

Curriculum Vitae

Name: **Flavia Guzzo**

Address: Dipartimento di Biotecnologie

Strada Le Grazie, 15 – Ca' Vignal 1 37134 Verona .Tel.: 045-8027923, Fax: 045-8027929;

e.mail: flavia.guzzo@univr.it

-Date and place of birth: 17 marzo 1965, Conegliano (TV)

Education

-1994: PhD in Evolutionary Biology (University of Padova)

-1990: Laurea (corresponding to a master degree) in Biological Sciences (University of Padova)

Job positions

-2014, November: permanent position as associate professor at the University of Verona, Biotechnology Department

-1997, May: permanent position as researcher at the University of Verona, Biotechnology Department

-1994-1997: post doctoral position at the Wageningen Agricultural University, Department of Molecular Biology, The Netherlands

Research activities

The past research activity of F.G. was mainly focused on the control of plant development and differentiation, also from the cellular point of view and with a special emphasis on the biochemical cell differentiation, and on the biological role of the secondary metabolites.

The actual research activity of F.G. is mainly focused on the biology of the secondary metabolites in the plant cells, plant organs and whole plants. In support of these activities in the last ten years F.G. developed an untargeted metabolomics pipeline mainly based on Mass Spectrometry, which now is the standard approach of her research group.

Within this frame, the more recent research lines of F.G. include:

- the biological role of secondary metabolites accumulated in *in vitro* cultured plant cells and *in planta* after biotic and abiotic stressing treatments;
- metabolomics of *Vitis vinifera* grape berries to understand biological and technological processes such as ripening and post harvest withering, the response to their environments or “terroir”, and as results of different rootstock-shoot consortia;
- the molecular control of fruit ripening;
- fruit metabolomics, also in relations to the various environments;
- the biological role/s of the fruit alkaloids tryptamine and serotonin.

As applicative outcome of her research, F.G. is interested in the biological activities of plant secondary metabolites in pre-clinical models and in humans.

Bibliometric indexes

- a) Publications in international journals: 73 (43 in the last 10 years, 2012-2022);
- b) total number of citations: 2369 (Scopus, January 28th 2022)
- c) H index: 26 (Scopus, January 28th 2022)

Patents:

International:

WO/2020/188535 of 24/09/2020
WO/2020/188534 of 24/09/2020
WO/2020/188531 of 24/09/2020
WO/2020/188533 of 24/09/2020

National:

N. 102019000004105 of 21/03/2019
N. 102019000004113 of 21/03/2019
N. 102019000004107 of 21/03/2019
N. 102019000004119 of 21/03/2019
N. 102020000028130 of 24/11/2020
N. 102020000028142 of 24/11/2020
N. 102020000028136 of 24/11/2020
N. 102021000002387 of 03/02/2021
N. 102021000028496 of 10/11/2021
N. 102022000000581 of 17/01/2022

Main recent and ongoing financed Projects (Role of Flavia Guzzo: Principal Investigator)

“NUTRI-3D (MaNUfacTuRIng 3D di alimenti di nuova generazione per la nutrizione sana)”, 2020-2022, grant: euro **100.000,00**.

“Caratterizzazione, mediante UPLC-DAD-MS, del metaboloma di linee cellulari vegetali sottoposte a varie condizioni di coltura, inseguito ad elicitazione ed eventuale trasformazione genica, finalizzate alla produzione di metaboliti secondari di interesse applicativo” (Granted by private company, Demethra biotech srl), 2017-2020; in the frame of this project, Demethra biotech demetra has supplied FG with a UPLC-DAD-QqTOF worth € **300.000,00** for 8 years (2017-2025).

“SARR-Sistema avanzato per il recupero dei rifiuti” (Granted by Regione Veneto, within RIR), 2017-2020, grant: euro **59.400,00**.

“SERO-TOM: Looking for a biological role of fruit serotonin in the model species Solanum lycopersicum” (granted by Verona University through national peer review process), 2016-2018, grant: euro **55.000,00**.

“Defense of Actinidia plants and promotion of kiwifruit quality-action 1: promotion of kiwifruit quality” granted by Regione Veneto-Italy (project code: H16D14000090002, according to the provisions of the Regional Committee Resolution n. 2587, 23 December, 2014), 2014-2017, grant: euro **530.000,00**.

“Use of plant cell culture for food ingredient/nutraceutical production”- (Granted by private company, Demethra biotech srl), 2016-2017, grant: euro **36.000,00**.

“Use of plant cell culture for food ingredient/nutraceutical production”- (Granted by private company, Demethra biotech srl), 2017, grant: euro **47.000,00**.

Awards

-Premio Antico Fattore 2011 (prize awarded by the ancient Georgofili Academy)

<http://georgofili.info/contenuti/consegnato-il-premio-antico-fattore-2011/386>

Publications in the last ten years (2012-2022)

*=equal contribution

**= co-corresponding authors

1. Claudio Marcello Marzo, Sofia Gambini, Stefania Poletti, Francesca Munari, Michael Assfalg and **Flavia Guzzo** (2022) *Inhibition of Human Monoamine Oxidases A and B by Specialized Metabolites Present in Fresh Common Fruits and Vegetables*. *Plants*, 11, 346.
2. Sara Buoso, Anita Zamboni, Alessandro Franco, Mauro Commisso, **Flavia Guzzo**, Zeno Varanini, Roberto Pinton, Nicola Tomasi and Laura Zanin (2022) *Nodulating white lupins take advantage of the reciprocal interplay between N and P nutritional responses*. *Physiologia Plantarum*, 174:e13607.
3. Nicola Busatto, Alice Tadiello, Marco Moretto, Brian Farneti, Francesca Populin, Urska Vrhovsek, Mauro Commisso, Elisa Sartori, Paolo Sonego, Franco Biasioli, Guglielmo Costa, **Flavia Guzzo**, Paolo Fontana, Kristof Engelen, and Fabrizio Costa (2021) *Ethylene-auxin crosstalk regulates postharvest fruit ripening process in apple*. *Fruit Research*, 1, 13.
4. Mauro Commisso, Martino Bianconi, Stefania Poletti, Stefano Negri, Francesca Munari, Stefania Ceoldo and **Flavia Guzzo** (2021) *Metabolomic Profiling and Antioxidant Activity of Fruits Representing Diverse Apple and Pear Cultivars*. *Biology* 2021, 10, 380.
5. Stefano Negri, Mauro Commisso, Linda Avesani, and **Flavia Guzzo** (2021) *The case of tryptamine and serotonin in plants: a mysterious precursor for an illustrious metabolite*. *Journal of Experimental Botany*, Vol. 72 (15), 5336–5355.
6. Stefano Negri, Sofia Gambini, Stefania Ceoldo, Linda Avesani, Mauro Commisso and **Flavia Guzzo** (2021) *Undifferentiated In Vitro Cultured Actinidia deliciosa as Cell Factory for the Production of Quercetin Glycosides*. *Plants*, 10, 2499.
7. Giovanna Pressi, Oriana Bertaiola, Chiara Guarnerio, Elisa Barbieri, **Flavia Guzzo**, Caroline Durand, Laurent Peno-Mazzarino, Veronica Cocetta, Isabella Giacomini and Alessandra Semenzato (2021) *In Vitro Cultured Melissa officinalis Cells as Effective Ingredient to Protect Skin against Oxidative Stress, Blue Light, and Infrared Irradiations Damages*. *Cosmetics*, 8, 23.
8. Sajeela Ahmed, Naseer Ahmed, Alessio Rungtischer, Daniele Linardi, Bibi Kulsoom, Giulio Innamorati, Sultan Ayoub Meo, Mebratu Alebachew Gebrie, Romel Mani, Flavia Merigo, **Flavia Guzzo** and Giuseppe Faggian (2020) *Cocoa Flavonoids Reduce Inflammation and Oxidative Stress in a Myocardial Ischemia-Reperfusion Experimental Model*. *Antioxidants*, 9: 167

9. -Martino Bianconi, Laura Ceriotti, Salvatore Cuzzocrea, Emanuela Esposito, Giovanna Pressi, Elena Sgaravatti, Oriana Bertaiola, Chiara Guarnerio, Elisa Barbieri, Alessandra Semenzato, Stefano Negri, Mauro Commisso, Linda Avesani and **Flavia Guzzo** (2020) *Red Carrot Cells Cultured in vitro Are Effective, Stable, and Safe Ingredients for Skin Care, Nutraceutical, and Food Applications*. *Frontiers in Bioengineering and Biotechnology*, 8 article 575079
10. Sara Zenoni, Alessandra Amato, Erica D'Incà, **Flavia Guzzo** and Giovanni Battista Tornielli (2020) *Rapid dehydration of grape berries dampens the post-ripening transcriptomic program and the metabolite profile evolution*. *Horticulture Research* 7:141
11. -Maura Ferri, Anton Happel, Giulio Zanaroli, Marco Bertolini, Stefano Chiesa, Mauro Commisso, **Flavia Guzzo**, Annalisa Tassoni (2020) *Advances in combined enzymatic extraction of ferulic acid from wheat bran*. *New Biotechnology* 56:38.
12. -Mauro Commisso , Stefano Negri, Martino Bianconi, Sofia Gambini, Sara Avesani, Stefania Ceoldo, Linda Avesani, **Flavia Guzzo** (2019) *Untargeted and Targeted Metabolomics and Tryptophan Decarboxylase In Vivo Characterization Provide Novel Insight on the Development of Kiwifruits (Actinidia deliciosa)*. *Int. J. Mol. Sci.*, 20:897
13. -Sota Hirano, Michele Bovi, Alessandro Romeo, **Flavia Guzzo**, Cristiano Chiamulera, Massimiliano Perduca (2018) *Ketamine nano-delivery based on poly-lactic-co-glycolic acid (PLGA) nanoparticles*. *Appl Nanosci.* <https://doi.org/10.1007/s13204-018-0765-1>
14. Maria De Benedictis, Cecilia Brunetti, Elizabeth K. Brauer, Andrea Andreucci, Sorina C. Popescu, Mauro Commisso, **Flavia Guzzo**, Adriano Sofo, Monica Ruffini Castiglione, Olena K. Vatamaniuk and Luigi Sanità di Toppi (2018) *The Arabidopsis thaliana Knockout Mutant for Phytochelatin Synthase1 (cad1-3) Is Defective in Callose Deposition, Bacterial Pathogen Defense and Auxin Content, But Shows an Increased Stem Lignification*. *Frontiers in Plant Science*, vol. 9 art. 00019
15. Massimiliano Corso, M. Sol Schwartzman, **Flavia Guzzo**, Florence Souard, Eugeniusz Malkowski, Marc Hanikenne and Nathalie Verbruggen (2018). *Contrasting cadmium resistance strategies in two metalcolous populations of Arabidopsis halleri*. *New Phytologist* 218: 283–297
16. Zeno Varanini, Stefano Cesco, Nicola Tomasi, Roberto Pinton, **Flavia Guzzo**, Anita Zamboni, Brigitte Schlöter-Hai, Michael Schlöter, Laura Giagnoni, Mariarita Arenella, Paolo Nannipieri, Giancarlo Renella (2018) *Nitrate induction and physiological responses of two maize line differing in nitrogen use efficiency: effects on N availability, microbial diversity and enzyme activity in the rhizosphere*. *Plant and soil*, 422:331–347
17. Nicola Busatto, Brian Farneti, Mauro Commisso, Martino Bianconi, Barbara Iadarola, Elisa Zago, Benedetto Ruperti, Francesco Spinelli, Angelo Zanella, Riccardo Velasco, Alberto Ferrarini, Giulia Chitarrini, Urska Vrhovsek, Massimo Delledonne, **Flavia Guzzo**, Guglielmo Costa and Fabrizio Costa (2018) *Apple fruit superficial scald resistance mediated by ethylene inhibition is associated with diverse metabolic processes*. *The Plant Journal* 93, 270–285
18. -Stefano Negri, Arianna Lovato, Filippo Boscaini , Elisa Salvetti , Sandra Torriani , Mauro Commisso, Roberta Danzi , Maurizio Ugliano, Annalisa Polverari , Giovanni B. Tornielli and **Flavia Guzzo** (2017) *The Induction of Noble Rot (Botrytis cinerea) Infection during Postharvest Withering Changes the Metabolome of Grapevine Berries (Vitis vinifera L., cv. Garganega)*. *Frontiers in Plant Science*, vol. 8 art. 1002
19. Amanda M. Vondras, Mauro Commisso, **Flavia Guzzo** and Laurent G. Deluc (2017) *Metabolite Profiling Reveals Developmental Inequalities in Pinot Noir Berry Tissues Late in Ripening*. *Frontiers in Plant Science*, vol. 8 art. 1008
20. -Mauro Commisso, Andrea Anesi, Silvia Dal Santo and **Flavia Guzzo** (2017). *Performance comparison of electrospray ionization and atmospheric pressure chemical ionization in*

untargeted and targeted liquid chromatography/mass spectrometry based metabolomics analysis of grapeberry metabolites. Rapid Commun. Mass Spectrom. 31: 292–300

21. Chiara Santi, Barbara Molesini, **Flavia Guzzo**, Youry Pii , Nicola Vitulo and Tiziana Pandolfini (2017) *Genome-Wide Transcriptional Changes and Lipid Profile Modifications Induced by Medicago truncatula N5 Overexpression at an Early Stage of the Symbiotic Interaction with Sinorhizobium meliloti*. Genes, 8, 396; doi:10.3390/genes8120396
22. Mauro Commisso, Martino Bianconi, Flavia Di Carlo, Stefania Poletti, Alessandra Bulgarini, Francesca Munari, Stefano Negri, Matteo Stocchero, Stefania Ceoldo, Linda Avesani, Michael Assfalg, Gianni Zoccatelli, **Flavia Guzzo** (2017) *Multi-approach metabolomics analysis and artificial simplified phytocomplexes reveal cultivar-dependent synergy between polyphenols and ascorbic acid in fruits of the sweet cherry (Prunus avium L.)*. PLOSone <https://doi.org/10.1371/journal.pone.0180889>
23. Zenoni Sara, Fasoli Marianna, **Guzzo Flavia**, Dal Santo Silvia, Amato Alessandra, Anesi Andrea, Commisso Mauro, Herderich Markus, Ceoldo Stefania, Avesani Linda, Pezzotti Mario, Tornielli Giovanni Battista (2016). *Disclosing the molecular basis of the postharvest life of berry in different grapevine genotypes*. PLANT PHYSIOLOGY, p. 1-19, ISSN: 0032-0889, doi: 10.1104/pp.16.00865
24. Dal Santo Silvia, Commisso Mauro, D'Inca Erica, Anesi Andrea, Stocchero Matteo, Zenoni Sara, Ceoldo Stefania, Tornielli Giovanni B, Pezzotti Mario, **Guzzo Flavia** (2016). *The Terroir Concept Interpreted through Grape Berry Metabolomics and Transcriptomics*. JOURNAL OF VISUALIZED EXPERIMENTS, p. 1-16, ISSN: 1940-087X, doi: 10.3791/54410
25. -Habran Aude, Commisso Mauro, Helwi Pierre, Hilbert Ghislaine, Negri Stefano, Ollat Nathalie, Gomès Eric, van Leeuwen Cornelis, **Guzzo Flavia****, Delrot Serge** (2016). *Roostocks/Scion/Nitrogen Interactions Affect Secondary Metabolism in the Grape Berry*. FRONTIERS IN PLANT SCIENCE, vol. 7, p. 1134-1144, ISSN: 1664-462X, doi: 10.3389/fpls.2016.01134
26. -Commisso Mauro, Toffali Ketti, Strazzer Pamela, Stocchero Matteo, Ceoldo Stefania, Baldan Barbara, Levi Marisa, **Guzzo Flavia** (2016). *Impact of Phenylpropanoid Compounds on Heat Stress Tolerance in Carrot Cell Cultures*. FRONTIERS IN PLANT SCIENCE, vol. 7, p. 1439-1455, ISSN: 1664-462X, doi: 10.3389/fpls.2016.01439
27. -Dal Santo Silvia, Fasoli Marianna, Negri Stefano, D'Inca Erica, Vicenzi Nazareno, **Guzzo Flavia**, Tornielli Giovanni Battista, Pezzotti Mario, Zenoni Sara (2016). *Plasticity of the Berry Ripening Program in a White Grape Variety*. FRONTIERS IN PLANT SCIENCE, vol. 7, p. 1-17, ISSN: 1664-462X, doi: 10.3389/fpls.2016.00970
28. -Andrea Anesi, Matteo Stocchero, Silvia Dal Santo, Mauro Commisso, Sara Zenoni, Stefania Ceoldo, Giovanni Battista Tornielli, Tracey E. Siebert, Markus Herderich, Mario Pezzotti and **Flavia Guzzo** (2015) *Towards a scientific interpretation of the terroir concept: plasticity of the grape berry metabolome*. BMC Plant Biology 15:191-207
29. -Mariana Amato, Marisa C. Caruso, **Flavia Guzzo**, Fernanda Galgano, Mauro Commisso, Rocco Bochicchio, Rosanna Labella, Fabio Favati (2015) *Nutritional quality of seeds and leaf metabolites of Chia (Salvia hispanica L.) from Southern Italy*. European food research and technology, 241 (5):615-625
30. -Maria Pia Argentieri, Marisa Levi, **Flavia Guzzo** and Pinarosa Avato (2015) *Phytochemical analysis of Passiflora loefgrenii Vitta, a rich source of luteolin-derived flavonoids with antioxidant properties*. Journal of Pharmacy and Pharmacology, 67:1603-1612

31. -Anna Manara, Giovanni DalCorso, **Flavia Guzzo**, Antonella Furini (2015) *Loss of the Atypical Kinases ABC1K7 and ABC1K8 Changes the Lipid Composition of the Chloroplast Membrane*. Plant and Cell Physiology, 56(6): 1193–1204
32. -Erika Cavallini, José Tomás Matus, Laura Finezzo, Sara Zenoni, Rodrigo Loyola, **Flavia Guzzo**, Rudolf Schlechter, Agnès Ageorges, Patricio Arce-Johnson, Giovanni Battista Tornielli (2015) *The phenylpropanoid pathway is controlled at different branches by a set of R2R3-MYB C2 repressors in grapevine*. Plant Physiology, 167: 1448–1470
33. -Elisa Zampieri*, **Flavia Guzzo***, Mauro Commisso, Antonietta Mello, Paola Bonfante, Raffaella Balestrini (2014) *Gene expression and metabolite changes during Tuber magnatum fruiting body storage*. Curr Genet. 60:285–294
34. -Erika Cavallini, Sara Zenoni, Laura Finezzo, **Flavia Guzzo**, Anita Zamboni, Linda Avesani and Giovanni Battista Tornielli (2014). *Functional Diversification of Grapevine MYB5a and MYB5b in the Control of Flavonoid Biosynthesis in a Petunia Anthocyanin Regulatory Mutant*. PLANT and CELL PHYSIOLOGY 55(3): 517–534
35. -Margherita Daminato, **Flavia Guzzo**, Giorgio Casadoro (2013). *A SHATTERPROOF-like gene controls ripening in the non-climacteric strawberries, and auxin and abscissic acid antagonistically affect its expression*. Journal of Experimental Botany, 64(12): 3775–3786
36. -Alessandro Lovisetto*, **Flavia Guzzo***, Alice Tadiello, Enrico Confortin, Anna Pavanello, Alessandro Botton, Giorgio Casadoro (2013). *Characterization of a bZIP Gene Highly Expressed During Ripening of the Peach Fruit*. Plant Physiology and Biochemistry, 70: 462:470
37. -Ketti Toffali, Stefania Ceoldo, Matteo Stocchero, Marisa Levi, **Flavia Guzzo** (2013) *Carrot specific features of the phenylpropanoid pathway identified by feeding cultured cells with defined intermediates*. Plant Science 209: 81-92.
38. -Silvia Dal Santo, Giovanni Battista Tornielli, Sara Zenoni, Marianna Fasoli, Lorenzo Farina, Andrea Anesi, **Flavia Guzzo**, Massimo Delledonne, Mario Pezzotti (2013) *The plasticity of the grapevine berry transcriptome*. Genome Biology 2013, 14:R54
39. -Alessandro Lovisetto*, **Flavia Guzzo***, Nicola Busatto and Giorgio Casadoro (2013). *Gymnosperm B-sister genes may be involved in ovule/seed development and, in some species, in the growth of fleshy fruit-like structures*. Annals of Botany, 112: 535–544
40. -Barizza Elisabetta, **Guzzo Flavia**, Fanton Paolo, Lucchini Giorgio, Sacchi G. Attilio, Lo Schiavo Fiorella, and Nascimbene Juri (2013) *Nutritional Profile and Productivity of Bilberry (Vaccinium myrtillus L.) in Different Habitats of a Protected Area of the Eastern Italian Alps*. Journal of Food Science, 78 (5): 673-678
41. -Mauro Commisso, Pamela Strazzer, Ketti Toffali, Matteo Stocchero, **Flavia Guzzo** (2013) *Untargeted metabolomics: an emerging approach to determine the composition of herbal products*. Computational and Structural Biotechnology Journal, Volume No: 4, Issue: 5, January 2013, e201301007.
42. -Alessandro Lovisetto, Flavia Guzzo, Alice Tadiello, Ketti Toffali, Alessandro Favretto, and Giorgio Casadoro (2012) *Molecular Analyses of MADS-Box Genes Trace Back to Gymnosperms the Invention of Fleshy Fruits*. Mol. Biol. Evol. 29(1):409–419
43. Chiara Francesca Guarnerio, Marica Fraccaroli, Irene Gonzo, Giovanna Pressi, Roberto Dal Toso, Flavia Guzzo, Marisa Levi (2012) *Metabolomic analysis reveals that the accumulation of specific secondary metabolites in Echinacea angustifolia cells cultured in vitro can be controlled by light*. Plant Cell Rep (2012) 31:361–367-123

