

# ANTONIO MASI

## Curriculum Vitae



### PROFESSIONAL EXPERIENCE

Dates

- Name and address of employer
  - Type of business or sector
  - Occupation or position held
- Research activity and themes
- Main activities and responsibilities

#### 1998-TO DATE

University of Padova, DAFNAE (Department of Agronomy, Food, Natural resources, Animals and Environment), College of Agriculture

Research in Agricultural Biotechnology

From March 2015: **Associate Professor**

1998-2015: Research scientist / lecturer / Assistant Professor

Food, Agriculture, and Biotechnology; Environment (including Climate Change); Plant health and crop protection; High-throughput research; Pressure on environment and climate; Food quality and safety; Life sciences, genomics and biotechnology for health; Fundamental knowledge and basic tools for functional genomics; Plant Proteomics.

**Research Project leader / Group leader / Coordination activity.** Investigations in plant physiology, biochemistry and plant adaptation to the environment are carried out in an integrative way, by making use of molecular biology, functional genomics and use of GMOs, gene expression studies, proteomics, microscopy, mass spectrometry for metabolite identification, biochemical and physiological measurements, and remote sensing for plant phenotyping under diverse abiotic and biotic adverse conditions and pollutants (e.g. ultraviolet radiation, heavy metals).

**Teaching:** *Plant Physiology and Biochemistry* (undergraduate degree course in “Agricultural Biotechnology”); *Plant Biology* (undergraduate degree courses in “Agricultural Science and Technology”, “Viticulture and Enology”, “Land and Landscape Restoration and Enhancement”); *Plant Natural Products* (graduate degree course in “Food Biotechnology”); *Analytical Methods for Food Quality and Safety* (undergraduate degree course in “Biotechnology”); *Remote sensing for plant phenomic analysis* (Second level Master on “GIScience and Unmanned System for the integrated management of the territory and the natural resources”); *Advanced technologies for the agrifood sector: nanotechnologies, proteomics, metabolomics* (graduate degree course in “Food Biotechnology”); *Plant Bioactive Compounds and Food Quality* (Master-level degree course in “Food and Health”). As a Visiting Professor, he has taught a short course in “Plant Proteomics” at the Birla Institute of Technology (2019), Mesra, Ranchi (India, 2019).

### EDUCATION AND TRAINING

- Date, qualification, organisation and main subjects
- Date, qualification, organisation and main subjects

**1995:** Ph.D. in Photobiology, University of Padova; dissertation title: “Biological effects of ultraviolet-B radiation in plants”.

**1992:** *Laurea* (master-level degree) in Agricultural Sciences, College of Agriculture at the University of Padova. Studies in Agricultural Sciences, including Agronomy, Botany, Soil Science, Dairy sciences, Food Science, Biochemistry and Biotechnology.

**2019 VISITING PROFESSOR AT THE BIRLA INSTITUTE OF TECHNOLOGY (MESRA, RANCHI, INDIA) AND AT THE UNIVERSITY OF GOUR BANGA (MALDA, WEST BENGAL, INDIA)**

**2010 (APRIL THROUGH JUNE):** VISITING PROFESSOR AT TRIBHUVAN UNIVERSITY IN KATHMANDU AND POKHARA, NEPAL, FOR STUDIES ON THE EFFECTS OF CLIMATE CHANGE IN MEDICINAL PLANTS OF HIMALAYAN NEPAL, WITHIN THE EUROPEAN PROGRAMME “SUTROFOR” – SUSTAINABLE TROPICAL FORESTRY.

**2004 (APRIL-DECEMBER, FULBRIGHT FELLOWSHIP):** FULBRIGHT SENIOR SCHOLAR, DEPARTMENT OF PLANT BIOLOGY, CORNELL UNIVERSITY, ITHACA, NY, USA

**1994-1995 (ONE YEAR FELLOWSHIP FROM UC BERKELEY, EDUCATION ABROAD**

### AWARDS & FELLOWSHIPS

PROGRAM): DEPARTMENT OF PLANT BIOLOGY, UNIVERSITY OF CALIFORNIA AT BERKELEY, CALIFORNIA, USA

**1989-1990** (SIX MONTHS FELLOWSHIP FROM “ALDO GINI” FOUNDATION): PLANT PHYSIOLOGY INSTITUTE, UNIVERSITY OF BERN, SWITZERLAND

**MOTHER TONGUE**  
**OTHER LANGUAGES**

- Reading skills
- Writing skills
- Verbal skills

**ITALIAN**

**ENGLISH**

EXCELLENT

EXCELLENT

EXCELLENT

**ADDITIONAL**  
**INFORMATION**

**1993-1999:** MEMBER OF THE “CONSULTA DEL CENTRO DI CALCOLO” (BOARD OF THE COMPUTING CENTRE), UNIVERSITY OF PADUA

**1993-2012:** MEMBER OF SCIENTIFIC BOARD OF C.R.I.B.I. – INTERDEPARTMENTAL RESEARCH CENTER FOR INNOVATIVE BIOTECHNOLOGY, UNIVERSITY OF PADUA

**2002-2009:** MEMBER OF THE DOCTORAL SCHOOL IN CROP PRODUCTION, CURRICULUM: AGROBIOTECHNOLOGY; **FROM 2009:** MEMBER OF THE DOCTORAL SCHOOL IN ANIMAL AND FOOD SCIENCE

**SEPT 2006, BRUXELLES:** ASSISTING THE EUROPEAN COMMISSION TO EVALUATE PROPOSALS FOR THE CONSERVATION, CHARACTERISATION, COLLECTION AND UTILISATION OF GENETIC RESOURCES IN AGRICULTURE.

**2007-2012:** FULBRIGHT COMMISSION: EVALUATING APPLICATIONS IN THE FIELD OF AGRICULTURAL SCIENCES (FULBRIGHT-BEST, BUSINESS EXCHANGE AND STUDENT TRAINING; RESEARCH SCHOLARS; VISITING STUDENT RESEARCHER)

**2016:** ASSISTING THE EUROPEAN COMMISSION (ERA) TO EVALUATE PROPOSALS UNDER THE H2020 WORK PROGRAMME.

**2016:** ORGANISER OF THE INTERNATIONAL SUMMER SCHOOL: "ENVIRONMENT AND BIODIVERSITY MANAGEMENT IN NEPAL HIMALAYAS", 25 JULY-12 AUGUST 2016 KATHMANDU (NEPAL)

**2018:** ORGANISER OF A “THEORETICAL-PRACTICAL COURSE ON PLANT MICROPROPAGATION”, AGRIPOLIS (LEGNARO, PD) 24-28 SEPTEMBER 2018

**2019:** ASSISTING THE REA - EUROPEAN COMMISSION, SUSTAINABLE RESOURCES FOR FOOD SECURITY / FP7 SME ACTIONS UNDER THE H2020 WORK PROGRAMME.

**2020:** ASSISTING THE REA - EUROPEAN COMMISSION, SUSTAINABLE RESOURCES FOR FOOD SECURITY / FP7 SME ACTIONS UNDER THE H2020 WORK PROGRAMME.

HE HAS ALSO ASSISTED THE SERBIAN MINISTRY OF RESEARCH, THE CZECH SCIENCE FOUNDATION AND THE ROMANIAN MINISTRY OF RESEARCH IN EVALUATING NATIONAL RESEARCH PROJECT PROPOSALS; ASSISTING THE BARD (BINATIONAL AGRICULTURAL RESEARCH AND DEVELOPMENT FUND US-ISRAEL) FOR PROJECT EVALUATION; ASSISTING THE SPANISH UNA4CAREER PROGRAMME; PROJECT EVALUATOR FOR REGIONE EMILIA-ROMAGNA , "PIANI DI INNOVAZIONE 2020"

**BIBLIOMETRICS**  
(APRIL 2020)

GOOGLE SCHOLAR: [scholar.google.com/citations?user=HX-s9LUAAAAJ&hl=it](https://scholar.google.com/citations?user=HX-s9LUAAAAJ&hl=it)

Google Scholar: H-INDEX: 21; i10-index: 31

Scopus: H-INDEX: 17; citations: 1288 (as of 19/03/2021)

Supervisor of 7 Ph.D. students

<http://orcid.org/0000-0003-0536-5984>

**ORGANIZATION OF**  
**CONFERENCES AND**  
**WORKSHOPS**

**Coordinator in the organization of**

- **VIII ITPA (Italian Proteomic Association) Congress**, Padova 18-21 June 2013

- Interdisciplinary workshop: “Droni e tecnologie innovative: prospettive di impiego in sistemi agroforestali e per la tutela dell’ambiente e del territorio”, Legnaro, Agripolis Campus, 13 november 2014

- **III INPPO (International Plant Proteomics Organization) Conference**, 10-12 October 2018, Padova, University Botanical Garden

**OTHER INFORMATION**

- Translator of the Chapter 19: “Plants as Chemical and Pharmaceutical Factories” of the book “Plants, Genes and Crop Biotechnology” – Chrispeels-Sadava.
- Editor of the book: “Neglected and Underutilized Crops - Towards Nutritional Security and Sustainability” – Springer Nature (2021), ISBN 978-981-16-3875-6

## ANTONIO MASI

### PUBLICATIONS IN PEER-REVIEWED INTERNATIONAL JOURNALS

<https://doi.org/10.1007/978-981-16-3876-3>

- Member of Steering Committee – University of Padova Proteomic Center
  - Member of Steering Committee – Master in GIScience
1. Pristeri, G.; Peroni, F.; Pappalardo, S. E.; Codato, D.; **Masi, A.**; De Marchi, M. (2021). Whose Urban Green? Mapping and Classifying Public and Private Green Spaces in Padua for Spatial Planning Policies. pp.1-28 - In ISPRS INTERNATIONAL JOURNAL OF GEO-INFORMATION vol. 10 (8) DOI:10.3390/ijgi10080538.
  2. Battisti I, Ebinezer LE, Lomolino G, **Masi A**, Arrigoni G. (2021). Protein profile of commercial soybean milks analyzed by label-free quantitative proteomics. Food Chemistry. DOI: 10.1016/j.foodchem.2021.129299
  3. Srivastava V, Squartini A, **Masi A**, Sarkar A, Singh RP. (2020). Metabarcoding analysis of the bacterial succession during vermicomposting by the earthworm *Eisenia fetida* on municipal solid waste. Science of The Total Environment (in press). DOI: 10.1016/j.scitotenv.2020.144389
  4. Vidović M, Franchin C, Morina F, Veljović-Jovanović S, Masi A, Arrigoni G (2020). Efficient protein extraction for shotgun proteomics from hydrated and desiccated leaves of resurrection *Ramonda serbica* plants. Analytical and Bioanalytical Chemistry. DOI: 10.1007/s00216-020-02965-2
  5. Millan S, Jeffery DW, Dall'Acqua S, Masi A (2021). A novel HPLC-MS/MS approach for the identification of biological thiols in vegetables. Food Chemistry, 339:127809, DOI:10.1016/j.foodchem.2020.127809
  6. Mir RA, Bhat KA, Rashid G, Ebinezer LB, Masi A, Rakwal R, Shah AA, Zargar SM (2020). DNA barcoding: a way forward to obtain deep insights about the realistic diversity of living organisms. Nucleus DOI: 10.1007/s13237-020-00330-3
  7. Ebinezer LB, Franchin C, Trentin AR, Carletti P, Trevisan S, Agrawal G, Rakwal R, Quaggiotti S, Arrigoni G, Masi A (2020). Quantitative Proteomics of Maize Roots Treated with Protein Hydrolysate: A Comparative Study with Transcriptomics Highlights the Molecular Mechanisms Responsive to Biostimulants. Journal of Agricultural and Food Chemistry, 68:7541-7553. DOI: 10.1021/acs.jafc.0c01593
  8. Pristeri, G.; Peroni, F.; Pappalardo, S.E.; Codato, D.; Castaldo, A.G.; Masi, A.; De Marchi, M. Mapping and Assessing Soil Sealing in Padua Municipality through Biotope Area Factor Index (2020). Sustainability, 12:5167; doi:10.3390/su12125167
  9. Sharma N., Barion G., Shrestha I., Ebinezer L.B., Trentin A.R., Vamerali T., Mezzalana G., Masi A., Ghisi R. (2020). Accumulation and effects of perfluoroalkyl substances in three hydroponically grown *Salix L.* species. Ecotoxicology and Environmental Safety. DOI: 10.1016/j.ecoenv.2019.110150
  10. Sharma N.; Arrigoni G.; Trentin A.R.; Franchin C.; Giarretta S.; Carletti P.; Thiele-Bruhn S.; Ghisi R.; Masi A. (2019). A proteomic and biochemical investigation on the effects of sulfadiazine in *Arabidopsis thaliana*. Ecotoxicology and Environmental Safety 178:146-158. doi: 10.1016/j.ecoenv.2019.04.008
  11. Jenne A., Soong R., Bermel W., Sharma N., Masi A., Anaraki M. T., Simpson A. (2019). Focusing on "the important" through targeted NMR experiments: An example of selective <sup>13</sup>C-<sup>12</sup>C bond detection in complex mixtures (in press). doi: 10.1039/C8FD00213D
  12. Roomi S., Masi A., Conselvan G.B., Trevisan S., Quaggiotti S., Pivato M., Arrigoni G., Yasmin T., Carletti P. (2018). Protein Profiling of *Arabidopsis* Roots Treated With Humic Substances: Insights Into the Metabolic and Interactome Networks. Frontiers in Plant Science, doi: 10.3389/fpls.2018.01812
  13. Trevisan S., Trentin A.R., Ghisi R., Masi A., Quaggiotti S. (2018). Nitrate affects transcriptional regulation of UPBEAT1 and ROS localisation in roots of *Zea mays L.* Physiologia Plantarum (doi:10.1111/ppl.12839).
  14. Ashwin N. M. R., Barnabas L., Sundar A.R., Malathi P., Viswanathan R., Masi A., Agrawal G.K., Rakwal R. (2018). CfPDIP1, a novel secreted protein of *Colletotrichum falcatum*, elicits defense responses in sugarcane and triggers hypersensitive response in tobacco. Applied Microbiology and Biotechnology, doi:10.1007/s00253-018-9009-2
  15. Berardi L, Pivato M, Arrigoni G, Mitali E, Trentin AR, Olivieri M, Kerdelhue´ C, Dorkeld F, Nidelet S, Dubois E, Battisti A, Masi A (2017). Proteome analysis of urticating setae from *Thaumetopoea pityocampa* (Lepidoptera: Notodontidae). Journal of Medical Entomology, 2017, 1–7. doi: 10.1093/jme/tjx144
  16. Ashwin NMR, Barnabas L, Ramesh Sundar A, Malathi P, Viswanathan R, Masi A, Agrawal GK, Rakwal R. (2017). Comparative secretome analysis of *Colletotrichum falcatum* identifies a cerato-platanin protein (EPL1) as a potential pathogen-

- associated molecular pattern (PAMP) inducing systemic resistance in sugarcane. *Journal of Proteomics*, doi: 10.1016/j.jprot.2017.05.020
17. Sajad Majeed Zargar, Reetika Mahajan, Muslima Nazir, Preeti Nagar, Sun Tae Kim, Vandna Rai, Antonio Masi, Syed Mudasir Ahmad, Riaz Ahmad Shah, Nazir Ahmad Ganai, Ganesh K. Agrawal, i, Randeep Rakwal (2017). Common bean proteomics: Present status and future strategies. *Journal of Proteomics*, 169:239-248. DOI:10.1016/j.jprot.2017.03.019.
  18. N. M. R. Ashwin, Leonard Barnabas, A. Ramesh Sundar, P. Malathi, R. Viswanathan, A. Masi, Ganesh Kumar Agrawal, Randeep Rakwal (2017). Advances in proteomic technologies and their scope of application in understanding plant-pathogen interactions. *Journal of Plant Biochemistry and Biotechnology*, pp. 1-16. DOI: 10.1007/s13562-017-0402-1
  19. Giaretta S, Prasad D, Forieri I, Vamerali T, Trentin AR, Wirtz M, Hell R, Masi A (2017). Apoplastic gamma-glutamyl transferase activity encoded by GGT1 and GGT2 is important for vegetative and generative development. *Plant Physiology and Biochemistry*, 115:44-56. DOI:10.1016/j.plaphy.2017.03.007
  20. Leonard Barnabas, N.M.R. Ashwin, K. Kaverinathan, A.R. Trentin, M. Pivato, A. R. Sundar, P. Malathi, R. Viswanathan, P. Carletti, G. Arrigoni, A. Masi, G.K. Agrawal, R. Rakwal (2017). In vitro secretomic analysis identifies putative pathogenicity-related proteins of *Sporisorium scitamineum* – The sugarcane smut fungus. *Fungal Biology*, 121:199–211. DOI:10.1016/j.funbio.2016.11.004
  21. Barnabas EL, Ashwin N, Kaverinathan K, Trentin AR, Pivato M, Sundar AR, Malathi P, Viswanathan R, Rosana OB, Neethukrishna K, Carletti P, Arrigoni G, Masi A, Agrawal GK, Rakwal R. (2016) Proteomic analysis of a compatible interaction between sugarcane and *Sporisorium scitamineum*. *Proteomics*, 16:1111–1122, DOI 10.1002/pmic.201500245
  22. Masi A., Trentin A.R., Arrigoni G. (2016). Leaf apoplastic proteome composition in UV-B treated *Arabidopsis thaliana* mutants impaired in extracellular glutathione degradation. *Data in Brief*, 6:368–377. doi: 10.1016/j.dib.2015.12.005
  23. Pompella A., Masi A., Pennacchio F. (2016). La modulazione dei livelli di glutatione come strategia di attacco nelle interazioni ospite-parassita. *Journal of the Siena Academy of Sciences*, vol. 7, p. 45-47, ISSN: 2279-8811, doi: 10.4081/jsas.2015.6418
  24. Sturaro A., De Marchi M., Masi A., Cassandro M. (2015). Quantification of whey proteins by reversed phase-HPLC and effectiveness of mid-infrared spectroscopy for their rapid prediction in sweet whey. *Journal of Dairy Science*, 99:68–76 doi:10.3168/jds.2014-9077
  25. Trevisan S., Manoli A., Ravazzolo L., Botton A., Pivato M., MASI A., Quaggiotti S. (2015). Nitrate sensing by the maize root apex transition zone: a merged transcriptomic and proteomic survey. *J Exp Bot*. DOI:10.1093/jxb/erv165
  26. Zermiani M., Zonin E., Nonis A., Begheldo M., Ceccato L., Vezzaro A., Baldan B., Trentin A.R., Masi A., Pegoraro M., Fadanelli L., Teale W., Palme K., Quintieri L., Ruperti B. (2015). Ethylene negatively regulates transcript abundance of ROP-GAP rheostat-encoding genes and affects apoplastic reactive oxygen species homeostasis in epicarps of cold stored apple fruits. *Journal of Experimental Botany* doi:10.1093/jxb/erv422
  27. MASI A., Trentin A.R., Agrawal G.K., Rakwal R. (2015). Gamma-glutamyl cycle in plants: a bridge connecting the environment to the plant cell? *Front. Plant Sci.*, 6:252. doi: 10.3389/fpls.2015.00252
  28. Trentin A.R., Pivato M., Mehdi S.M.M., Barnabas L.E., Giaretta S., Fabrega-Prats M., Prasad D., Arrigoni G., MASI A. (2015) Proteome readjustments in the apoplastic space of *Arabidopsis thaliana* ggt1 mutant leaves exposed to UV-B radiation. *Front. Plant Sci.* doi: 10.3389/fpls.2015.00128
  29. Niero G., De Marchi M., Masi A., Penasa M., Cassandro M. (2015). Short communication: Characterization of soluble thiols in bovine milk. *JOURNAL OF DAIRY SCIENCE*, vol. 98, p. 6014-6017, ISSN: 0022-0302, doi: 10.3168/jds.2015-9740
  30. Pennacchio F., MASI A., Pompella A. (2014). Glutathione levels modulation as a strategy in host-parasite interactions – insights for biology of cancer. *Frontiers in Pharmacology*, 5:180. doi: 10.3389/fphar.2014.00180
  31. Pivato M., Fabrega-Prats M., MASI A. (2014). Low-molecular-weight thiols in plants: Functional and analytical implications. *ARCHIVES OF BIOCHEMISTRY AND BIOPHYSICS*, 560:83-99. doi: 10.1016/j.abb.2014.07.018
  32. Ahou A., D. Martignago, O. Alabdallah, R. Tavazza, P. Stano, A. Macone, M. Pivato, A. MASI, J. L. Rambla, F. Vera-Sirera, R. Angelini, R. Federico, P. Tavladoraki (2014). A plant spermine oxidase/dehydrogenase regulated by the proteasome and polyamines. *JOURNAL OF EXPERIMENTAL BOTANY*, ISSN: 0022-

0957, doi: 10.1093/jxb/eru016

33. M. Schiavon, S. dall'Acqua, A. Mietto, E. A. H. Pilon-Smits, P. Sambo, A. MASI, M. Malagoli (2013). Selenium Fertilization Alters the Chemical Composition and Antioxidant Constituents of Tomato (*Solanum lycopersicon* L.). *JOURNAL OF AGRICULTURAL AND FOOD CHEMISTRY*, ISSN: 0021-8561, doi: 10.1021/jf4031822
34. Arrigoni G, Tolin S, Moscatiello R, MASI A, Navazio L, Squartini A (2013). Calcium-dependent regulation of genes for plant nodulation in *Rhizobium leguminosarum* detected by iTRAQ quantitative proteomic analysis. *JOURNAL OF PROTEOME RESEARCH*, vol. 12, p. 5323-5330, ISSN: 1535-3893, doi: 10.1021/pr400656g
35. Tolin S., Arrigoni G., Trentin A.R., Veljovic-Jovanovic S., Pivato M., Zechman B., MASI A. (2013). Biochemical and quantitative proteomics investigations in *Arabidopsis ggt1* mutant leaves reveal a role for the gamma-glutamyl cycle in plant's adaptation to environment. *PROTEOMICS*, p. n/a, ISSN: 1615-9853, doi: 10.1002/pmic.201200479
36. Tolin S., Arrigoni G., Moscatiello R., MASI A., Navazio L., Sablok G., Squartini A. (2013). Quantitative analysis of the naringenin-inducible proteome in *Rhizobium leguminosarum* by isobaric tagging and mass spectrometry. *PROTEOMICS*, ISSN: 1615-9853, doi: 10.1002/pmic.201200472
37. Kour J., Homagai P.L., Cagnin M., MASI A., Pokhrel M.R., Ghimire K.N. (2013). Adsorption of Cd (II), Cu (II), and Zn (II) from Aqueous Solution onto Nitrogen-Functionalized *Desmostachya bipinnata*. *e-Journal of Chemistry*, Article ID 649142, doi: 10.1155/2013/649142
38. Enrico Zanetti, Antonio Masi, Micaela Pivato, Serena Tolin, Anna Trentin, Cem Guler, Servet Yalçın, Martino Cassandro (2013). A note on protein expression changes in chicken breast muscle in response to time in transit before slaughtering. *PROTEOME SCIENCE*, vol. 11, ISSN: 1477-5956, doi: 10.1186/1477-5956-11-34
39. Pasini G., Curioni A., Vegro M., Pagani M., MASI A., Schievano E., Antico A. (2012). Extraction and Mass Spectrometry identification of the major peach allergen Pru p 1. *J Sci Food Agric* 92: 570–576.
40. Tolin S., Pasini G, Curioni A, Arrigoni G, MASI A., Mainente F and Simonato B. (2012). Mass spectrometry detection of egg proteins in red wines treated with egg white. *Food Control* 23:87-94
41. Destro T., Prasad D., Martignago D., Lliso Bernet I., Trentin A., Renu I.K., Ferretti M. and MASI A. (2011). Compensatory expression and substrate inducibility of gamma-glutamyl transferase GGT2 isoform in *Arabidopsis thaliana*. *Journal of Experimental Botany*, 62:805-814
42. Ferretti M., Destro T., Tosatto S.C.E., La Rocca N., Rascio N. and MASI A. (2009). Gamma-glutamyl transferase in the cell wall participates in extracellular glutathione salvage from the root apoplast. *New Phytologist*, 181: 115–126.
43. Prasad D., Vidyarthi A.S., Ferretti M., MASI A (2009). Colorimetric screening of recombinant RNAi vectors without using PCR. *New Biotechnology*, vol. 25, ISSN: 1871-6784.
44. Carletti P., MASI A., Spolaore B., Polverino De Laureto P., De Zorzi M., Turetta L., Ferretti M., Nardi S. (2008). Protein Expression Changes in Maize Roots in Response to Humic Substances. *Journal of Chemical Ecology*, 34:804-818.
45. Giacomelli L., MASI A., Ripoll D.R., Lee M.J. and K.J. van Wijk (2007). *Arabidopsis thaliana* deficient in two chloroplast ascorbate peroxidases shows accelerated light-induced necrosis when levels of cellular ascorbate are low. *Plant Molecular Biology*, 65:627-644.
46. MASI A., T. Destro, L. Turetta, S. Varotto, G. Caporale and M. Ferretti (2007) Localization of gamma-glutamyl transferase activity and protein in *Zea mays* organs and tissues. *Journal of Plant Physiology*, 164:1527-1535.
47. CARLETTI P., MASI A., WONISCH A., GRILL D, TAUSZ M., FERRETTI M. (2003). Changes in antioxidant and pigment pool dimensions in UV-B irradiated maize seedlings. *ENVIRONMENTAL AND EXPERIMENTAL BOTANY*, vol. 50, p. 149-157, ISSN: 0098-8472, doi: 10.1016/S0098-8472(03)00020-0
48. PIZZEGHELLO D., FERRETTI M., MASI A., NARDI S. (2003). Water-soluble phenolic acids in soil under silver fir forests . *FRESENIUS ENVIRONMENTAL BULLETIN*, vol. 12(7), p. 984-988, ISSN: 1018-4619
49. MASI A., GHISI R., FERRETTI M. (2002). Measuring low-molecular-weight thiols by detecting the fluorescence of their SBD-derivatives: application to studies of diurnal and UV-B induced changes in *Zea mays* L. *JOURNAL OF PLANT PHYSIOLOGY*, vol. 159, p. 499-507, ISSN: 0176-1617
50. GHISI R., TRENTIN A., MASI A., FERRETTI M. (2002). Carbon and nitrogen metabolism in barley plants exposed to UV-B radiation. *PHYSIOLOGIA*

PLANTARUM, vol. 116, p. 200-205, ISSN: 0031-9317, doi: 10.1034/j.1399-3054.2002.1160209.x

51. GHISI R, FERRETTI M, LA ROCCA N, MASI A, PASSERA C (1999). Enzymes of ammonia assimilation, photosynthesis and respiration in alfalfa leaves of different ages . *BIOLOGIA PLANTARUM*, vol. 42, p. 371-378, ISSN: 0006-3134
52. MASI A., MELIS A. (1997). Morphological and molecular changes in the unicellular green alga *Dunaliella salina* grown under supplemental UV-B radiation: cell characteristics and photosystem-II damage and repair properties. *BIOCHIMICA ET BIOPHYSICA ACTA*, vol. 1321, p. 183-193, ISSN: 0006-3002, doi: 10.1016/S0005-2728(97)00054-6