

CURRICULUM VITAE – MAURO COMMISSO

Name and Surname: MAURO COMMISSO

Citizenship: Italian

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BIBLIOMETRIC INDEXES

Publications in International journals: 36 (19 in the last 5 years, 2019-2024);

Total number of citations: 1018 (Scopus, September 3rd 2024)

H index: 17 (Scopus, September 3rd 2024)

EDUCATIONS

- 2014: PhD in Applied Biotechnologies (University of Verona).

NATIONAL SCIENTIFIC QUALIFICATION

Achievement of the National Scientific Qualification as Associate Professor in the Italian higher education system, in the call 2021/2023 (Ministerial Decree n. 553/2021 and 589/2021) for the disciplinary field of 05/A1 - Botany. (Academic Recruitment Field 05/A - Plant biology, according to the national classification). The validity of the qualification is ten years, starting from the 31/01/2022 and will expire on the 31/01/2032.

CURRENT JOB POSITIONS

November 2023 – present: RTD-B Researcher in General Botany (BIO/01) in the Department of Biotechnology, University of Verona, Italy (IT).

RESEARCH ACTIVITIES

The main purpose of the scientific activities performed by M.C. is the investigation of the biological roles of secondary/specialized metabolites in plant cells, plant organs and whole plants. To achieve this aim, M.C. exploits molecular biology, microscopy and hyphenated techniques. Regarding these last, M.C. mastered the use of HPLC and UPLC coupled with low resolution and high resolution mass spectrometers.

The most recent research lines of M.C. include:

- the phytochemical characterization and bioactivity properties of plant metabolomes from different plant species
- the study of the biological role(s) of tryptamine, serotonin and melatonin in tomato and lettuce.
- the study of the biological role(s) of secondary/specialized metabolites 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 development and ripening;
- fruit hormones, especially detection and quantification of auxins.
- fruit metabolomics, also in relations to the various environments.

MAIN RECENT AND ONGOING FINANCED PROJECTS

1. Coordinator (PI) of the project titled " *VIVAiRESTI - La filiera Vitivinicola: VALorizzazione dei suoi sottoprodotti per un'agricoltura RESiliente e per applicazioni saluTistiche*" funded by NextGenerationEU in the “iNEST Bando Giovani ricercatori” program. The project was granted for 48,385.66 €. Year 2024-2025.
2. Coordinator (PI) of the project titled " *The puzzling mystery of tryptamine and serotonin roles in plants: a comprehensive investigation in Solanum lycopersicum.*" funded by MUR in the PRIN 2022 program. The project was granted for 257,268.00 €. Years 2023-2025.
3. Co-coordinator (substitute PI) of the project "DOMICIL - *Unveiling the genetic and metabolic Determinants Of MICrobe-Induced plant resilience*", funded by MUR in the PRIN 2022 PNRR program. The project was granted for 299,946.00 €. Years 2023-2025.
4. Coordinator (PI) of the project "Production of natural vanilla from *Vanilla planifolia* cell culture", funded by Veneto Region, under the POR FSE 2014-2020 program. The project, lasting 1 year and starting from 01/10/2020, was granted for 55,800.00 €. Year 2019-2020.

5. Researcher affiliated to the National Thematic Center 5 "*National Biodiversity Future Center - NBFC*", Spoke 6, activity 2 "Bioprospecting and bioactivity", in the framework of the National Recovery and Resilience Plan, Mission 4 Component 2. The University of Verona has received € 3,500,000.00 and this three-year project began on 07/01/2022.
6. Scientific Coordinator (PI) of the project "*An innovative approach for the extraction of ellagitannins from Agro-industrial by-products*" with acronym "Ellaphyto". The project was presented within the H2020-BBI-JTI-2020 program and with a funding request of € 2,884,800.00 for a total duration of 45 months. The project was NOT funded, even though it exceeded the minimum score threshold and received a positive evaluation.

EDITORIAL ACTIVITY

Subject editor of the journal PLANT BIOSYSTEMS since December 2023.

Editorial board member of the journal PLANTS (MDPI; since March 2022) and STRESSES (MDPI; since April 2021).

Academic editor for the journal PLOS ONE since September 2022.

Guest editor for the journal PLANTS (MDPI) in the following special issue: "Plant Biotechnology Applications in Secondary Metabolite Production" since March 2020.

Review editor for the journal FRONTIERS IN PLANT SCIENCE, section Plant Metabolism and Chemometrics, since January 202

ORGANIZATION OF INTERNATIONAL CONGRESSES

Member of the scientific evaluation committee for the congress entitled: "*The 3rd International Electronic Conference on Plant Science*" on January 15-17, 2024. This congress has been organized by the journal PLANTS (MDPI). <https://iecps2024.sciforum.net>

PATENTS

National:

N. 102021000028496 of 10/11/2021

N. 102022000000581 of 17/01/2022

AWARDS

- Best Poster at the 118° Congress of the Italian Botanical Society - IX International Plant Science Conference, during the period 13 – 16 September 2023 in Pisa (PI), Italy.

- Best Poster at the 113° Congress of the Italian Botanical Society - V International Plant Science Conference, during the period 12 – 15 September 2018 in Fisciano (SA), Italy.

SCIENTIFIC PUBLICATIONS

1. **S. Negri, M. Commisso, T. Pandolfini, L. Avesani, & F. Guzzo.** *Temperature and solar irradiation effects on secondary metabolism during ripening of field-grown everbearing strawberries.* (2024) *Plant Physiology and Biochemistry*, 109081.
2. **S. Negri, F. Pietrolucci, S. Andreatta, R. Chinyere Njoku, C. Antunes Silva Nogueira Ramos, M. Crimi, M. Commisso, F. Guzzo & L. Avesani.** *Bioprospecting of Artemisia genus: from artemisinin to other potentially bioactive compounds.* (2024) *Scientific Reports*, 14(1), 4791.
3. **A. Giammona, M. Commisso, M. Bonanomi, S. Remedea, L. Avesani, D. Porro, ... & A. Lo Dico,** *A Novel Strategy for Glioblastoma Treatment by Natural Bioactive Molecules Showed a Highly Effective Anti-Cancer Potential.* (2024) *Nutrients*, 16(15), 2389.
4. **M. Brambilla, G. Chiari, M. Commisso, L. Nerva, R. Musetti, A. Petraglia, & F. Degola** (2023). *Glutamate dehydrogenase in “Liverworld”—A study in selected species to explore a key enzyme of plant primary metabolism in Marchantiophyta.* (2023) *Physiologia Plantarum*, 175(6), e14071.
5. **G. Zorzi, S. Gambini, S. Negri, F. Guzzo, M. Commisso***. *Untargeted Metabolomics Analysis of the Orchid Species Oncidium sotoanum Reveals the Presence of Rare Bioactive C-Diglycosylated Chrysin Derivatives.* (2023) *Plants*, 12(3), 655. *Last and corresponding author.
6. **R. Shmulevitz, A. Amato, M. Commisso, E. D’Incà, G. Luzzini, M. Ugliano, ... & G.B. Tornielli.** *Temperature affects organic acid, terpene and stilbene metabolisms in wine grapes during postharvest dehydration.* (2023) *Frontiers in Plant Science*, 14, 1-15.
7. **B. Marzouk, M. Refifà, S. Montalbano, A. Buschini, S. Negri, M. Commisso*, F. Degola*.** *In Vitro Sprouted Plantlets of Citrullus colocynthis (L.) Schrad Shown to Possess Interesting Levels of Cucurbitacins and Other Bioactives against Pathogenic Fungi.* (2022) *Plants*, 11(20), 2711. *Corresponding authors.
8. **M. Commisso*, S. Negri*, E. Gecchele, E. Fazio, C. Pontoriero, L. Avesani and F. Guzzo.** *Indolamine accumulation and TDC/T5H expression profiles reveal the complex and dynamic regulation of serotonin biosynthesis in tomato (Solanum lycopersicum L.).* (2022) *Frontiers in Plant Science*, 2938. *Gli autori hanno contribuito in egual misura alla pubblicazione scientifica
9. **S. Buoso, A. Zamboni, A. Franco, M. Commisso, F. Guzzo, Z. Varanini, ... & L. Zanin.** *Nodulating white lupins take advantage of the reciprocal interplay between N and P nutritional responses.* (2021) *Physiologia plantarum*, e13607.
10. **N. Busatto, A. Tadiello, M. Moretto, B. Farneti, F. Populin, U. Vrhovsek, M. Commisso, ... & F. Costa.** *Ethylene-auxin crosstalk regulates postharvest fruit ripening process in apple.* (2021) *Fruit Research*, 1(1), 1-13.

11. **S. Negri, S. Gambini, S. Ceoldo, L. Avesani, M. Commisso*, & F. Guzzo***. *Undifferentiated In Vitro Cultured Actinidia deliciosa as Cell Factory for the Production of Quercetin Glycosides*. (2021) *Plants*, 10(11), 2499. *Corresponding authors.
12. **E. Gecchele, S. Negri, A. Cauzzi, A. Cuccurullo, M. Commisso, A. Patrucco, A. Anceschi, G. Zaffani, L. Avesani**. *Optimization of a Sustainable Protocol for the Extraction of Anthocyanins as Textile Dyes from Plant Materials*. (2021). *Molecules*, 26(22), 6775.
13. **S. Negri, M. Commisso, L. Avesani, F. Guzzo**, *The case of tryptamine and serotonin in plants: a mysterious precursor for an illustrious metabolite*. (2021). *Journal of Experimental Botany*.
14. **M. Commisso, M. Bianconi, S. Poletti, S. Negri, F. Munari, S. Ceoldo, F. Guzzo**. *Metabolomic Profiling and Antioxidant Activity of Fruits Representing Diverse Apple and Pear Cultivars*. (2021). *Biology*, 10(5), 380.
15. **M. Commisso*, F. Guarino*, L. Marchi*, A. Muto*, A. Piro*, F. Degola***. *Bryo-activities: a review on how bryophytes are contributing to the arsenal of natural bioactive compounds against fungi*. (2021) *Plants*, 10(2), 203. *Gli autori hanno contribuito in egual misura alla pubblicazione scientifica
16. **M. Bianconi, L. Ceriotti, S. Cuzzocrea, E. Esposito, G. Pressi, E. Sgaravatti, O. Bertaiola, C. Guarnerio, E. Barbieri, A. Semenzato, S. Negri, M. Commisso, L. Avesani & F. Guzzo**. *Red carrot cells cultured in vitro are effective, stable, and safe ingredients for skin care, nutraceutical, and food applications*. (2020). *Frontiers in Bioengineering and Biotechnology*, 8.
17. **M. Ferri, A. Happel, G. Zanolli, M. Bertolini, S. Chiesa, M. Commisso, F. Guzzo & Tassoni, A.** *Advances in combined enzymatic extraction of ferulic acid from wheat bran*. (2020). *New biotechnology*, 56, 38-45.
18. **M. Santoni, E. Bertini, R. Zampieri, A. Cuccurullo, M. Commisso, E. Gecchele, L. Avesani**. *Transient Expression in Red Beet of a Biopharmaceutical Candidate Vaccine for Type-1 Diabetes*. (2019). *Journal of visualized experiments: JoVE*, (145).
19. **M. Commisso, S. Negri, M. Bianconi, S. Gambini, S. Avesani, S. Ceoldo, L. Avesani, F. Guzzo**. *Untargeted and Targeted Metabolomics and Tryptophan Decarboxylase In Vivo Characterization Provide Novel Insight on the Development of Kiwifruits (Actinidia deliciosa)*. (2019). *International journal of molecular sciences*, 20(4), p.897.
20. **E. Bertini, M. Merlin, E. Gecchele, A. Puggia, A. Brozzetti, M. Commisso, A. Falorni, V. Bini, V. Klymyuk, M. Pezzotti, L. Avesani**. *Design of a type-1 diabetes vaccine candidate using edible plants expressing a major autoantigen*. (2018). *Frontiers in plant science*, 9, 572.
21. **M. De Benedictis, C. Brunetti, E.K. Brauer, A. Andreucci, S.C. Popescu, M. Commisso, F. Guzzo, A. Sofo, M.R. Castiglione, O.K. Vatamaniuk, L. Sanità di Toppi**. *The Arabidopsis thaliana knockout mutant for phytochelatinsynthase1 (cad1-3) is defective in callose deposition, bacterial pathogen defense and auxin content*. (2018). *Frontiers in Plant Science*, 9, 19.
22. **N. Busatto, B. Farneti, M. Commisso, M. Bianconi, B. Iadarola, E. Zago, B. Ruperti, F. Spinelli, A. Zanella, R. Velasco, A. Ferrarini, G. Chitarrini, U. Vrhovsek, M. Delledonne, F. Guzzo, G.**

- Costa, F. Costa.** *Apple fruit superficial scald resistance mediated by ethylene inhibition is associated with diverse metabolic processes.* (2018). *The Plant Journal*, 93(2), 270-285.
23. **M. Commisso*, M. Bianconi*, F. Di Carlo, S. Poletti, A. Bulgarini, F. Munari, S. Negri, M. Stocchero, S. Ceoldo, L. Avesani, M. Assfalg, G. Zoccatelli, F. Guzzo.** *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.)* (2017) *PLoS ONE*, 12 (7). *Gli autori hanno contribuito in egual misura alla pubblicazione scientifica
 24. **J.T. Matus, E. Cavallini, R. Loyola, J. Höll, L. Finezzo, S. Dal Santo, S. Vialet, M. Commisso, F. Roman, A. Schubert, J.A. Alcalde, J. Bogs, A. Ageorges, G.B. Tornielli, P. Arce-Johnson.** *A group of grapevine MYBA transcription factors located in chromosome 14 control anthocyanin synthesis in vegetative organs with different specificities compared with the berry color locus* (2017) *Plant Journal*, 91 (2), pp. 220-236.
 25. **A.M. Vondras, M. Commisso, F. Guzzo, L.G. Deluc.** *Metabolite profiling reveals developmental inequalities in pinot noir berry tissues late in ripening* (2017) *Frontiers in Plant Science*, 8, art. no. 1108
 26. **S. Negri, A. Lovato, F. Boscaini, E. Salvetti, S. Torriani, M. Commisso, R. Danzi, M. Ugliano, A. Polverari, G.B. Tornielli, F. Guzzo.** *The induction of noble rot (*Botrytis cinerea*) infection during postharvest withering changes the metabolome of grapevine berries (*Vitis vinifera* L., cv. Garganega)* (2017) *Frontiers in Plant Science*, 8, art. no. 1002,
 27. **M. Commisso, A. Anesi, S. Dal Santo, F. Guzzo.** *Performance comparison of electrospray ionization and atmospheric pressure chemical ionization in untargeted and targeted liquid chromatography/mass spectrometry based metabolomics analysis of grapeberry metabolites* (2017) *Rapid Communications in Mass Spectrometry*, 31 (3), pp. 292-300.
 28. **S. Zenoni, M. Fasoli, F. Guzzo, S. Dal Santo, A. Amato, A. Anesi, M. Commisso, M. Herderich, S. Ceoldo, L. Avesani, M. Pezzotti, G.B. Tornielli.** *Disclosing the molecular basis of the postharvest life of berry in different grapevine genotypes* (2016) *Plant Physiology*, 172 (3), pp. 1821-1843.
 29. **S. Dal Santo*, M. Commisso*, E. D'incà, A. Anesi, M. Stocchero, S. Zenoni, S. Ceoldo, G.B. Tornielli, M. Pezzotti, F. Guzzo.** *The terroir concept interpreted through grape berry metabolomics and transcriptomics* (2016) *Journal of Visualized Experiments*, 2016 (116). *Gli autori hanno contribuito in egual misura alla pubblicazione scientifica
 30. **M. Commisso, K. Toffali, P. Strazzer, M. Stocchero, S. Ceoldo, B. Baldan, M. Levi, F. Guzzo.** *Impact of phenylpropanoid compounds on heat stress tolerance in carrot cell cultures* (2016) *Frontiers in Plant Science*, 7 (September).
 31. **A. Habran, M. Commisso, P. Helwi, G. Hilbert, S. Negri, N. Ollat, E. Gomès, C. Van Leeuwen, F. Guzzo, S. Delrot.** *Rootstocks/scion/nitrogen interactions affect secondary metabolism in the grape berry* (2016) *Frontiers in Plant Science*, 7 (AUG2016), art. no. 1134.

32. **A. Anesi*, M. Stocchero*, S. Dal Santo*, M. Commisso, S. Zenoni, S. Ceoldo, G.B. Tornielli, T. Siebert, M. Herderich, M. Pezzotti, F. Guzzo** *Towards a scientific interpretation of the terroir concept: plasticity of the grape berry metabolome.* (2015) BMC plant biology, 15(1), 191. *Gli autori hanno contribuito in egual misura alla pubblicazione scientifica.
33. **M. Amato, M.C. Caruso, F. Guzzo, F. Galgano, M. Commisso, R. Bochicchio, R. Labella F. Favati.** *Nutritional quality of seeds and leaf metabolites of Chia (Salvia hispanica L.) from Southern Italy.* (2015) European Food Research and Technology, 1-11.
34. **E. Turano, G. Busetto, S. Marconi, F. Guzzo, A. Farinazzo, M. Commisso, E. Bistaffa, S. Musumeci, S. Sotgiu, B. Bonetti** *Neurotoxicity and synaptic plasticity impairment of N-acetylglucosamine polymers: implications for Alzheimer's disease.* (2014) Neurobiology of Aging, 36(5), 1780-1791.
35. **E. Zampieri*, F. Guzzo*, M. Commisso, A. Mello, P. Bonfante, R. Balestrini.** *Gene expression and metabolite changes during Tuber magnatum fruiting body storage.* (2014) Current Genetics, 1-10. *Gli autori hanno contribuito egual misura alla pubblicazione scientifica
36. **M. Commisso, P. Strazzer, K. Toffali, M. Stocchero, F. Guzzo.** *Untargeted metabolomics: an emerging approach to determine the composition of herbal products.* (2013) Computational and structural biotechnology journal, 4(5):1-7.

PARTICIPATION IN CONGRESSES/WORKSHOPS AS SPEAKER

1. **M. Commisso**, S. Negri, L. Avesani, M. Bianconi, S. Ceoldo, F. Guzzo. *In search of tryptamine and serotonin biological roles in tomato.* Annual meeting of the SBI groups "Molecular Cell Biology – Biotechnology and Differentiation", on 12 - 14 June 2019, Naples, Italy. National congress.
2. **M. Commisso.** *LC-MS characterization of industrial fruit by-products as sources of healthy metabolites for functional foods.* MS Technology Day 2018 (WATERS). 2nd October 2018, Bologna, Italy. **Invited speaker.** International level.
3. **M. Commisso**, S. Negri, L. Avesani, M. Bianconi, S. Ceoldo, F. Guzzo. *Biological roles of tryptamine and serotonin in fleshy fruits: the tomato TDC gene family.* Annual meeting of the SBI groups "Molecular Cell Biology – Biotechnology and Differentiation", on 13 - 15 June 2018, San Remo, Italy. National congress.
4. **M. Commisso**, S. Negri, L. Avesani, M. Bianconi, S. Ceoldo, C. Pontoriero, E. Fazion, F. Guzzo. *In search of biological roles of fruit tryptamine and serotonin.* Annual meeting of the SBI groups "Molecular Cell Biology – Biotechnology and Differentiation", on 14 - 16 giugno 2017, Milan, Italy. National congress.
5. **M. Commisso**, L. Avesani, M. Bianconi, S. Ceoldo, S. Negri, G. Zoccatelli, F. Guzzo. *Characterization of the melatonin biosynthetic pathway in kiwifruits.* Annual meeting of the SBI groups "Molecular Cell Biology – Biotechnology and Differentiation", on 14 - 16 June 2016, Amantea, Italy. National congress.

6. **M. Commisso**, L. Avesani, M. Bianconi, S. Ceoldo, G. Zoccatelli, F. Guzzo. *Potentially Neuroactive Amines in Kiwifruits*. Annual meeting of the SBI groups “Molecular Cell Biology – Biotechnology and Differentiation”, on 10 - 12 June 2015, Rome, Italy. National congress.
7. **M. Commisso**, P. Strazzer, K. Toffali, S. Ceoldo, F. Guzzo, M. Levi. *The modification of phenylpropanoid profile affects sensitivity to heat stress in cell cultures of Daucus carota*. Annual meeting of the SBI groups “Molecular Cell Biology – Biotechnology and Differentiation”, on 18 – 20 June 2012, Padua, Italy. National congress.
8. P. Strazzer, **M. Commisso**, K. Toffali, S. Ceoldo, F. Guzzo, M. Levi. *Approcci per lo studio del ruolo biologico di specifici metaboliti secondari*. Annual meeting of the SBI groups “Molecular Cell Biology – Biotechnology and Differentiation”, on 15 – 17 June 2011. Rome, Italy. National congress.