

Deborah Maria Racca

Gender: Female **Nationality:** Italian

ABOUT ME

I am a PhD researcher specialized in blue biorefinery and sustainable valorisation of aquatic and marine biomass. My research focuses on developing green and innovative strategies to transform marine resources into high-added-value products, contributing to a more sustainable bioeconomy.

EDUCATION AND TRAINING

Research Doctorate (Ph.D) in "Neuroscience and education-curriculum green", XXXVII cycle.

[04/01/2022 - 17/07/2025]

University of Foggia, Foggia (Italy).

City: Foggia | **Country:** Italy | **Field(s) of study:** Green chemistry, biorefinery and aquaculture. | **Thesis:** "Blue Biorefinery for sustainable and green marine blue biomass valorisation." (CHEM-06)

- Analytical techniques: spectrophotometer, high performance liquid chromatography-mass spectrometry (HPLC-MS), gas chromatography (CG), plasma emission spectroscopy (ICP OES), analyzer elementary CHN-S, Attenuated Total Reflectance Infrared Spectrophotometry (FTIR ATR).

- Bibliographic search;

- Biomass characterization analysis;

- Biorefinery processes;

- Activity or sector: Scientific Research.

[01/10/2024 - 04/10/2024]

International Summer School of Blue Biotechnology (ISSBB).

Stazione Zoologica Anton Dohrn

City: Napoli | **Country:** Italy | **Field(s) of study:** blue biotechnology, bioprospecting, sustainability

Deepening of methodologies for the discovery and development of bioactive products from marine organisms. Acquisition of skills in:

Bioprospecting: Identification and isolation of bioactive compounds from marine sources;
Environmental biotechnology: Bioremediation and valorization of marine waste;

Bioinformatics: Use of bioinformatics tools for genomic analysis and discovery of new compounds;
Circular economy: Application of circular economy principles to marine biotechnology;

Technology transfer: Understanding of technology transfer processes from the laboratory to industry.

[12/09/2023 - 16/09/2023]

Training course on Seaweed Cultivation and Biotechnology.

TAHALEB project- safe seaweed coalition

City: Tunisi | **Country:** Tunisia

Core Competencies:

–Marine Biology and Ecology: Understanding of marine ecosystems, seaweed taxonomy, and ecological interactions.

–Seaweed Cultivation: Knowledge of various seaweed cultivation techniques, including open sea, pond, and tank systems.

–Biotechnology: Familiarity with bioprocessing techniques for extracting valuable compounds from seaweeds, such as phycocolloids, pigments, and biofuels.

–Environmental Science: Awareness of environmental impacts and sustainable practices in seaweed cultivation.

–Business and Entrepreneurship: Understanding of business planning, market analysis, and the development of seaweed-based products.

[05/2023] **"Master" in Agritech – Talent Garden**

"Ideas2Grow" program promoted by Intesa Sanpaolo

Program structured into 8 training modules, including 60 hours of online instruction, 40 hours of individual study, and 6 hours of coaching, designed to provide all the essential tools needed to launch a business. From product development to market and financial analysis, as well as leadership skills development.

Advanced BlueBio Training Course: "Blue Bio-refinery technologies: from research to the industry with applications on products and biomaterial from algal biomass and sidestreams of fisheries and aquaculture".

[15/01/2023 – 18/01/2023]

City: Foggia | **Country:** Italy | **Field(s) of study:** Blue biorefinery

This course intends to fill the gaps in the training of professional figures who can facilitate the advancement of bluebiotech towards the market, with particular attention to biorefinery technologies applied to the valorisation of algal biomass and by-products/ biowaste deriving from fishing and aquaculture activities.

[11/2021 – 04/2022]

Short Master in "Models and methods of industrial transition".

Politecnico di Bari, Bari.

City: Bari | **Country:** Italy | **Field(s) of study:** Industrial transition.

Training course made up of 11 training modules, for a total of 102 hours (4 credits), to which

add 18 hours of visits to industrial realities and a final internship of 50 hours.

The course provided methods, analysis tools and models aimed at promoting understanding

and manage, efficiently and effectively, industrial transition phenomena such as, e.g example, the digital, environmental, or energy transition.

[17/11/2021] **Professional qualification to practise as a Food Technologist**

University of Foggia, Foggia (Italy).

City: Foggia | **Country:** Italy

[09/2018 – 04/2021] **Master's Degree in Food Science and Technology.**

University of Foggia, Foggia (Italy).

City: foggia | **Country:** Italy | **Field(s) of study:** Food Science and Technology. | **Final grade:** 110/110 cum laude | **Thesis:** "Weed control tests with natural products on *Matricaria chamomilla* L."

–Knowledge of bibliographic search activity. and analysis of acquired data.

[09/2014 – 12/2017] **Bachelor's Degree in Food Science and Technology**

University of Foggia, Foggia (Italy).

City: Foggia | **Country:** Italy | **Field(s) of study:** Food Science and Technology | **Final grade:** 108/110 | **Thesis:** "Production of a fermented drink with *Lactobacillus acidophilus* added with GlutenFriendly flour."

– occupational techniques (making of standard breads, fancy breads, cakes and pastries)

Internship in "preparation of functional foods", focused on the production of a drink fermented with *Lactobacillus acidophilus* and added with GlutenFriendly flour.– at the "New Gluten World" (Corato) and at the predictive microbiology laboratory of the University of Foggia;

Execution of the basic protocols for the revitalization of a probiotic strain, monitoring of the shelf-life and execution of the ELISA test.

[09/2019 – 02/2021] **Erasmus - "Erasmus+" study program.**

University of Zaragoza- Escuela Politecnica Superior. Huesca (Spagna).

City: Huesca | **Country:** Spain

WORK EXPERIENCE

University of Foggia (Italy)

City: Foggia | **Country:** Italy

Research fellow for the project: "Support to the Activities for the Valorization and Enhancement of Marine Resources"

[16/01/2025 – 16/01/2026]

Research grant entitled: "Development and implementation of blue biorefinery processes to convert marine biomass into high-value products". S.S.D. CHEM-05/A

Project: "Support to the Activities for the Valorization and Enhancement of Marine Resources – SAVEMAR".

Research Skills:

Development of sustainable blue biorefinery processes; extraction and chemical functionalization of marine polysaccharides; solvent-free esterification reactions; mechanochemical synthesis; FT-IR, TGA, SEM-EDS, HPLC-RID analyses; experimental design (DOE); data interpretation and scientific reporting.

Star Facility Centre- Università degli Studi di Foggia

City: Foggia | **Country:** Italy

Tutoring Activities (PCTO – Pathways for Transversal Skills and Career Guidance)

[04/01/2022 – 17/07/2025]

Tutoring activities carried out at the STAR Facility Centre laboratory. The activities included theoretical training on algal biorefinery processes and hands-on laboratory experience in extraction processes from the macroalga *Gracilaria gracilis*.

Star Facility Centre- Università degli Studi di Foggia

City: Foggia | **Country:** Italy

[06/2021 – 01/2022] **Scientific laboratory technician**

Laboratory specialized in the preparation and characterization of biomass for processes biorefinery, in research and innovation based on green chemistry.

Princes Industrie Alimentari

City: Foggia | **Country:** Italy

[07/2020 - 09/2020] **Process control**

Control of CCPs (Critical Control Points) and resolution of issues identified during inspections.

Princes Industrie Alimentari

City: Foggia | **Country:** Italy

[07/2019 - 09/2019] **Process control**

Control of CCPs (Critical Control Points) and resolution of issues identified during inspections.

CONFERENCES AND SEMINARS

[12/10/2022 - 13/10/2022] **"11th Nordic seaweed conference" - Alge Center Denmark.** Grenaa, Denmark.

Nordic Seaweed conference wants to exchange knowledge and ambitious ideas between scientists, existing companies and upcoming entrepreneurs. Networking is an important part of the conference. New collaborations are started, exiting projects developed and new business partners found during the conference.

PUBLICATIONS

[2024] **"Ultra-Processed Food and Gut Microbiota: Do Additives Affect Eubiosis? A Narrative Review."**

Authors: Bevilacqua A, Speranza B, Racioppo A, Santillo A, Albenzio M, Derossi A, Caporizzi R, Francavilla M, Racca D, Flagella Z, De Santis MA, Elia A, Conversa G, Luchetti L, Sinigaglia M, Corbo

LANGUAGE SKILLS

Mother tongue(s): Italian

Other language(s):

English

LISTENING B1 READING B1 WRITING B1

SPOKEN PRODUCTION B1 SPOKEN INTERACTION B1

Spanish

LISTENING B1 READING B1 WRITING B1

SPOKEN PRODUCTION B1 SPOKEN INTERACTION B1

Levels: A1 and A2: Basic user; B1 and B2: Independent user; C1 and C2: Proficient user

CREATIVE WORKS

[26/02/2026] **"Sensor Suite Design for Monitoring Regenerative IMTA Systems in the Adriatic Sea"- Winning project - DIH INNOVAMARE Innovation Competition.**

Business Center of Marghera (Venice) | February 26, 2026

With "Star_Biobased" team, a project concerning the development of an advanced multisensor device capable of continuously monitoring the main parameters of the marine ecosystem that influence the growth of macroalgae within an offshore regenerative Integrated Multi-Trophic Aquaculture (IMTA) system.

[09/2023] **Project Proposal – Start Cup Puglia 2023**

ARTI – Regional Agency for Technology and Innovation, in collaboration with Regione Puglia and PNI (National Innovation Award) | September 2023.

Submitted the project *Starlycocentre** to Start Cup Puglia 2023, a regional competition supporting high knowledge-based entrepreneurial initiatives. The program provides mentoring, project development support, and financial awards to foster the transformation of innovative ideas into successful ventures.

[07/2023] **Project Proposal – Call4Planet**

CDP Venture Capital SGR – National Innovation Fund & BINP (Boosting Innovation in Poliba), Polytechnic University of Bari | July 2023.

Submitted the project *Starlycocentre** to the Tech4Planet program, aimed at supporting pre-seed and seed-stage ventures in Advanced Technologies for Sustainability that have reached Proof of Concept (PoC). The proposal focused on scaling an innovative sustainable technology solution within the Agritech and circular bioeconomy sector.

[16/10/2022 – 17/10/2022] **Finalist – Basilicata Pitch2Pitch Innovation Boost Weekend & Pitch Day**

Polihub, Eni Joule & ALSIA – Metaponto, Italy | October 16–17, 2022.

Selected for the final stage of the innovation competition aimed at supporting high-potential entrepreneurial projects. Participated in mentoring sessions and pitch presentations before a panel of industry experts and innovation stakeholders.

[05/10/2022] **“Hargae: The Forest in the Aquarium”- Winning project – Re-think Circular Economy Hackathon.**

Tondo, Taranto | October 5, 2022

Co-developer of an innovative ESG-oriented proposal addressing the sustainability challenge launched by the Port System Authority of the Ionian Sea (Taranto). The project focused on the design of architectural photobioreactors for microalgae cultivation within the port area, integrating environmental regeneration, circular economy principles, and sustainable infrastructure.

VOLUNTEERING

[01/2024 – Current] **Volunteer – Italian Red Cross (Croce Rossa Italiana)- OPEM & BLSD Certified** Foggia

Certified OPEM (Operatore CRI nel settore emergenze) and BLSD (Basic Life Support & Defibrillation) operator.

Participated in emergency response, first aid, and community support activities.

Assisted in organizing humanitarian initiatives and supporting vulnerable populations.

CONGRESS CONTRIBUTION

[09/06/2025 – 12/06/2025]

“ADVANCING BLUE BIOREFINERY DEVELOPMENT IN THE ADRIATIC SEA: THE BIOBASED PROJECT”- D. Racca, P. Marasco, M. Marone, A. Carnevale, G.E. Paziienza, M.Francavilla.

33st European Biomass Conference and Exhibition. Valencia, Spain.

"OPTIMIZING MICROALGAE BIOREFINERIES: SUSTAINABLE BIOFUEL PRODUCTION VIA CHEMICAL CONVERSION OF ANAEROBIC DIGESTATE AND MICROWAVE-ASSISTED HYDROTHERMAL LIQUEFACTION."- A. Carnevale, P. Marasco, D. Soldo, M. Marone, D. Racca, M. Francavilla

[09/06/2025 - 12/06/2025]

33st European Biomass Conference and Exhibition. Valencia, Spain.

"Chemical conversion of digestate into culture medium for the production of microalgae biomass (on a pilot scale) to be converted into biofuels/bioproductions through microwave-assisted hydrothermal liquefaction (HTL)".- Carnevale A., Marasco P., Soldo D., Marone M., Racca D., Francavilla

CONVEGNO AISAM 2024, Firenze, Italy.

"Blue-biorefinery of Mediterranean seaweed Gracilaria gracilis".- Deborah Racca, Mauro Marone, Francesco Contillo, Paolo Marasco, Matteo Francavilla.

[21/11/2023 - 24/11/2023]

European Congress of Marine Biotechnology, Malaga, Oral Presentation.

"Mediterranean seaweed biorefinery for valuable compounds".- Deborah Racca, Mauro Marone, Francesco Contillo, Paolo Marasco, Matteo Francavilla.

[27/10/2023 - 28/10/2023]

Riunione Scientifica Annuale Gruppo di Algologia, Società Botanica Italiana, Napoli. Oral Presentation.

"Processi di bioraffineria applicati a macroalghe mediterranee per la produzione di composti di valore commerciale".-Deborah Racca, Mauro Marone, Francesco Contillo, Paolo Marasco, Matteo Francavilla.

[17/10/2023 - 18/10/2023]

Convegno di "Re-think circular economy". - Tondo, Taranto. Oral Presentation.

"Molluschicoltura Multitrofica Sostenibile-Gargano (Mol.Mul.SOS-Gargano)".- M. Francavilla, P. Marasco, D. Racca, M. Marone, F. Contillo, G. Paziienza, D.P. Debernardis, G.Normanno.

[13/10/2023 - 14/10/2023]

X Convegno Nazionale SIRAM (Società Italiana di Ricerca Applicata alla Molluschicoltura), Cagliari. Poster Presentation.

"Biphasic green solvents system for a fast "one-pot" simultaneous extraction at room temperature of valuable compounds from tomato biowaste".- F.Contillo, M. Marone, P. Marasco, D. Racca, M Caroprese, M. Francavilla.

[05/06/2023 - 09/06/2023]

31st European Biomass Conference and Exhibition, Bologna. Poster Presentation.

"Bioraffineria blu: valorizzazione sostenibile e <<green>> di macroalghe rosse prodotte in sistemi di acquacolturaa multitrofica integrata (IMTA)".

[15/02/2023 - 16/02/2023]

Deborah Racca, Paolo Marasco, Mauro Marone, Francesco Contillo, Antonio Carnevale, Gianfranco Paziienza, Giovanni Normanno, Matteo Francavilla.

6° edizione Aquafarm, fiera di Pordenone. Poster Presentation.

"Molluschicoltura Multitrofica Sostenibile nel Gargano".- Paolo Marasco, Deborah Racca, Gianfranco Paziienza, Matteo Francavilla, Giovanni Normanno.

[15/02/2023 - 16/02/2023]

6° edizione Aquafarm, fiera di Pordenone. Poster Presentation.

"Valorisation of invasive blue crab (*Callinectes sapidus*) through a blue biorefinery approach."-Deborah Racca, Mauro Marone, Francesco Contillo, Paolo Marasco, Tommaso Scirocco, Antonietta Specchiulli, Lucrezia Cilenti, Matteo Francavilla (2022).

[05/09/2022 - 08/09/2022]

ECSA 59. Using the best scientific knowledge for the sustainable management of estuaries and coastal seas.

"Blue-biorefinery of seaweed *Gracilaria gracilis*: from nutrients reuse to bio-based products."- Deborah Racca, Mauro Marone, Francesco Contillo, Paolo Marasco, Massimo Monteleone, Giovanni Normanno, Matteo Francavilla (2022).

[12/10/2022 - 13/10/2022]

11th Nordic seaweed conference. Alge Center Denmark. 12-13 october 2022. Grenaa, Denmark.

RESEARCH COLLABORATION

Scientific Collaboration – AraBat (cleantech startup, founded in 2022)

Collaborated with AraBat, an innovative cleantech startup specializing in sustainable battery recycling technologies, through a research partnership with the University of Foggia. Contributed to projects related to **AraMet**, a patented green hydrometallurgical process for the sustainable recovery of critical raw materials from end-of-life lithium-ion batteries.

Dichiaro di:

-essere consapevole delle conseguenze derivanti da dichiarazioni mendaci, previste dal D.P.R. 28/12/2000 n. 445 e s.m.i., e che le informazioni riportate nel presente curriculum corrispondono a verità;

-essere informato/a, ai sensi e per gli effetti di cui al Regolamento UE 2016/679, che i dati personali contenuti nel presente curriculum saranno trattati dall'Università degli Studi di Foggia per adempiere agli obblighi di pubblicazione ai fini di trasparenza previsti dalla normativa vigente.

Luogo e data

Foggia
23/04/2026

Nome e Cognome

Deborah Maria Racca

Firma autografa sostituita a mezzo stampa ai sensi dell'art.3, comma 2, del D. Lgs. 39/1993.