (1985).

C) Papers on international or national non ISI journals

- 95) **Z. Varanini**, S. Cesco, R. Monte, N. Tomasi e R. Pinton: La nutrizione delle piante fra limitazioni chimiche e costrizioni fisiologiche: è possibile un approccio sostenibile? *Italian Journal of Agronomy*, 3: 129-141 (2008).
- 96) R. Monte, S. Cesco, R. Pinton e **Z. Varanini**: Acquisizione di nitrato e ammonio in radici di barbabietola da zucchero (*Beta vulgaris* L. var *saccharifera*): caratterizzazione cinetica ed effetti sull'accumulo di saccarosio. *Agroindustria*, 5: 177-184 (2006).
- 97) S. Cesco, A. Chiani, R. Pinton, **Z. Varanini**: Assorbimento di NO_3^- in radici di barbabietola da zucchero (*Beta vulgaris* L. var *saccharifera*): prima caratterizzazione. *Agroindustria*, 2: 146-150 (2002).
- 98) S. Cesco, R. Pinton, **Z. Varanini**, L. Marzi e A. Cimato: Physiology of olive nutrition: Factors affecting proton extrusion by roots of intact olive plants. *Acta Horticulturae*, 474: 363-366 (1997).
- 99) G. Zerbi, P. Ceccon. F. Danuso, A. Peressotti, R. Pinton e **Z. Varanini**: Strumenti e metodologie innovativi nella ricerca e nella pratica agronomica. *Rivista di Agronomia*, 31: 683-714 (1997).
- 100) I. A. Khalil e **Z. Varanini**: Novel reversed phase HPLC technique for chloroplast pigment analysis of crops. *Sarhad Journal of Agriculture*, 12: 569-574 (1996).
- 101) I. A. Khalil, **Z. Varanini** e R. Pinton: Nutritional aspects of Brassica oilseed crops. II Micronutrition. *Sarhad Journal of Agriculture*, 12: 61-68 (1996).
- 102) I. A. Khalil, **Z. Varanini** e R. Pinton: Nutritional aspects of Brassica oilseed crops. I Macronutrition. *Sarhad Journal of Agriculture*, 11: 513-522 (1995).
- 103) R. Pinton, G. Vizzotto, **Z. Varanini**, G. Costa, A. Ramina e A. Maggioni: Potassium fluxes in mesocarp tissue slices of ripening peach fruits. *Acta Horticulturae*, 254: 351-356 (1989).
- 104) O.A. Balley, V. Bruno, **Z. Varanini**, R. Pinton e A. Maggioni: Caratterizzazione di suoli calcarei della pianura alluvionale del medio Shabelle (Somalia); II - aspetti chimico-nutrizionali. *Rivista di Agricoltura Subtropicale e Tropicale*, 3: 561-573 (1988).
- 105) M. Zanco, R. Pinton, **Z. Varanini**, A.M. Olivieri e A. Maggioni: Sulla diagnosi di carenze o squilibri nutrizionali: inadeguatezza del metodo DRIS e uso dei trend polinomiali per lo stato del boro fogliare in *vitis*. *Agricoltura Mediterranea*, 118: 319-332 (1988).

- 106) A. Maggioni, R. Pinton, **Z. Varanini**, A. Barbera e M. Perelli: Sulla dotazione nutrizionale dei terreni dei Colli Euganei. Nota I. Estrazione e dosaggio di microelementi assimilabili. *Agricoltura Italiana*, 113: 95-114 (1984).
- 107) A. Dal Belin Peruffo, C. Pallavicini, **Z. Varanini** e N.E. Pogna: Analysis of wheat varieties by gliadin electrophoregrams. 1) Catalogue of electrophoregram formulas of 29 common wheat cultivars grown in Italy. *Genetica Agraria*, 35: 195-208 (1981).
- 108) C. Pallavicini, A. Dal Belin Peruffo e **Z. Varanini**: Parziale purificazione e caratterizzazione dell'aminopeptidasi dell'uva. *Tecnologie Alimentari*, 3: 9-13 (1980).
- 109) G. Polettini, M.E. De Carli, P. Mariani, N. Rascio, **Z. Varanini**, R. Pinton e A. Maggioni: Comparison of shoot development rate in etiolated seedlings of *Ginkgo biloba* and *Cicer arietinum*. *Cytobios*, 57: 169-175 (1989).
- 110) C. Pallavicini, **Z. Varanini**, A. Dal Belin Peruffo e A. Zamorani: Recupero mediante reazione plasteinica di peptidi da succhi deproteinati di erba medica. *Tecnologie Alimentari*, 2: 42-46 (1979).
- 111) **Z. Varanini**, C. Pallavicini, G. Fincati e A. Dal Belin Peruffo: Miglioramento delle rese nelle sintesi di plasteina con enzimi immobilizzati. *Industrie Alimentari*, 18: 735-740 (1979).
- 112) A. Zamorani, P. Spettoli, S. Bottacin e **Z. Varanini**: Estrazione e prima caratterizzazione dell'enzima malico dall'uva Raboso. *Rivista di Viticoltura e di Enologia di Conegliano*, 32: 3-12 (1979).

D) Scientific educational papers.

Z. Varanini e A. Alpi: La ricerca scientifica nelle Facoltà di Agraria: problemi strutturali e di finanziamento. "I Georgofili. Atti dell'Accademia dei Georgofili" Serie VIII - Vol. 7, pp. 29-39. Edizioni Polistampa, Firenze (2010).

Z. Varanini: Nuove prospettive per la lotta alla clorosi ferrica. *Fertilizzanti* 4: 5-8 (2005).

Z. Varanini: Fertilizzanti e ricerca. *Fertilizzanti* 7: 27-29 (2003).

E) International patent

S. Cesco, **Z. Varanini** e R. Pinton, 2000. *Method to isolate water-soluble humic molecules and to obtain complexes thereof with chemical fertilizing elements*. University of Udine, European patent application N°: 01130133.0-2111 (Priority: IT/21.12.01/IT UD000225).

F) National patent

G. Ciuffreda, D. Segal, Z. Varanini, A. Zamboni, A. Speghini: Processo, e relativo impianto, per l'ottenimento di nanoparticelle di fosfati contenenti nutrienti minerali essenziali per la nutrizione delle piante (submitted 06/02/2018, 102018000002440).

S. Cesco, E. Celotti, C. Giulivo, G. Gasparoni, D. Franceschi, R. Pinton, **Z. Varanini**, L.S. Conte, F. Battistutta e R. Zironi, 2001. *Procedimento per ottenere preparati ad uso farmacologico utilizzando come materia prima vino o succo d'uva, e preparati ad uso farmacologico così ottenuti*. Brevetto n° UD2001A000033, depositato il 19 Febbraio 2001, Università degli Studi di Udine.

S. Cesco, E. Celotti, M.F. Agabiti, G.B. Cipolotti, S. Cuttini, R. Zironi, **Z. Varanini** e R. Pinton, 2000. *Procedimento per la valutazione qualitativa di danni su prodotti ortofrutticoli derivanti da eventi esterni, in particolare su uva da vino*. Brevetto n° UD2000A000103, depositato il 24 Maggio 2000, Università degli Studi di Udine.

S. Cesco, M. Greatti, E. Celotti, E. Cromaz, M. Contin, R. Zironi, R. Pinton e **Z. Varanini**, 1999. *Sistema di allevamento in campo di piante*. Brevetto n° UD99A000151, depositato il 24 Agosto 1999, Università degli Studi di Udine.

Verona, October 9, 2019

Prof. Zeno Varanini

