

SHORT Curriculum Vitae



Matteo FRANCAVILLA, PhD

Present position: Associate Professor in Organic Chemistry at UNIFG, Department of Agriculture, Food, Natural Resources and Engineering (DAFNE); ASN in CHEM-05A and CHEM-06/A; **Responsible** of [STAR*Facility Centre](#) (Research Infrastructure – PNIR 2021-2027); **Vice President** of the Italian Association for the Study and Applications of Microalgae (AISAM) **Lecturer** in “Organic Chemistry”, “General Chemistry” and “Biomass and Biorefinery”.

Laurea cum laude in Organic Chemistry, University of Rome “La Sapienza” (2002), PhD in Sustainable Agro-Ecosystems, University of Foggia (2008), Master in Natural Organic Compounds, University of Rome “La Sapienza” (2008). Research fellow at the Institute of Marine Sciences, National Research Council, in Lesina (FG) from 2004 to 2007. Not permanent Research Scientist at the same Institute from 2007 to 2012. Researcher (RTDa and RTDb) at Department of Agricultural, Food and Environmental Science, University of Foggia, since May 2012.

Main topics of his research activity are: biomass valorisation (including blur biomass, micro and macroalgae) by means extraction, purification and characterization of fine chemicals, bioactive compounds and biomaterials with a Biorefinery approach and inspired to Green Chemistry principles. Currently, his research interests are also addressed towards platform compounds and biofuels production from biomass.

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ACTIVITIES

- **2006** CNR’s Member in the preparatory workshop “The impact of biochemicals and infochemicals on trophic dynamics and nutrient cycling in planktonic food webs” (DYNAPLAN, an EUROCORES programme), organised by European Science Foundation. Brussels, 22-23 November 06
- **2009** Member of Energy Task Force of “Deputy's Office for the Economic Activities, Energy and European Policies” of Foggia Province for the project “Sviluppo e gestione sostenibili della produzione energetica da fonti rinnovabili nella Provincia di Foggia”
- **2009** Partner and Member of Scientific and Technical Committee of BIO2-XYGEN, a Spin-off of University of Foggia
- **2009** Teacher of “Extraction in bulk of Fine Chemicals from microalgae by means of organic solvents” at University of Foggia (a course of 70 hours).
- **2010** Teacher of “Applications of Fine Chemicals extracted from microalgae in animal zootechnics” at University of Foggia (a course of 70 hours).
- **2011** **Project Leader of MADLENA** (MACroalghe Della laguna di LESina: potenziali sorgenti di prodotti NATurali di uso farmaceutico e alimentare- Macroalgae of Lesina Lagoon: potential source of natural compounds for pharmaceuticals and foods), a project funded by Cassa di Risparmio di Puglia Foundation.
- **2011** Research Visitor at University of Cordoba (Spain), Department of Organic Chemistry to carry out the project “ Valorisation of macroalgae into high added value chemicals and natural bio-templates” (8th October 2011 – 8th December 2011)
- **2012** Research Visitor at University of Almería (Spain), Department of Chemical Engineering to carry out a training/collaboration about “ Use of technologically advanced systems for microalgae production” (4th February 2012 – 31st March 2012)

- **2012 WP leader** (•WP3: Upgrading of R&D Equipment) of STAR* AgroEnergy 7FP project (<http://www.star-agroenergy.eu>)
- **2013 Leader of a Research Unit** for “Production, Extraction and Purification of Phytosterols from Microalgae by means Supercritical Fluid Extraction” in the context of National Research Project PON art.13 PRO.FUN.FOOD (innovative technological and clinical protocols for functional food production)
- **2013 up today** Responsible for STAR*Facility Centre, University of Foggia



STAR*Facility Centre – Lab and Biorefinery Technological Platform

- **2014-2018** Management Committee Member of Cost Action FP 1603 (Valorisation of lignocellulosic biomass side streams for sustainable production of chemicals, materials & fuels using low environmental impact technologies) and Deputy Work Group Leader (WG1: Pretreatment of Lignocellulosics)
- **2015-2018** of RAMBIO (Reuse of Anaerobic Digestion Effluent for Microalgae Biorefinery). Regional Call: Future in Research 2014. Individual fellowship (three years) for young researchers in Apulian University.
- **2019-2020** Project leader of *Artichoke Biorefinery*. Research project founded by private Company: Fimagri OP.Soc.Coop. (Mangredonia-Foggia).
- **2018-2021** Project leader of “*Caratterizzazione chimico-fisica di biomasse per processi di combustione*”. Research project founded by private Company: AGRITRE Srl.
- **2020-2021** Project leader of *Soluzioni Innovative per la Rimozione di Acido Solfidrico da Biogas*. Research project founded by private Company: Sistemi Energetici SpA.
- **2021-2022** Subcontractor of CNR-IRBIM for “Territorial & transnational actions for the Blue Biotechnology HUB Innovation Community” in the context of “B-BLUE - BUILDING THE BLUE BIOTECHNOLOGY COMMUNITY IN THE MEDITERRANEAN” - INTERREG MED PROJECT 2014 – 2020.
- **2022-2023 Leader of a Research Unit**, PON “Ricerca e Innovazione” 2014 – 2020 Avviso MIUR n. 1735 del 13/07/2017 Progetti di Ricerca Industriale e Sviluppo Sperimentale nelle 12 Aree di Specializzazione del PNR 2015-2020 – PERCIVAL Project (Processi di Estrazione di bioprodotto da scarti agroindustriali e Valorizzazione in cascata) codice ARS01_00869 Specialization Area “Green Chemistry”.
- **2022-2023 Leader of a Research Unit**, *Sustainable Multitrophic Shellfish Farming in the Gargano* (Mol.Mul.SoS.Gargano) REGIONE PUGLIA, DETERMINAZIONE DEL DIRIGENTE SEZIONE GESTIONE SOSTENIBILE E TUTELA DELLE RISORSE FORESTALI E NATURALI 19 novembre 2021, n. 489 Fondo Europeo per gli Affari Marittimi e per la Pesca (FEAMP) 2014/2020 MISURA 2.47 “Innovazione” (art. 47 Reg. UE 508/2014). Avviso pubblico approvato con D.D.S. del Dirigente della Sezione Attuazione dei Programmi Comunitari per l’Agricoltura e la Pesca n. 190 del 10 agosto 2020 (pubblicata sul BURP n. 134 del 24/09/2020).
- **2022-2023 Project leader** of *DEPURAZIONE DEL BIOGAS E UPGRADING A BIOMETANO; SOLUZIONI INNOVATIVE PER RIMUOVERE IL SOLFURO DI DIIDROGENO (H₂S) E ABBATTERE L’ANIDRIDE CARBONICA (CO₂)*. Research project founded by private Company Sistemi Energetici SpA in the context of LCA4SNP - Life Cycle Assessment for Sustainable Biomethane and Biogas Plant, Programma Operativo FESR 2014-2020 – Regolamento Regionale n.14/2014 – Titolo II Capo 2 – “Aiuti ai programmi integrati promossi da PICCOLE IMPRESE” – PIA (art.27).
- **2023 Member of Organizing Committee** of “BlueBio Advanced Training Course in Blue Bio-refinery technologies: from research to the industry with applications on products and biomaterial from algal biomass and sidestreams of fisheries and aquaculture” supported by ERA-NET Cofund on Blue Bioeconomy, co-organised at University of Foggia with the National Research Council (CNR)
- **2022-2025 Leader of Task 6.2.1** “Selection and adaptation of the most promising new technologies for combining biowaste upcycling into new farm models” in the context of SPOKE 6 “Management models to promote sustainability and resilience of agricultural production systems” of PNRR Project “National Research Centre for Agricultural Technologies (AGRITECH) – CUP D73C2200082007.

- **2024-2025 Project Leader of BIOMAGIC-HTL** "Chemical conversion of digestate into culture medium for the production of microalgae biomass (on a pilot scale) to be converted into biofuels/bioproducts by microwave-assisted HTL" under the cascade call promoted by the University of Pisa: "Network 4 Energy Sustainable Transition - NEST" - Spoke 3 Bioenergy & New Biofuels for sustainable future (CUP I53C22001450006). Codice identificativo: PE00000021. Periodo Luglio 2024 - October 2025.
- **2024-2025 Project Leader of SAVEMAR** "Support to the Activities for the Valorization and Enhancement of Marine Resources" within the framework of a public call of Centro Nazionale "National Biodiversity Future Center", CODICE IDENTIFICATIVO CN00000033, funded by EU – "Next Generation EU" - PNRR MUR - M4C2 – Investimento 1.4 (Codice IRBIM NBFC Spoke 2 - Prot. 409831 del 20/12/2023) CUP (UNIFG): D73C24000860006.
- **2024-2026 Project Leader of "Development support of blue biorefinery in the Adriatic Sea (BIO-BASED)"**. INTERREG Italy-Croatia 2021-2027, Programme Priority: Sustainable growth in the blue economy (ITHR0200448 - BIO-BASED)
- **2025-2028 Leader of a Research Unit of SeaWave** "Novel functional textiles from red and brown seaweed" – within the framework of the International Call for Research and Innovation projects 'Unified paths to climate-neutral, sustainable, and resilient blue economy: engaging civil society, academia, policy, and industry' published by the European Sustainable Blue Economy Partnership (SBEP 2024) ID SBEP24_00109.

Publications

Matteo Francavilla is author of 52 papers published on International Journals (h-index: 23, citations number: 1717 (by Scopus), a book chapter and 80 abstracts (posters and oral communications) at International Congresses and Meetings and National Conferences and Meetings.

Selected papers:

- Bevilacqua, A., Speranza, B., Racioppo, A., Santillo, A., Albenzio, M., Derossi, A., Caporizzi, R., Francavilla, M., Racca, D., Flagella, Z., De Santis, M. A., Elia, A., Conversa, G., Luchetti, L., Sinigaglia, M., & Corbo, M. R. Ultra-Processed Food and Gut Microbiota: Do Additives Affect Eubiosis? A Narrative Review. *Nutrients* 2025, 17, 2. <https://doi.org/10.3390/nu17010002>
- della Malva, A.; Santillo, A.; **Francavilla, M.**; Caroprese, M.; Marino, R.; Sevi, A.; Albenzio, M. Mussel Culture Farming Systems in the Northern Gargano Coast (Adriatic Sea): Changes in the Nutritional Profile of the *Mytilus galloprovincialis*. *Foods* 2024, 13, 2205. <https://doi.org/10.3390/foods13142205>
- Padoan, E., Contillo, F., Marafante, M., Montoneri, E., **Francavilla, M.**, Berto, S., Baglieri, A. A Low-Cost Ecofriendly Oxidation Process to Manufacture High-Performance Polymeric Biosurfactants Derived from Municipal Biowaste. *Polymers* 2024, <https://doi.org/10.3390/polym16111479>
- Padoan, E.; Montoneri, E.; Baglieri, A.; Contillo, F.; **Francavilla, M.**; Negre, M. The Autocatalytic Chemical Reaction of a Soluble Biopolymer Derived from Municipal Biowaste. *Molecules* 2024, 29, 485. <https://doi.org/10.3390/molecules29020485>
- Padoan, E.; Montoneri, E.; Baglieri, A.; **Francavilla, M.**; Negre, M. Mild Chemical Treatment of Unsorted Urban Food Wastes. *Molecules* 2023, 28, 7670. <https://doi.org/10.3390/molecules28227670>
- Ciliberti M.G.; **Francavilla M.**; Albenzio M.; Inghese C.; Santillo A. ;Sevi A.; Caroprese M. Green extraction of bioactive compounds from wine lees and their bio-responses on immune modulation using in vitro sheep model. *Journal of Dairy Science* 2022, DOI 10.3168/jds.2021-21098.
- Tedesco, S., Hurst, G., Randviir, E., **Francavilla, M.** (2021) A comparative investigation of non-catalysed versus catalysed microwave-assisted hydrolysis of common North and South European seaweeds to produce biochemical. *Algal Research*, 60, 102489. DOI: 10.1016/j.algal.2021.102489
- Pagliara, P., De Benedetto, G.E., **Francavilla, M.**, Barca, A., Caroppo, C. (2021). Bioactive potential of two marine picocyanobacteria belonging to Cyanobium and Synechococcus genera. *Microorganisms*, 9, 2048. DOI: 10.3390/microorganisms9102048
- A. Derossi, **M. Francavilla**, M. Monteleone, R. Caporizzi, C. Severini. From biorefinery of microalgal biomass to vacuum impregnation of fruit. A multidisciplinary strategy to develop innovative food with increased nutritional properties. *Innovative Food Science & Emerging Technologies* (2021), 102677, <https://doi.org/10.1016/j.ifset.2021.102677>.
- Morgese, M.G., Bove, M., **Francavilla, M.**, Trabace, L., Tucci, P.. Sublingual AKBA exerts antidepressant effects in the $\alpha\beta$ -treated mouse model. *Biomolecules*, 2021, 11(5), 686
- A. Libutti, **M. Francavilla**, M. Monteleone. Hydrological Properties of a Clay Loam Soil as Affected by Biochar Application in a Pot Experiment. *Agronomy* 2021, 11, 489. <https://doi.org/10.3390/agronomy11030489>.
- Francavilla, M.**, Marone, M., Marasco, P., Contillo, F., Monteleone, M. Artichoke biorefinery: From food to advanced technological applications. *Foods*, 2021, 10(1), 112.

- Tabasso, S., Ginepro, M., Tomasso, L., Nisticò, R., **Francavilla, M.** Integrated biochemical and chemical processing of municipal bio-waste to obtain bio based products for multiple uses. The case of soil remediation. *Journal of Cleaner Production*, 2020, 245, 119191.
- Gagliardi, A., Giuliani, M.M., Carucci, F., **Francavilla, M.**, Gatta, G. Effects of the Irrigation with Treated Wastewaters on the Proximate Composition, Mineral, and Polyphenolic Profile of the Globe Artichoke Heads [*Cynara cardunculus* (L.)] *Agronomy*, 2020, 10(1), 53
- Montoneri, E., Nisticò, R., **Francavilla, M.** Demineralisation of Municipal Biowaste Hydrolysates. *ChemistrySelect*, 2019, 4(25), pp. 7551–7554
- MG Ciliberti, M Albenzio, **M Francavilla**, G Neglia, L. Esposito and M. Caroprese. Extracts from Microalga *Chlorella sorokiniana* Exert an Anti-Proliferative Effect and Modulate Cytokines in Sheep Peripheral Blood Mononuclear Cell. *ANIMALS* (2019), vol 9(2), 45.
- Jindřichová B, Burketová L, Montoneri E, **Francavilla M.** Biowaste-derived hydrolysates as plant disease suppressants for oilseed rape. *JOURNAL OF CLEANER PRODUCTION* (2018), vol. 183, p. 335-342, ISSN: 0959-6526, doi: 10.1016/j.jclepro.2018.02.112
- G Fascella, E Montoneri, **M Francavilla**. Biowaste versus fossil sourced auxiliaries for plant cultivation: The Lantana case study. *Journal of Cleaner Production* (2018), 185 DOI10.1016/j.jclepro.2018.02.242
- A Zabaniotou, R Dimitris, MK Delivand, **M Francavilla**, A Libutti, AR Cammerino, M Monteleone. Conceptual vision of bioenergy sector development in Mediterranean regions based on decentralized thermochemical systems. *Sustainable Energy Technologies and Assessments* (2017), 23, 33-47
- V Andreotti, A Chindris, G Brundu, D Vallainc, **M Francavilla**, J Garcia. Bioremediation of aquaculture wastewater from *Mugil cephalus* (Linnaeus, 1758) with different microalgae species. *Chemistry and Ecology* (2017), DOI: 10.1080/02757540.2017.1378351
- M Francavilla**, S Intini, L Luchetti, R Luque. Tunable microwave-assisted aqueous conversion of seaweed-derived agarose for the selective production of 5-hydroxymethyl furfural/levulinic acid *Green Chemistry* (2016), 18 (22), 5971-5977
- M.G Morgese, E. Mhillaj, **M. Francavilla**, M. Bove, L. Morgano, P. Tucci, L. Trabace, S. Schiavone *Chlorella sorokiniana* Extract Improves Short-Term Memory in Rats. *Molecules* (2016), 21 (10), 1311-1328
- R. Nistico, P. Evon, L. Labonne, G. Vaca-Medina, E. Montoneri, **M. Francavilla**, C. Vaca-Garcia, G. Magnacca, F. Franzoso, M. Negre. Extruded Poly (ethylene-co-vinyl alcohol) Composite Films Containing Biopolymers Isolated from Municipal Biowaste. *Chemistry Select* (2016), 1 (10), 2354-2365
- M. Francavilla**, L. Beneduce, G. Gatta, E. Montoneri, M. Monteleone, D. Mainero. Waste cleaning waste: Ammonia abatement in bio-waste anaerobic digestion by soluble substances isolated from bio-waste compost. *Biochemical Engineering Journal* (2016), doi:10.1016/j.bej.2016.02.015.
- M. Francavilla**, P. Kamaterou, S. Intini, M. Monteleone, A. Zabaniotou. Cascading microalgae biorefinery: Fast pyrolysis of *Dunaliella tertiolecta* lipid extracted-residue *Algal Research* (2015), 11, 184-193.
- M. Francavilla**, P. Manara, P. Kamaterou, M. Monteleone, A. Zabaniotou. Cascade approach of red macroalgae *Gracilaria gracilis* sustainable valorization by extraction of phycobiliproteins and pyrolysis of residue. *Bioresource Technology* (2015), DOI: 10.1016/j.biortech.2014.10.147.

Foggia, 04/08/2025

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