

Sofia Papadaki

ACADEMIC CURRICULUM VITAE

Assistant Professor · Chemical Engineer

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Married, mother of two children



Research and academic profile

Dr Sofia Papadaki is a Chemical Engineer and graduate of the National Technical University of Athens (NTUA), with research interests in integrated biomass valorisation, the circular bioeconomy and sustainability assessment. Her work combines process design and optimisation with the development of high-value products and the assessment of their environmental and techno-economic performance.

Her research focuses on the valorisation of agri-food by-products and marine biological resources, the recovery and encapsulation of bioactive compounds, and mild food-processing technologies. She has participated in more than 30 national and European research projects and has received three postdoctoral research scholarships from the Greek State Scholarships Foundation (IKY). She also has experience in research commercialisation as a co-founder of an NTUA spin-off company.

Scopus publications	Scopus citations	h-index
36	538	12

Scopus data as of September 2026 · 501 documents citing her work.

Key areas of expertise

Circular bioeconomy and biorefining · Green extraction and encapsulation · Biofunctional ingredients for food, feed and cosmetics · Life Cycle Assessment · Techno-economic assessment and industrial symbiosis

Education and postdoctoral research

2014 | PhD • National Technical University of Athens

School of Chemical Engineering, Laboratory of Organic Chemical Technology. Research area: biomass valorisation for the production of high-value products.

Doctoral thesis: "A study of chemical pulp dyeing using plant-derived dyes".

Supervisor: Professor Emmanuel Koukios, NTUA.

2010 | MSc • University of Piraeus and NTUA

Interuniversity postgraduate programme in "Organisation and Management of Industrial Systems", specialising in "Energy Management and Environmental Protection Systems". Department of Industrial Management and Technology, University of Piraeus, and School of Chemical Engineering, NTUA.

Grade: 9.03/10, Excellent.

Master's thesis: "Valorisation of waste lignocellulosic biomass for the production of high-value products".

Supervisor: Professor Dimitrios Sidiras, University of Piraeus.

2008 | Diploma in Chemical Engineering • NTUA

Specialisation: Organic Industries. Grade: 7.62/10, Very Good.

Diploma thesis: "Copolyesters based on adipic acid, glycolic acid and butanediol: synthesis, characterisation and hydrolytic degradation". Laboratory of Advanced and Composite Materials, School of Chemical Engineering.

Supervisor: Professor Ioannis Simitzis, NTUA.

Postdoctoral research supported by IKY scholarships

02/2020 - 01/2022 | Support for Postdoctoral Researchers

Development of innovative methods to protect aquaculture cage nets against corrosion using environmentally friendly natural anti-corrosion and antimicrobial agents. IKY programme, second cycle.

09/2016 - 09/2017 | IKY-Siemens Excellence Programme

Improvement of drying methods for microalgae with sensitive bioactive constituents, including a techno-economic study for industrial-scale implementation.

12/2015 - 08/2016 | IKY-Siemens Excellence Programme

Development of innovative nutraceutical products based on algal bioactive ingredients using advanced nanoencapsulation methods.

Scholarships and awards

2022 | FreshIt distinction in the Science Agora programme

Distinction in the Environment and Energy Proof of Concept competition, supported by Google, in October 2022. The FreshIt project received a €24,000 award to develop mild and sustainable fruit-processing technologies for shelf-life extension. The proposal focused on the peach value chain and the production of foods with high nutritional and sensory quality.

Three IKY postdoctoral research scholarships

One scholarship under “Support for Postdoctoral Researchers – Second Cycle” and two under the IKY–Siemens Excellence Programme for the academic years 2014/15 and 2016/17. Research topics and implementation periods are presented in the education and postdoctoral research section.

2017 | Q-SAFE international research paper award

Research paper award from the International Committee of Food Microbiology and Hygiene of the International Union of Microbiological Societies, recognising the research contribution of an early-career scientist to food microbiology and hygiene. Presented at the Q-SAFE International Conference in Ermoupolis, Syros, Greece, on 12 April 2017.

2012, 2013, 2014 and 2015 | Thomaidion Award

Thomaidion Award for the Advancement of Sciences and Arts, received for four consecutive years.

2014 | Second prize in the Blue Growth competition

Second prize in the first Blue Growth innovation competition on the maritime economy.

2014 | Second prize in the Crazy Business Ideas competition

Award in the Crazy Business Ideas 2014 entrepreneurship competition.

2014 | Conference poster award

Award for the co-authored research poster “Production of low-salt table olives” at the 1st International Pleasure Conference, La Rochelle, France, 18–19 June 2014.

Postgraduate academic achievement award

Annual monetary award and commendation for academic performance during the third semester of the “Energy Management and Environmental Protection Systems” specialisation at the University of Piraeus.

2007 | IAESTE Greece scholarship

Scholarship for a practical training placement abroad.

Academic and professional experience

Agricultural University of Athens | Assistant Professor

Department of Natural Resources Development and Agricultural Engineering, School of Environment and Agricultural Engineering, Laboratory of Farm Structures.

PRINSUS TECHNOVLASTOS IKE | Co-founder and Project Manager

Involvement in the establishment and development of an NTUA spin-off since 2022, with responsibilities in research and development and project management. Activities include innovative technologies and biofunctional ingredients for the agri-food sector, sustainability assessment and research commercialisation.

National Technical University of Athens | Research Associate

Research activity since 2010 at the School of Chemical Engineering through European, national and bilateral research projects. Areas of work include unit operations, biomass and by-product valorisation, innovative product development and sustainability assessment.

DIGNITY IKE | Co-founder and former Managing Director

Experience in assessing the environmental footprint, economic viability and social impact of products and processes, and in developing business plans.

2020 - 2022 | National and Kapodistrian University of Athens

Research Associate in the Department of Biology on the SUPER-PUFA and PHYCOSMETIC projects. Characterisation and investigation of the industrial valorisation of microalgal biomass for the production of oils, cosmetic ingredients and co-products.

2019 - 2021 | University of Ioannina

Research Associate on the Nanoceuticals project. Development of recovery and analytical characterisation methods for bioactive products, including hydroxytyrosol and its derivatives, together with techno-economic analysis and Life Cycle Assessment.

2019 | Centre for Research and Technology Hellas

Research Associate on the Tastestevia project, focusing on environmental impact assessment and techno-economic analysis of stevia-processing operations and final products.

2014 - 2015 | Mediterranean Bioscience SA

Head of Research and Development in Chios, Greece. Industrial-scale production of *Chlorella* sp. extracts within the BIOEXPLORE project.

Additional research collaborations

University of Piraeus: valorisation of waste biomass as an adsorbent. Wageningen University & Research: participation in HYVOLUTION. University of Huddersfield and University of Agricultural Sciences and Veterinary Medicine Cluj-Napoca: work as an experienced researcher within FRIETS.

Selected research projects

Participation in more than 30 research and innovation projects. The following selection illustrates the scope of her research experience and summarises the objectives of the projects.

Project	Programme	Scope
VALIAS	Horizon Europe	Valorisation of marine invasive alien species and protection of European marine biodiversity.
Excel4Pro	Horizon Europe	Innovation ecosystems and excellence hubs for novel foods based on plant proteins.
FEEDACTIV	Horizon Europe	Functional fish feed incorporating bioactive compounds of marine and herbal origin.
VALPRO Path	Horizon Europe	New value chains and pathways for plant protein valorisation.
Convert2Green	Horizon Europe	Accelerating the uptake of climate-neutral materials in innovative products.
PRIM-ROCK	Horizon Europe	Process innovations for the mineral industry, including roasting and calcination technologies.
ZEROWASTE	EDF	Circular valorisation of military individual equipment waste for food and energy production.
AccelWater	Horizon 2020	Water circularity in food and beverage industrial areas.
FRIETS	Horizon 2020	Sustainable value chains for fresh and dried berries, precision agriculture and innovative preservation processes.
VOLATILE	Horizon 2020	Production of volatile fatty acids from biowaste for biopolymers, bioactive compounds and chemical building blocks.
ENTHALPY	FP7	Energy and water savings in drying processes within the dairy value chain.
SAHYOG	FP7	Europe–India networking in biomass research and biowaste conversion.
HYVOLUTION	FP6	Non-thermal production of pure hydrogen from biomass.
RECOFFEE	ESPA	Circular economy, energy savings and valorisation of coffee-processing by-products.
Nanoceuticals	ESPA	Cosmetic products and dietary supplements using nanoencapsulated natural bioactive ingredients.
EXPLIAS	Fisheries & Maritime OP	Design and pilot implementation of commercial valorisation methods for invasive alien species.
SUPER-PUFA and PHYCOSMETIC	ESPA	Valorisation of local marine phytoplankton strains for fatty acids and cosmetic ingredients.
Euphoria	ESPA	Alternative-texture products based on legume proteins for people with chewing difficulties and gastro-oesophageal conditions.

Teaching and scientific activities

2025–2026 | Adjunct Lecturer at the Technical University of Crete

School of Chemical and Environmental Engineering. Teaching the “Food Technology” course in the 7th and 9th semesters during the 2025–2026 academic year.

Teaching assistant experience

2010 – 2015 | School of Chemical Engineering, NTUA

Teaching assistance and supervision of laboratory exercises in “Organic Industries Design”, “Petrochemical Industry” and “Biological Raw Materials for Organic Industries”.

2013 – 2014 | School of Chemical Engineering, NTUA

Teaching assistance and supervision of laboratory exercises in “Unit Operations I and II”.

2010 – 2012 | Energy Production and Management programme, NTUA

Lectures and support for semester assignments in “Biomass (Bioenergy)” at the School of Electrical and Computer Engineering.

2009 | University of Piraeus

Teaching assistance and supervision of laboratory exercises in “Industrial Systems Design”.

Between 2014 and 2022, she supported ten diploma theses as a research associate, working with students from NTUA and the University of the Aegean on unit operations, biomass valorisation, product development and the circular economy.

Training and international networking

Trainer at the “Life cycle assessment for Marine Biotechnology value chains” Training School of COST Action CA18238 Ocean4Biotech, Crete, April 2023. Participation in summer schools and workshops organised through SAHYOG, EUALGAE, EUROCAROTEN and COST FP1205, covering biorefining, microalgae, carotenoids and nanocrystalline cellulose. Participant in the Erasmus Intensive Programme “Energy Production from Biomass in the European Union”, Foggia, Italy, 2011.

Peer review and scientific event organisation

Experience as a member of an evaluation committee of the Greek General Secretariat for Research and Technology and as a reviewer for journals including Sustainability, Foods, Energies, Separations, Clean Technologies, Coatings, Potato Research, Innovative Food Science and Emerging Technologies, Drying Technology, and Cellulose Chemistry and Technology. Supported the organisation of the 1st SAHYOG Summer School and the 9th Panhellenic Scientific Conference on Chemical Engineering in 2013.

Laboratory and software skills

Analytical techniques: GC, HPLC, XRD, FTIR, UV–VIS spectrophotometry, TGA and DSC.

Software: openLCA, SimaPro and GaBi for Life Cycle Assessment; ASPEN for process simulation; MS Office.

Foreign languages

English: proficient, Certificate of Proficiency in English, University of Cambridge.

French: good command, DELF 2nd Degré, Institut Français d'Athènes.

Selected scientific publications

Her scientific output includes peer-reviewed journal publications, five book chapters and more than 80 presentations at international conferences. Ten selected publications are listed below.

1. **2026** Osmotic pretreatment and freeze-drying synergy enhances microbial control and preserves bioactive compounds in blueberries. *Food Control*, 187, 112170.
2. **2026** Comparative climate change impacts of different strawberry cultivation systems in Southeastern Europe: A study across open-field and protected cultivation systems towards sustainable production models. *Journal of Agriculture and Food Research*, 26, 102589.
3. **2026** Ulvan Microparticles for Encapsulation of Eucalyptus Essential Oil: Characterization, Release Behavior, and Stability in Aquafeeds. *Aquaculture Nutrition*, 2026(1), 3902818.
4. **2025** A comprehensive assessment of life cycle environmental impact and economic feasibility of different red raspberry (*Rubus idaeus* L) cultivation systems. *Cleaner and Circular Bioeconomy*, 11, 100150.
5. **2024** Assessing the Overall Sustainability Performance of the Meat Processing Industry Before and After Wastewater Valorization Interventions: A Comparative Analysis. *Sustainability*, 16(22), 9811.
6. **2024** Innovative Bioactive Products with Medicinal Value from Microalgae and Their Overall Process Optimization through the Implementation of Life Cycle Analysis—An Overview. *Marine Drugs*, 22(4), 152.
7. **2023** The Recovery of Bioactive Compounds from Olive Pomace Using Green Extraction Processes. *Resources*, 12(7), 77.
8. **2023** Sustainable Valorisation of Peach and Apricot Waste Using Green Extraction Technique with Conventional and Deep Eutectic Solvents. *Resources*, 12(6), 72.
9. **2023** Investigating the Environmental Benefits of Novel Films for the Packaging of Fresh Tomatoes Enriched with Antimicrobial and Antioxidant Compounds through Life Cycle Assessment. *Sustainability*, 15(10), 7838.
10. **2023** Carotenogenic Activity of Two Hypersaline Greek *Dunaliella salina* Strains under Nitrogen Deprivation and Salinity Stress. *Water*, 15(2), 241.

Full publication record and researcher profiles

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