

CURRICULUM VITAE

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Affiliations

Member of:

Italian Society of Agricultural Chemistry (SICA) since 1994 (secretary-treasurer in 2006-2007);

International Society of Horticultural Science (ISHS) since 2001;

International Humic Substances Society (IHSS) since 2002;

International Scientific Centre of Fertilizers (CIEC) since 2006.

2006-2007 member of the Executive Council of the Italian Life Sciences Federation (FISV); since 2007, technical secretary of the Italian Association of Agricultural-Scientific Societies (AISSA).

Current position

Full professor of Agricultural Chemistry (SSD AGR/13)

Education

1989: Graduate with Honour in Agricultural Science at the University of Udine;

1995: Ph.D in Crop Productivity, *curriculum Biotechnology and Soil Chemistry*, University of Padua.

Academic experience

Previous academic roles

1997/2001: Technician in charge of the Poly-functional Laboratory at the Experimental Farm "A. Servadei" of the University of Udine;

2001/2006: Assistant Professor of Agricultural Chemistry at the Department of Agricultural and Environmental Science (University of Udine);

2006/2010: Associate Professor of Agricultural Chemistry at the Department of Agricultural and Environmental Science (University of Udine).

Institutional experiences

- 2007/2010: within the Agricultural Faculty of Udine University, member of the Commission of Tutoring and Orientation (CITO) for incoming of high school students;
- 2007/2010: member of the MIUR Commission for the certification to practice as an Agronomist (*Dottore Agronomo e Dottore Forestale - Sez. A e Agronomo e Forestale Junior – Biotecnologo Agrario - Sez. B*) within the University of Udine;
- 2007/2010: member of the Didactic Committee for the Bachelor and the Master 2nd level in Agricultural Sciences and Technologies involved in courses changes according to the ex DM 270/04;
- 2002/2009: in charge of a Radiochemical lab in the Department of Agricultural and Environmental Sciences of Udine University;
- 2007/2010: component of the teaching staff of the PhD course in Agricultural Sciences and Biotechnologies (DOT0334113) activated within the University of Udine;
- 2007/2010: Professor coordinator of Bilateral Agreement under Life-Long Learning Programme - HIGHER EDUCATION (ERASMUS) Programme between the University of Udine – the University of Cukurova (Adana – Turkey);
- 2009/2010: member of the Administrative Board of the University of Udine and component of the commission for the human resources management;

Scientific experiences in foreign research institutions

- 27/01-28/02/1997: Visiting scientist at the Institut für Pflanzenernährung, (University of Hohenheim, Stuttgart, prof. V. Römheld), *Reduction of natural FeIII-chelates in roots of whole plants and in root plasma membrane vesicles*, funded by Italian CNR ("programme for short-term mobility");
- 01/09/1999-29/02/2000: Visiting scientist at the Institut für Pflanzenernährung, (University of Hohenheim, Stuttgart, prof. V. Römheld), *Physiological adaptation of crops to low phosphorous availability*, funded by Italian CNR ("grant in memory of Prof. F. Monastra");
- 08/11-17/12-2004: Visiting scientist at the Institut für Pflanzenbiologie (University of Zurich, Swiss, prof. E. Martinoia), *Characterization of mechanisms involved in the citrate release in plasma membrane vesicles isolated from cluster roots of white lupin*, funded by Italian CNR ("Agreement of scientific cooperation between CNR/FNS, Free exchange").

Teaching appointments – AY 2011-12

Free University of Bolzano - Faculty of Science and Technology, Responsibility on the following teaching disciplines:

- In the Bachelor *Agricultural Biochemistry*

- In the Master 2nd level *Advanced Plant Biochemistry*

Previous teaching activities at the University of Udine

- *Agricultural Biochemistry* and *Chemistry and Biochemistry of pesticides* for the Bachelor in Agricultural Sciences
- *Agricultural Chemistry* for the Bachelor in Biotechnologies
- *Wood Chemistry* for the Bachelor in Forest Sciences
- *Laboratory Safety* for the Master 2nd level in Agricultural Biotechnologies

Research activity

Author of 35 scientific papers on international journals, 3 articles in National Journals, 5 contributions to Books, 148 congress contributions and 4 international patents in the field of crop production (ISI Web of Knowledge, Cesco Stefano, 30/08/2011: H-index 11; total citations 415; total IF 73,722; average IF 2,234).

1. Areas of scientific interest

- role of membrane activities in the plant's response to stress and fluctuations in nutrient availability;
- effect of humic molecules on the mineral nutrition of plants;
- environmental monitoring.

International scientific cooperation in progress and related research topics:

- Prof. Dr. Volker Römheld of the Institut Für Pflanzenernährung, University of Hohenheim (Stoccarda, D): *role of root hairs in the acquisition process of Fe by barley plants (Strategy II plant species);*
- Dr. Günter Neumann of the Institut Für Pflanzenernährung, University of Hohenheim (Stoccarda, D): *role of organic acids and fenolic compounds released by roots into the rhizosphere in the P acquisition by P-deficient white lupin plants;*
- Prof. Dr. Enrico Martinoia of the Institut für Pflanzenbiologie, University of Zurich (CH): *mechanisms of organic acid exudation from cluster roots of P-deficient plants of white lupin;*
- Prof. Dr. Miroslav Nikolic of the Centar za multidisciplinarne studije, Univerzitet u Beogradu, Beograd (Serbia-Montenegro): *root-to-leaf NO₃⁻ translocation and anion uptake by leaf cells;*
- Prof. Josè Torrent of the Dep. de Ciències y Recursos Agrícoles y Forestales, Universitat Cordoba (E): *role of root exudates in the mobilization of P and Fe from barely-soluble sources.*

2. Research projects

- 2004-2005: in charge of the Research Project "Biochemical and molecular mechanisms involved in the acquisition and transport of Fe in fruit tree plants" (PRIN-MIUR-2004).
- 2007-2010: in charge of the Research Project "Water and energy saving and healthiness in the Floating System crop production" (L.r. Friuli-Venezia Giulia 26/2005 art.17).
- 2010-2012: in charge of the Research Project "Quali-quantitative analysis of root exudates released from plants subjected to nutrient stresses and their influence on biogeochemical cycles of nutrients into the rhizosphere" (Free University of Bozen).
- 2010-2012: in charge of RU within the Research Project "Integrated and Sustainable Management of Vine and Wine "(GISVI)" (L.r. Friuli-Venezia Giulia 26/2005 art.17).
- 2011-2014: in charge of RU within the Research Project " Novel strategies meeting the needs of the fresh-cut vegetable sector - STAYFRESH " (AGER-Project).
- 2011-2014: In charge of the Research Project: "ORIGINALP – Determination of the origin and the quality of regional food produced in the Alps" (INTERREG-Project Austria-Italia)
- 2011-2013: In charge of the Research Project: "Innovative technologies applied to rhizosphere research aiming to improve nutrient acquisition" (UniBZ)

Conference organizations

- VIII and IX Annual Conferences of the Italian Life Sciences Federation (FISV) held in Riva del Garda (TN), 2006 and 2007;
- VI, VII, VIII and IX Annual Conferences of the Italian Association of Agricultural-Scientific Societies (AISSA) held in Imola (BO, 2008), Ancona (2009), Udine (2010) and Florence (2011);
- Annual Conference of the Italian Group of Biomembrane and Bioenergetics (GIBB) held in Udine (2009)
- International Conference on the Biogeochemistry of Trace Elements (11th ICOBTE) held in Florence (2011)

Member of the Organizing Committee of:

- the Summer School for Italian PhD students (*La rizosfera: alle radici dell'interazione suolo-pianta*) held in Portoferraio (Isola d'Elba, LI, 2006);
- the International PhD School on *Mineral nutrition in Photosynthetic organisms: molecular, physiological and ecological aspects* held in Maratea (PZ, 2009).

Editorial and reviewer activity

Component of the Editorial Board of the Agricultural Chemistry for the Foxwell & Davies Inc, Italy and for Frontiers in Plant Nutrition.

Reviewer for the following scientific journals:

- African Journal of Biotechnology,
- Agrochimica,
- Applied and Environmental Soil Science,
- Biology and Fertility of Soils,
- Botany,
- Environmental Experimental Botany,
- Frontiers in Plant Nutrition,
- Geoderma,
- Journal of Agricultural and Food Chemistry,
- Journal of Plant Interactions,
- Journal of Plant Physiology,
- Journal of the Science of Food and Agriculture,
- Plant and Soil,
- Plant Cell and Environment,
- Plant Physiology and Biochemistry,
- Soil Research,
- Spanish Journal of Agricultural Research.
- Water, Air & Soil Pollution.

In 2009 he got a mention for his work as a referee for the journal Plant and Soil.

Evaluator of national and international Ph.D thesis, of research projects for the MIUR, the Swiss National Science Foundation, the University of Verona (Italy) and for the Administration of Sardinia Region (Italy).

List of publications

Articles in International Refereed Journals

- 1) R Pinton, **S Cesco**, S Santi, Z Varanini, 1995. *Effects of soil humic substances on surface redox activity of oat roots*. Journal of Plant Nutrition, vol 18(10), 2111-2120, USA, ISSN: 0190-4167.
- 2) S Santi, G Locci, R Pinton, **S Cesco**, Z Varanini, 1995. *Plasma membrane H^+ -ATPase in maize roots induced for NO_3^- uptake*. Plant Physiology, 109, 1277-1283, USA, ISSN: 0032-0889.
- 3) R Pinton, A Poles, **S Cesco**, Z Varanini, 1996. *Changes in plasma membrane H^+ -ATPase activity during aeration of maize roots*. Journal of Plant Physiology, 147: 511-515, D, ISSN: 0176-1617.
- 4) L Leita, G Muhlbachova, **S Cesco**, R Barbattini and C Mondini, 1996. *Investigation of the use of honey bees and honey bee products to assess*

heavy metals contamination. Environmental Monitoring & Assessment, 84:1-9, NL, ISSN: 0167-6369.

- 5) L Leita, M De Nobili, **S Cesco** and C Mondini, 1996. *Analysis of intercellular cadmium forms in roots and leaves of bush bean*. Journal of Plant Nutrition, vol 19,527-533, USA, ISSN: 0190-4167.
- 6) C Mondini, **S Cesco** and C Bini, 1995. *Pedogenic evolution and ¹³⁷Cs contents in soils of the Eastern Alps (Friuli-Venezia Giulia, Italy)*. Mineralogica et Petrographica Acta. 38, 129-143, ISSN: 0540-1437.
- 7) R Pinton, **S Cesco**, S Santi and Z Varanini, 1997. *Soil humic substances stimulate proton release by intact oat seedling roots*. Journal of Plant Nutrition, 20, 857-869, USA, ISSN: 0190-4167.
- 8) **S Cesco**, R Pinton, Z Varanini, L Marzi and A Cimato, 1997. *Physiology of olive nutrition I: factors affecting proton extrusion by roots of intact olive plants*. Acta Horticulturae, 474: 363-366, NL, ISSN: 0567-7572.
- 9) R Pinton, **S Cesco**, M De Nobili, S Santi and Z Varanini, 1998. *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, D, ISSN: 0178-2762.
- 10) R Pinton, **S Cesco**, S Santi, F Agnolon and Z Varanini, 1999. *Water-extractable humic substances enhance iron deficiency responses by Fe-deficient cucumber plants*. Plant and Soil 210: 145-157, NL, ISSN: 0032-079X.
- 11) AA Mohamed, F Agnolon, **S Cesco**, Z Varanini e R Pinton, 1998. *Incidence of lime-induced chlorosis: plant response mechanisms and role of water soluble humic substances*. Agrochimica, 42:255-262, I, ISSN: 0002-1857.
- 12) G Vizzotto, R Pinton, C Bomben, **S Cesco**, Z Varanini and G Costa, 1999. *Iron reduction in Fe-stressed plants of Actinidia Deliciosa genotypes: Involvement of PM Fe(III)-Chelate Reductase and H⁺-ATPase activity*. Journal of Plant Nutrition 22: 479-488, USA, ISSN: 0190-4167.
- 13) R Pinton, **S Cesco**, G Iacoletti, S Astolfi and Z Varanini, 1999. *Modulation of NO₃⁻ uptake by water-extractable humic substances: involvement of root plasma membrane H⁺-ATPase*. Plant and Soil 217; 155-161, NL, ISSN: 0032-079X.
- 14) L Marchiol, **S Cesco**, R Pinton and G Zerbi, 2000. *Germination and initial root growth of four legume species as affected by landfill biogas atmosphere*. Restoration Ecology 8: 93-98, USA, ISSN: 1061-2971.
- 15) **S Cesco**, V Römheld, Z Varanini and R Pinton, 2000. *Solubilization of iron by a water extractable humic substances fraction*. J. Plant Nutrition and Soil Science 163 (3): 285-290, D, ISSN: 0044-3263.

- 16) M Dell'Orto, S Santi, P De Nisi, **S Cesco**, Z Varanini, G Zocchi and R Pinton, 2000. *Development of Fe-deficiency responses in cucumber (Cucumis sativus L.) roots: involvement of plasma membrane H⁺-ATPase activity.* J Experimental Botany, vol 51 (345), 695-701, UK, ISSN: 0022-0957.
- 17) **S Cesco**, M Nikolic, V Römheld, Z Varanini and R Pinton, 2002. *Uptake of ⁵⁹Fe from soluble ⁵⁹Fe-humate complexes by cucumber and barley plants.* Plant and Soil, 241:121-128, NL, ISSN: 0032-079X.
- 18) S Astolfi, S Zuchi, C Passera and **S Cesco**, 2003. *Does the sulfur assimilation pathway play a role in the response to Fe deficiency in maize (Zea mays L.) plants?* J. Plant Nutrition 26(10-11):2111-2121, USA, ISSN: 0190-4167.
- 19) M Nikolic, **S Cesco**, V Römheld, Z Varanini and R Pinton, 2003. *Uptake of iron (⁶⁹Fe) complexed to water-extractable humic substances by sunflower leaves.* J. Plant Nutrition 26(10-11):2243-2252, USA, ISSN: 0190-4167.
- 20) S. Astolfi, S. Zuchi, **S. Cesco**, Z. Varanini and R. Pinton, 2004. *Influence of Iron Nutrition on Sulphur Uptake and Metabolism in Maize (Zea mays L.) Roots.* Soil Science Plant Nutrition 50(7), 1079–1083, Japan, ISSN: 0038-0768.
- 21) S. Santi, **S Cesco**, Z Varanini e R Pinton, 2005. *Two plasma membrane H⁺-ATPase genes are differentially expressed in iron-deficient cucumber plants.* Plant Physiology and Biochemistry 43, 287-292, NL, ISSN: 0981-9428.
- 22) S. Zancan, **S. Cesco** and R. Ghisi, 2006. *Effect of UV-B radiation on iron content and distribution in maize plants.* Environmental Experimental Botany, 55 (3), 266-272, NL, ISSN: 0098-8472.
- 23) S. Astolfi, **S. Cesco**, S. Zuchi, G. Neumann and V. Römheld, 2006. *Sulphur starvation reduces phytosiderophores release by Fe-deficient barley plants.* Soil Science Plant Nutrition 52: 43-48, Japan, ISSN: 0038-0768.
- 24) **S. Cesco**, A.D. Rombolà, M. Tagliavini, Z. Varanini, R. Pinton, 2006. *Phytosiderophores released by graminaceous species promote ⁵⁹Fe uptake in citrus.* Plant and Soil, 287: 223-233, NL, ISSN: 0032-079X.
- 25) S. Astolfi, S. Zuchi, **S. Cesco**, L. Sanità di Toppi, D. Pirazzi, M. Badiani, Z. Varanini and R. Pinton, 2006. *Iron deficiency induces sulphate uptake and modulates redistribution of reduced sulphur pool in barley plants.* Functional Plant Biology, 33:1055-1061, Australia, ISSN: 1445-4409.
- 26) M. Nikolic, **S. Cesco**, Z. Varanini and R. Pinton, 2007. *Short-term interactions between nitrate and iron nutrition in cucumber.* Functional Plant Biology, 34:402-408, Australia, ISSN: 1445-4409.
- 27) Tomasi N, Weisskopf L, Renella G, Landi L, Pinton R, Varanini Z, Nannipieri P, Torrent J, Martinoia E and **Cesco S**, 2008. *Flavonoids of white lupin*

roots participate in phosphorus mobilization from soil. Soil Biology Biochemistry, 40/7: 1971-1974, NL, ISSN 0038-0717.

- 28) Tomasi N, Kretschmar T, Espen L, Weisskopf L, Fuglsang AT, Palmgren MG, Neumann G, Varanini Z, Pinton R, Martinoia E and Cesco S, 2009. *Plasma membrane H⁺-ATPase-dependent citrate exudation from cluster roots of phosphate-deficient white lupin.* Plant Cell Environment 32:465-475, doi:10.1111/j.1365-3040.2009.01938.x, ISSN: 1365-3040.
- 29) Zuchi S, **Cesco S**, Varanini Z, Pinton R and Astolfi S, 2009. *Sulphur deprivation limits Fe-deficiency responses in tomato plants.* Planta 230:85-94, DOI 10.1007/s00425-009-0919-1, ISSN 0032-0935.
- 30) Tomasi N, Rizzardo C, Monte R, Gottardi S, Jelali N, Terzano R, Vekemans B, De Nobili M, Varanini Z, Pinton R and Cesco S, 2009. *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, ISSN: 0032-079X, DOI: 10.1007/s11104-009-0069-z.
- 31) Rodríguez-Lucena P, Tomasi N, Pinton R, Hernández-Apaolaza L, Lucena JJ and Cesco S, 2009. *Evaluation of ⁵⁹Fe-lignosulfonates complexes as Fe-sources for plants.* Plant and Soil, 325:53–63, ISSN: 0032-079X, DOI 10.1007/s11104-009-0091-1.
- 32) **Cesco S**, Neumann G, Tomasi N, Pinton R, Weisskopf L, 2010. *Release of plant-borne flavonoids into the rhizosphere and their role in plant nutrition-Marschner review.* Plant and Soil 329:1-25: ISSN: 0032-079X, doi: 10.1007/s11104-009-0266-9.
- 33) Iacuzzo F, Gottardi S, Tomasi N, Savoia E, Tomasi R, Cortella G, Terzano R, Pinton R, Dalla Costa L, **Cesco S**, 2011. *Corn salad (*Valerianella locusta* (L.) Laterr.) growth in a water-saving floating system as affected by iron and sulfate availability.* Journal of the Science of Food and Agriculture, ISSN: 0022-5142, 91: 344–354, doi: 10.1002/jsfa.4192.
- 34) Zuchi S, **Cesco S**, Gottardi S, Pinton R, Römheld V, Astolfi S, 2011. *The root-hairless barley mutant brb used as model for assessment of role of root hairs in iron accumulation.* Plant Physiology and Biochemistry, ISSN: 0981-9428, doi:10.1016/j.plaphy.2010.12.005.
- 35) Manzocco L, Foschia M, Tomasi N, Maifreni M, Dalla Costa L, Marino M, Cortella G, **Cesco S**, 2011. *Influence of hydroponic and soil cultivation on quality and shelf life of ready-to-eat lamb's lettuce (*Valerianella locusta* L. Laterr).* Journal of the Science of Food and Agriculture, ISSN: 0022-5142, 91: 1373–1380, doi: 10.1002/jsfa.4313.

Articles in National Journals

- 1) **S Cesco**, R Barbattini e MF Agabiti, 1994. *Honey bees and bee products as possible indicators of cadmium and lead environmental pollution: an experience of biological monitoring in Portogruaro city (Venice, Italy)*. Apicoltura 9:103-118 – Italia.
- 2) **S Cesco**, A Chiani, R Pinton e Z Varanini, 2002. *Assorbimento di NO₃⁻ in radici di barbabietola da zucchero (Beta vulgaris L. var. saccharifera): prima caratterizzazione*. Agroindustria 1:146-150, Italy, ISSN: 1724-9015.
- 3) R. Monte, **S. Cesco**, R. Pinton e Z. Varanini, 2006. *Acquisizione de nitrato e ammonio in radici di barbabietola da zucchero (Beta vulgaris L. var saccharifera): caratterizzazione cinetica ed effetti sull'accumulo di saccarosio*. Agroindustria 5 (3):177-184, Italy, ISSN: 1724-9015

Contributions to Books

- 1) A Kania, G Neumann, **S Cesco**, R Pinton and V Römheld, 2001. *Use of plasma membrane vesicles for examination of phosphorous deficiency-induced root excretion of citrate in cluster roots of white lupin (Lupinus albus L.)*. In: Horst et al. (Eds), *Plant Nutrition- Food security and sustainability of agro-ecosystems*, 546-547, Kluwer Academic Publishers, NL, ISBN: 0-7923-7105-4.
- 2) R Monte, **S Cesco**, G. Locci, R Pinton e Z Varanini, 2005. *Induction of nitrate uptake and PM H⁺-ATPase activity along the root axis of maize seedlings*. In: Li et al. (Eds), *Plant nutrition for food security, human health and environmental protection*, 220-221, Tsinghua University Press, Beijing, China, ISBN: 7-302-11786-1.
- 3) **S Cesco**, A.D. Rombolà, M. Tagliavini, Z Varanini e R Pinton, 2005. *Root exudates of grasses improve Fe uptake in a citrus rootstock sensitive to Fe-deficiency*. In: Li et al. (Eds), *Plant nutrition for food security, human health and environmental protection*, 480-481, Tsinghua University Press, Beijing, China, ISBN: 7-302-11786-1.
- 4) **S. Cesco**, A.D. Rombolà, 2006. *Intercropping and Nutrient Management at the Rhizosphere*. In: R. Goodmann (Ed.), *Encyclopedia of Plant and Crop Science*, Taylor and Francis Group, LLC, New York, USA, 1-3, ISBN: 978-0-8247-0944-0.
- 5) Pinton R, **Cesco S** and Varanini Z, 2009. *Role of humic substances in the rhizosphere*. In: Biophysico-Chemical Processes Involving Natural Nonliving Organic Matter in Environmental Systems, Eds Senesi N, Xing B, and Huang PM, Copyright © 2009 John Wiley & Sons, Inc, pp. 337-362, ISBN: 978-0-470-41300-5.

International and National Conference Abstracts

Author of 148 congress contributions

Patents

A) National

1. **S Cesco**, M Greatti, E Celotti, E Cromaz, M Contin, R Zironi, R Pinton e Z Varanini, 1999. *System to grow plants in a field scale*. Patent UD99A000151, registered Agosto 24, 1999, University of Udine.
2. **S Cesco**, E Celotti, MF Agabiti, GB Cipolotti, S Cuttini, R Zironi, Z Varanini e R Pinton, 2000. *Procedure for the qualitative assessment of wine grapes damages by external events such as hail*. Patent UD2000A000103, registered Maggio 24, 2000, University of Udine.
3. **S Cesco**, E Celotti, C Giulivo, G Gasparoni, D Franceschi, R Pinton, Z Varanini, LS Conte, F Battistutta e R Zironi, 2001. *Procedure to obtain preparations for pharmaceutical use using as raw material wine or grape juice*. Patent UD2001A000033, registered Febbraio 19, 2001, University of Udine.

B) International

1. **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 01130133.0-2111 (Priority: IT/21.12.01/IT UD000225).