

LUIGI PARROTTA - CURRICULUM VITAE

PERSONAL INFORMATION

Surname(s): Parrotta

Name(s): Luigi

Date of birth: 13/09/1985

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EDUCATION AND TRAINING

PhD in Science and Technologies Applied to the Environment at the University of Siena. Date of graduation: 22/03/2013. Title of dissertation: *Proteomic, genomic and cytological expression of α/β -tubulin and MAP65 during the development of buds in Vitis vinifera*.

Degree in Biotechnology for Human Health (curriculum in Reproductive Biotechnology and Eco-Food), Faculty of Mathematical, Physical and Natural Sciences, Medicine and Pharmacy. University of Siena. Date of graduation: 13/07/2009. Title of dissertation: *Proteomic analysis of α -and β -tubulin during the development of buds in Vitis vinifera L.*

Bachelor's degree in Biotechnology (curriculum in Industrial and Eco-Food), Faculty of Mathematical, Physical and Natural Sciences, Medicine and Pharmacy, University of Siena. Date of graduation: 20/07/2007. Title of dissertation: *Functional and structural genomics of Vitis vinifera: Changes in protein expression of α -tubulin in buds, leaves, flowers and tendrils*.

High School graduation: High School State, San Giovanni in Fiore (Cs). Year 2004.

WORK EXPERIENCE

July 2023 – to date Junior assistant professor (fixed-term). Department of Biological, Geological and Environmental Sciences, University of Bologna.

January 2021 – September 2022 Research Fellow, Interdepartmental Center for Industrial Research on Agro-food, University of Bologna, Project title: Comparative evaluation of qualitative and nutritional characteristics of different varieties of wheat and related agricultural and conventional by-products.

October 2018 - September 2020 Research Fellow, Department of Biological, Geological and Environmental Sciences, University of Bologna. Project title: PRIN 2015 (Investigating Self Incompatibility Determinants in fruit trees) (<http://prin.miur.it/>).

July 2017- July 2018 Fellowship on the research project: “Progetto PSR Misura 16.02, Innovacereali”, Regione Toscana Department of Life Sciences, University of Siena.

June 2015 - May 2017 Research Fellow, Department of Biological, Geological and Environmental Sciences, University of Bologna. Project title "Study of molecules involved in the inflammatory reaction responsible of cross-allergic sensitization between pollen and fruit".

October 2013 - October 2014, Fellowship on the research project “Progetto misura 124 PSR 2007-2013” granted by Regione Toscana

October 2009 - September 2012, Training at the Department of Environmental Sciences "G. Sarfatti" University of Siena for the purposes of completing the PhD thesis.

February 2010 - April 2010, Stage at the Applied Genomic Institute of Udine, Italy (IGA).

September 2007 - July 2009, Training at the Department of Environmental Sciences "G. Sarfatti" University of Siena for the purposes of completing the Postgraduate Master's Degree thesis.

March 2007 - July 2007, Training at the Department of Environmental Sciences "G. Sarfatti" University of Siena for the purposes of completing the bachelor thesis.

TEACHING EXPERIENCES AND THESIS COORDINATION

Professor of Module of Botany and Agriculture I.C Environmental Botany (Module 2) (Academic Year 2020/2021, Academic Year 2021/2022 and Academic Year 2022/2023).

Teaching tutor of Plant Biology and Diversity in the degree course in Biological Science, University of Bologna (24 hours - Academic Year 2021/2022). Teaching tutor of course "Plants, Food and Environment", University of Bologna (12 hours –Academic Year 2021/2022). Teaching tutor of PLS "Progetto Lauree Scientifiche" University of Bologna, (50 hours - Academic Year 2021/2022). Teaching tutor of Plant Biology and Diversity in the degree course in Biological Science, University of Bologna (24 hours - Academic Year 2020/2021). Teaching tutor of course "Plants, Food and Environment", University of Bologna (12 hours –Academic Year 2020/2021). Teaching tutor of PLS "Progetto Lauree Scientifiche" University of Bologna, (44 hours - Academic Year 2020/2021). Teaching tutor of Plant Biology and Diversity in the degree course in Biological Science, University of Bologna (38 hours - Academic Year 2019/2020). Teaching tutor of PLS "Progetto Lauree Scientifiche" University of Bologna, (30 hours - Academic Year 2019/2020). Teaching tutor of course "Plants, Food and Environment", University of Bologna (12 hours –Academic Year 2019/2020). Teaching tutor of PLS "Progetto Lauree Scientifiche" University of Bologna, (30 hours - Academic Year 2018/2019). Teaching tutor of PLS "Progetto Lauree Scientifiche" University of Bologna, (30 hours - Academic Year 2018/2019). Teaching tutor of course "Plants, Food and Environment", University of Bologna (12 hours –Academic Year 2018/2019). Teaching tutor of Plant Biology and Diversity in the degree course in Biological Science, University of Bologna (48 hours - Academic Year 2017/2018). Teaching tutor of PLS "Progetto Lauree Scientifiche" University of Bologna, (26 hours - Academic Year 2017/2018). Teaching tutor of PLS "Progetto Lauree Scientifiche" University of Bologna, (55 hours - Academic Year 2017/2018). Teaching tutor of PLS "Progetto Lauree Scientifiche" University of Bologna, (30 hours - Academic Year 2017/2018). Teaching tutor of course "Plants, Food and Environment", University of Bologna (12 hours –Academic Year 2017/2018). Teaching tutor of Plant Biology and Diversity in the degree course in Biological Science, University of Bologna. (48 hours - Academic Year 2015/2016).

Teaching lecture: "Programma di iniziative Tecniche-Agronomiche per la valorizzazione del settore olivicolo – Strategie di valutazione degli aspetti climatici che influenzano la produzione olivicola, rispetto della sostenibilità ambientale, economica, etica e sociale della filiera". ENAPRA, Bibbona (Li) (2 hours).

Co-tutor of 23 different theses at the University for the academic years: 2010 to date

PUBLICATIONS IN PEER-REVIEWED JOURNALS

Parrotta L., Cai G., Cresti M. (2010) Changes in accumulation of α - and β -tubulin during bud development in *Vitis Vinifera* L., *Planta* 231: 277-291.

Nicolardi V., Cai G., Parrotta L., Puglia M., Bianchi L., Bini L., Gaggi C. (2012) The adaptive response of lichens to mercury exposure involves changes in the photosynthetic machinery. *Environmental Pollution* 160: 1-10.

Parrotta, L., Cresti, M., Cai, G. (2013) Heat-shock protein 70 binds microtubules and interacts with kinesin in tobacco pollen tube. *Cytoskeleton* 70: 522-537.

- Parrotta, L., Cresti, M., Cai, G. (2014) Accumulation and post-translational modifications of plant tubulina. *Plant Biology* 16, 3:521-527.
- Cai, G., Parrotta, L., Cresti, M. (2015) Organelle trafficking, the cytoskeleton and pollen tube growth. *Journal of Integrative Plant Biology*. 57:63-78
- Parrotta, L., Guerriero, G., Sergeant, K., Cai, G., & Hausman, J. F. (2015). Target or barrier? The cell wall of early-and later-diverging plants vs cadmium toxicity: differences in the response mechanisms. *Frontiers in plant science*, 6.
- Parrotta, L., Faleri, C., Cresti, M., & Cai, G. (2016). Heat stress affects the cytoskeleton and the delivery of sucrose synthase in tobacco pollen tubes. *Planta*, 243 (1), 43-63.
- Aloisi A., Parrotta L., Ruiz K.B., Landi C., Bini L., Cai G., Biondi S., Del Duca S. (2016) New insight into quinoa seed quality under salinity: changes in proteomic and amino acid profiles, phenolic content, and antioxidant activity of protein extracts. *Frontiers in Plant Science* 7.
- Parrotta L., Campani T., Casini S., Romi M., & Cai G. (2016). Impact of raw and bioaugmented olive mill wastewater and olive mill solid waste on the content of photosynthetic molecules in tobacco plants. *Journal of Agricultural and Food Chemistry*. 64 (30): 5971-5984.
- Parrotta L., Faleri, C., Cresti, M., Cai, G. (2017). Proteins immunologically related to MAP65-1 accumulate and localize differentially during bud development in *Vitis vinifera* L. *Protoplasma* 254 (4), 1591-1605.
- Munzi S., Sheppard L.J., Leith I.D., Cruz C., Branquinho C., Bini L., Gagliardi A., Cai G., Parrotta L. (2017). The cost of surviving nitrogen excess: energy and protein demand in the lichen *Cladonia portentosa* as revealed by proteomic analysis. *Planta* 245 (4), 819-833.
- Cai G., Parrotta L., Cresti M. (2017) The cytoskeleton of pollen tubes and how it determines the physico-mechanical properties of cell wall. In: *Pollen tip growth*. Springer, Cham
- Parrotta L., Faleri C., Del Duca S., Cai G. (2018) Depletion of sucrose induces changes in the tip growth mechanism of tobacco pollen tubes, *Annals of Botany*, 122, 1, 1–21, <https://doi.org/10.1093/aob/mcy057>
- Berni, R., Romi, M., Parrotta, L., Cai, G., & Cantini, C. (2018). Ancient Tomato (*Solanum lycopersicum* L.) Varieties of Tuscany have high contents of bioactive compounds. *Horticulturae*, 4(4), 51.
- Piccini C., Parrotta L., Faleri C., Romi M., Del Duca S., Cai G. (2019) Histomolecular responses in susceptible and resistant phenotypes of *Capsicum annuum* L. infected with *Phytophthora capsici*, *Scientia Horticulturae* 244, 122-133
- Del Duca S., Aloisi I., Parrotta L., & Cai G. (2019) Cytoskeleton, transglutaminase and gametophytic self-incompatibility in the Malinae (Rosaceae), *International Journal of Molecular Sciences*, 20(1), 209; doi: 10.3390/ijms20010209
- Parrotta L., Faleri C., Guerriero G., Cai G. (2019) Cold stress affects cell wall deposition and growth pattern in tobacco pollen tubes, *Plant Science*, 283, 329-342, 10.1016/j.plantsci.2019.03.010
- Mandrone, M., Antognoni, F., Aloisi, I., Potente, G., Poli, F., Cai, G., Parrotta, L., Del Duca, S. (2019). Compatible and incompatible pollen-styles interaction in *Pyrus communis* L. show different transglutaminase features, polyamine pattern and metabolomics profiles. *Frontiers in Plant Science*, 10, 741. doi: 10.3389/fpls.2019.00741
- Parrotta, L., Aloisi, I., Suanno, C., Faleri, C., Kiełbowicz-Matuk, A., Bini, L., Cai, G., Del Duca, S. (2019). A low molecular-weight cyclophilin localizes in different cell compartments of *Pyrus communis* pollen and is released in vitro under Ca²⁺ depletion. *Plant Physiology and Biochemistry*, 144,197-206. <https://doi.org/10.1016/j.plaphy.2019.09.045>.
- Patrignani, F., Parrotta, L., Del Duca, S., Vannini, L., Camprini, L., Rosa, M.D., Schlüter, O., Lanciotti, R., Potential of *Yarrowia lipolytica* and *Debaryomyces hansenii* strains to produce high quality

- food ingredients based on cricket powder, *LWT - Food Science and Technology* (2020), doi:<https://doi.org/10.1016/j.lwt.2019.108866>.
- Parrotta, L., Aloisi, I., Faleri, C., Romi, M., Del Duca, S., & Cai, G. (2020). Chronic heat stress affects the photosynthetic apparatus of *Solanum lycopersicum* L. cv Micro-Tom. *Plant Physiology and Biochemistry*. doi:10.1016/j.plaphy.2020.06.047
- Aloisi I, Distefano G, Antognoni F, Potente G, Parrotta L, Faleri C, Gentile A, Bennici S, Mareri L, Cai G, Del Duca S. (2020) Temperature-Dependent Compatible and Incompatible Pollen-Style Interactions in *Citrus clementina* Hort. ex Tan. Show Different Transglutaminase Features and Polyamine Pattern, *Frontiers in Plant Science*, 11, 1018 doi:10.3389/fpls.2020.01018
- Munzi, S., Cruz, C., Branquinho, C., Cai, G., Faleri, C., Parrotta, L., ... & Sheppard, L. J. (2020). More tolerant than expected: Taking into account the ability of *Cladonia portentosa* to cope with increased nitrogen availability in environmental policy. *Ecological Indicators*, 119, 106817. doi: 10.1016/j.ecolind.2020.106817.
- Capotorti, S Bonacquisti, L Abis, I Aloisi, F Attorre, G Bacaro, G Balletto, E Banfi, E Barni, F Bartoli, E Bazzato, M Beccaccioli, R Braglia, F Bretzel, MA Brighetti, G Brundu, M Burnelli, C Calfapietra, VE Cambria, G Caneva, A Canini, S Caronni, M Castello, C Catalano, L Celesti-Grapow, E Cicinelli, L Cipriani, S Citterio, G Concu, A Coppi, E Corona, S Del Duca, E Del Vico, E Di Gristina, G Domina, L Faino, EA Fano, S Fares, E Farris, S Farris, M Fornaciari, M Gaglio, G Galasso, M Galletti, ML Gargano, R Gentili, AP Giannotta, C Guarino, R Guarino, G Iaquina, G Iriti, A Lallai, E Lallai, E Lattanzi, S Manca, F Manes, M Marignani, F Marinangeli, M Mariotti, F Mascia, P Mazzola, G Meloni, P Michelozzi, A Miraglia, C Montagnani, L Mundula, AN Muresan, F Musanti, A Nardini, E Nicosia, L Oddi, F Orlandi, R Pace, ME Palumbo, S Palumbo, L Parrotta, S Pasta, K Perini, L Poldini, A Postiglione, A Prigioniero, C Proietti, FM Raimondo, A Ranfa, EL Redi, M Reverberi, E Roccotiello, L Ruga, V Savo, P Scarano, F Schirru, R Sciarrillo, F Scuderi, A Sebastiani, C Siniscalco, A Sordo, C Suanno, M Tartaglia, A Tilia, C Toffolo, E Toselli, A Travaglini, F Ventura, G Venturella, F Vincenzi & C Blasi (2020) More Nature in the City, *Plant Biosystems - An International Journal Dealing with all Aspects of Plant Biology*, doi: 10.1080/11263504.2020.1837285
- Rossi, S., Parrotta, L., Del Duca, S., Dalla Rosa, M., Patrignani, F., Schluter, O., & Lanciotti, R. (2021). Effect of *Yarrowia lipolytica* RO25 cricket-based hydrolysates on sourdough quality parameters. *LWT*, 111760. doi: 10.1016/j.lwt.2021.111760
- Suanno, C., Aloisi, I., Parrotta, L., Fernández-González, D., & Del Duca, S. (2021). Allergenic risk assessment of urban parks: Towards a standard index. *Environmental Research*, 111436. doi: 10.1016/j.envres.2021.111436
- Serafini-Fracassini, D., Della Mea, M., Parrotta, L., Faleri, C., Cai, G., Del Duca, S., & Aloisi, I. (2021). AtPng1 knockout mutant of *Arabidopsis thaliana* shows a juvenile phenotype, morpho-functional changes, altered stress response and cell wall modifications. *Plant Physiology and Biochemistry*, 167, 11-21. doi:10.1016/j.plaphy.2021.07.024
- Mareri, L., Faleri, C., Aloisi, I., Parrotta, L., Del Duca, S., & Cai, G. (2021). Insights into the Mechanisms of Heat Priming and Thermotolerance in Tobacco Pollen. *International Journal of Molecular Sciences*, 22(16), 8535. doi:10.3390/ijms22168535
- Parrotta L., Faleri C., Del Casino C., Mareri L., Aloisi I., Guerriero G., Hausman J.F., Del Duca S., Cai G. (2022) Biochemical and cytological interactions between callose synthase and microtubules in the tobacco pollen tube. *Plant Cell Reports*, 2022, <https://doi.org/10.1007/s00299-022-02860-3>
- Rossi S., Parrotta L., Gottardi D., Del Duca S., Dalla Rosa M., Patrignani F., Schlüter O., Lanciotti R. (2022) Unravelling the potential of cricket-based hydrolysed sourdough on the quality of an

- innovative bakery product. *Journal of Insects as Food and Feed*, 1 - 16, <https://doi.org/10.3920/JIFF2021.0184>
- Parrotta, L.[#], Tanwar, U.K., Aloisi, I., Sobieszczuk-Nowicka, E., Arasimowicz-Jelonek, M., Del Duca, S. (2022) Plant Transglutaminases: New Insights in Biochemistry, Genetics, and Physiology. *Cells*, 11, 1529. <https://doi.org/10.3390/cells11091529>
- Conti, V., Cantini, C., Romi, M., Cesare, M.M., Parrotta, L., Del Duca, S., Cai, G. (2022) Distinct tomato cultivars are characterized by a differential pattern of biochemical responses to drought stress. *International Journal of Molecular Sciences*, 23, 5412. <https://doi.org/10.3390/ijms23105412>
- Mareri, L., Parrotta, L.,^{*} Cai, G. (2022) Environmental Stress and Plants. *International Journal of Molecular Sciences*, 23, 5416. <https://doi.org/10.3390/ijms23105416>
- Parrotta, L., Mareri, L., Aloisi, I., Faleri, C., Distefano, G., Gentile, A., Lo Piero, A.R., Kriechbaumer, V., Caruso, M., Cai, G., Del Duca, S. (2022) Expression of clementine Asp-Rich Proteins (CcASP-RICH) in tobacco plants interferes with the mechanism of pollen tube growth. *International Journal of Molecular Sciences*, 23, 7880. <https://doi.org/10.3390/ijms23147880>
- Suanno, C., Tonoli, E., Fornari, E., Savoca, M.P., Aloisi, I., Parrotta, L., Faleri, C., Cai, G., Coveney, C., Boocock, D.J., Verderio, E.A.M., Del Duca, S. (2023) Small extracellular vesicles released from germinated kiwi pollen (pollensomes) present characteristics similar to mammalian exosomes and carry a plant homolog of ALIX. *Frontiers in Plant Science*. 14:1090026. doi: 10.3389/fpls.2023.1090026
- Conti, V., Parrotta, L.[#], Romi, M., Del Duca, S., Cai, G. Tomato Biodiversity and Drought Tolerance: A Multilevel Review. *International Journal of Molecular Sciences*. 2023; 24(12):10044. <https://doi.org/10.3390/ijms241210044>
- Parrotta, L., Sobieszczuk-Nowicka, E., & Cai, G. (2023). Polyamines and longevity-role of polyamine in plant survival. *Frontiers in Plant Science*, 14, 1232386. <https://doi.org/10.3389/fpls.2023.1232386>

PUBLICATIONS IN CONFERENCE PROCEEDINGS

- Parrotta, L., Cai, G., Cresti, M. Differential expression of alpha and beta tubulin as a marker of development in *Vitis vinifera* L. *Atti Accademia Georgofili Firenze* (30/03/2012).

PARTICIPATION IN CONFERENCES AND WORKSHOPS

- Parrotta L., Nicolardi V., Cai G., Gaggi C. Proteomic analysis of the effects of mercury on lichens VIII Meeting of PhD Students in Ecological Sciences Siena, 9-13 May 2011. (Oral communication).
- Parrotta L., Cai G., Cresti M. Differential expression of alpha and beta tubulin as a marker of development in *Vitis vinifera* L. Study Day: sexual reproduction of flower plants and productivity. *Georgofili Academy*, 30 March 2012. (Oral communication).
- Parrotta L., Cai G., Cresti M., Alpha- and beta-tubulin isoforms accumulate differently during bud development in *Vitis vinifera* L. 9th Siena Meeting: From Genome to Proteome Open Innovations, 26-30 August 2012. (Poster).
- Parrotta L., Cai G., Cresti M., Alpha- and beta-tubulin isoforms accumulate differently during bud development in *Vitis vinifera* L. 5th International PhD School in Plant Development, Certosa di Pontignano, Siena, 25-28 September 2012. (Poster).
- Vannini A., Nicolardi V., Di Lella L.A., Cai G., Parrotta L., Paoli L., Loppi S. Bioaccumulo, Fisiologia e proteomica del lichene *Evernia Prunastri* (L.) Ach. Esposto a differenti intensità di traffico veicolare. XXVI Convegno della Società Lichenologica Italiana. Piacenza (Italy) 2-4 October 2013. (Poster).

Parrotta L., Cresti M., Cai G., Proteomic analysis of heat stress on tobacco pollen tubes. 10th Siena Meeting From Genome to Proteome Open Innovations Siena (Italy). Aug. 31- Sept. 4, 2014, Siena, Italy. (Poster).

Munzi S., Cruz C., Branquinho C., Cai G., Parrotta L., Bini L., Sheppard L. How nitrogen changes protein expression in *Cladonia portentosa*: the effect of form, dose, time of exposure, and phosphorous and potassium availability. XXVII Convegno della Società Lichenologica Italiana. Montecatini Terme (Italy), 15-17 October 2014. (Poster).

Munzi S., Cruz C., Sheppard L.J., Leith I.D., Bini L., Gagliardi A., Cai G., Parrotta L., Gouveia C., Varela Coelho A., Branquinho C. Molecular clues on eco-physiological response of lichens to nitrogen. In: 8th Congress of the International Association of Lichenology. Helsinki. 1-5 Aug 2016 (Poster).

Casini S., Cai G., Caliani I., Romi M., Parrotta L., Pozzuoli C., Campani T. An innovative bioremediation system to reduce the impact of oil mill waste in soil and freshwater compartments, producing natural fertilizers. 5th International Conference on Sustainable Development Rome, Italy. 6-7 Sept 2017 (Oral communication).

Summer School in “Plant Bioinformatics: an evolutionary and functional approach” E. Mach Foundation, San Michele all’Adige (TN). 16-17 September 2013.

Summer School in “Plant Phenotyping”, ALSIA Metapontum Agrobios, Metaponto, July 3-5, 2019

ORGANIZATION OF CONFERENCES

VIII Meeting of PhD Students in Ecological Sciences. Santa Chiara High School for PhD 11-13 May 2013 Siena (Italy).

PARTICIPATION IN TECHNICAL WORKSHOPS

Western Blot Solutions, organized by GE HealthCare (November 16, 2010)

Protein Purification Roadshow, organized by GE HealthCare (May 10, 2011)

AWARDS

I was awarded with a fellowship from the Italian Botanical Society to participate in the “5th International PhD School in Plant Development”, held in Siena from 25th to 28th September 2012.

I was selected to participate to the Summer School: “Plant Bioinformatics: an evolutionary and functional approach”, at San Michele all’Adige (TN, Italy) from 16th to 17th September 2013.

Member of the Accademia dei Fisiocritici ONLUS, June 2017.

Member of the Italian Botanical Society, January 2020.

TECHNICAL COMPETENCES

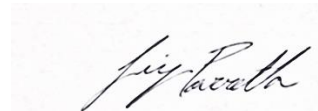
- Electrophoresis (mono- and bi-dimensional)
- Western blot
- Protein chromatography
- Protein extraction
- Techniques for gene analysis (DNA extraction, PCR)
- Techniques of optical microscopy
- Software for gene analysis and for comparison of protein spots in 2-D gels

KNOWLEDGE OF FOREIGN LANGUAGES

Basic knowledge of English, both written and spoken. PET Certificate Year 2007

INFORMATIC SKILLS

- Excellent office package knowledge
- Excellent knowledge of software for mono- and bidimensional electrophoresis analysis (QuantityOne e PDQuest- BioRad)
- Excellent knowledge of gene sequence analysis (BLAST)



Il sottoscritto è a conoscenza che, a sensi dell'art. 46 e 47 DPR. 445/00, le dichiarazioni mendaci, la falsità degli atti e l'uso di atti falsi sono puniti ai sensi del codice penale e delle leggi speciali, ai sensi dell'art 76 del predetto DPR. Si autorizza il trattamento dei dati personali, ivi compresi quelli sensibili, ai sensi e per gli effetti del D. Lgs. 196/2003.