

# Curriculum



Nome Name:	FEDERICO
Cognome Surname:	BATTISTA

ORCID:	n.d.
Scopus Author ID:	n.d.
WOS Author ID:	n.d.
Sito WEB WEB site:	n.d.

## **POSIZIONE PROFESSIONALE ATTUALE / CURRENT PROFESSIONAL POSITION:**

Posizione attuale Current position:	In Servizio
Qualifica Qualification:	Professore Associato (L. 240/10)
Ateneo/Ente/Azienda University/Institution/Company:	Università degli Studi di VERONA
Nazione Ateneo/Ente/Azienda University/Institution/Company Country:	ITA
Anno inizio Start Year:	2025
Anno fine End Year:	n.d.

## **PRECEDENTI ESPERIENZE LAVORATIVE (ULTIMI 10 ANNI) / PREVIOUS WORK EXPERIENCE ( LAST 10 YEARS):**

Qualifica Qualification:	Ricercatore a t.d. - t.pieno (art. 24 c.3-a L. 240/10)
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Ateneo/Ente/Azienda University/Institution/Company	Università degli Studi di VERONA
Posizione Sede Lavorativi (indicare Nazione e Città) Workplace Location (specify Country and City):	n.d.
Anno inizio Start Year:	2022
Anno fine End Year:	2024
Descrizione Description:	

### **LINGUE / LANGUAGES:**

Lingua Language:	Inglese
Scrittura Writing:	C1
Comunicazione Communication:	C1

Lingua Language:	Francese
Scrittura Writing:	B2
Comunicazione Communication:	B2

### **AREA/SETTORE SCIENTIFICO-DISCIPLINARE / AREA/SECTOR SCIENTIFIC-DISCIPLINARY**

Area scientifico-disciplinare Area scientific-disciplinary:	Ingegneria industriale e dell'informazione
Area scientifico-disciplinare codice Area scientific-disciplinary code:	09
Settore scientifico-disciplinare codice Sector scientific-disciplinary code:	-Impianti chimici
Settore scientifico-disciplinare codice Sector scientific-disciplinary code:	-ICHI-02/A

### **DESCRIZIONE DEI PRINCIPALI RISULTATI SCIENTIFICI CONSEGUITI NEGLI ULTIMI 10 ANNI (CON ANNESSO ELENCO DI MASSIMO 10 PUBBLICAZIONI) / DESCRIPTION OF THE MAIN SCIENTIFIC RESULTS ACHIEVED IN THE LAST 10 YEARS (WITH ATTACHED LIST OF MAXIMUM 10 PUBLICATIONS):**

<p>Descrizione Description:</p>	<p><i>Federico Battista is an Associate Professor in Chemical Engineering at the University of Verona (Italy), Department of Biotechnology. His research focuses on the conceptualization and optimization of unit operations for the recovery of high-value compounds and the production of bio-based products and biofuels from food, agricultural and industrial wastes, within the framework of biorefineries and the circular economy. His core expertise includes anaerobic and aerobic biotechnologies (for production of VFA, methane, hydrogen, ethanol, and Single Cell Proteins), transesterification for biodiesel production, and advanced purification techniques such as adsorption, membrane filtration, and liquid-liquid extraction. His teaching activities span mass and energy balances, and the valorization of agro-industrial byproducts. Prof. Battista has held multiple academic positions: Assistant Professor at the University of Verona, Visiting Professor at the Federal University of Pernambuco (Brazil), and Postdoctoral researcher at IFP Energies Nouvelles (France), Politecnico di Torino, and the University of Verona. His international experience includes optimization of bioethanol production from lignocellulosic biomass, biogas production from agro-wastes, and solar-driven nutrient recovery from digestates. He is currently involved in several national and EU-funded projects as WP leader, including DIMITRA, Ellipse, AgriLoop, Bric-INAIL, and projects funded by the Italian Ministry for Made in Italy and INAIL. His previous projects include ReSURbis, SARR, and contributions to LIFE+ and BECCS Hydrogen programmes. In terms of editorial activity, he is Associate Editor for Frontiers in Chemical Engineering and Editorial Board Member of Renewable Energy (Elsevier). He has served as Managing Guest Editor for two special issues on integrated biorefineries. Federico Battista was included in Stanford University and Elsevier's "World's Top 2% Scientists" ranking in 2023 and 2024. He has an h-index of 28 (Scopus), with ~2000 citations.</i></p>
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## PUBBLICAZIONI / PUBLICATIONS:

<p>Anno della pubblicazione Year of publication:</p>	<p>2024</p>
<p>Citazione Citation:</p>	<p>Battista, Federico, Bolzonella, David (2024). Beyond Anaerobic Digestion: New Perspectives for the Development of a Biorefinery Platform for the Simultaneous Production of Medium-Chain Fatty Acids by Chain Elongation and Biogas from Food Wastes. ACS SUSTAINABLE CHEMISTRY &amp; ENGINEERING, vol. 12, p. 15294-15306, ISSN: 2168-0485, doi: 10.1021/acssuschemeng.4c05724</p>

<p>Anno della pubblicazione Year of publication:</p>	<p>2024</p>
<p>Citazione Citation:</p>	<p>Rizzioli, Fabio, Magonara, Claudia, Mengoli, Gianmarco, Bolzonella, David, Battista, Federico</p>

	(2024). Production, purification and recovery of caproic acid, Volatile fatty acids and methane from <i>Opuntia ficus indica</i> . RENEWABLE & SUSTAINABLE ENERGY REVIEWS, vol. 190, p. 114083-114091, ISSN: 1364-0321, doi: 10.1016/j.rser.2023.114083
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Anno della pubblicazione Year of publication:	2025
Citazione Citation:	Rizzioli, Fabio, Cirilli, Marco, Frison, Nicola, Bolzonella, David, Battista, Federico (2025). NUTRIENT RECOVERY FROM ANAEROBIC DIGESTATE BY DIFFERENT COMBINATION OF PRESSURE DRIVEN MEMBRANES. JOURNAL OF CLEANER PRODUCTION, vol. 494, p. 1-9, ISSN: 0959-6526, doi: 10.1016/j.jclepro.2025.144958

Anno della pubblicazione Year of publication:	2020
Citazione Citation:	Federico Battista, Elli Maria Barampouti, Sofia Mai, David Bolzonella, Dimitris Malamis, Konstantinos Moustakas, Maria Loizidou (2020). Added-value molecules recovery and biofuels production from spent coffee grounds. RENEWABLE & SUSTAINABLE ENERGY REVIEWS, vol. 131, p. 110007-110024, ISSN: 1364-0321, doi: 10.1016/j.rser.2020.110007

Anno della pubblicazione Year of publication:	2024
Citazione Citation:	Battista, Federico, Zeni, Alessandro, Andreolli, Marco, Salvetti, Elisa, Rizzioli, Fabio, Lampis, Silvia, Bolzonella, David (2024). Treatment of food processing wastes for the production of medium chain fatty acids via chain elongation. ENVIRONMENTAL TECHNOLOGY & INNOVATION, vol. 33, p. 103453-103465, ISSN: 2352-1864, doi: 10.1016/j.eti.2023.103453

Anno della pubblicazione Year of publication:	2023
Citazione Citation:	Rizzioli, Fabio, Bertasini, Davide, Bolzonella, David, Frison, Nicola, Battista, Federico (2023). A critical review on the techno-economic feasibility of nutrients recovery from anaerobic digestate in the agricultural sector. SEPARATION AND PURIFICATION TECHNOLOGY, vol. 306, p. 122690-122703, ISSN: 1383-5866, doi: 10.1016/j.seppur.2022.122690

Anno della pubblicazione Year of publication:	2015
Citazione Citation:	RUGGERI, Bernardo, BATTISTA, FEDERICO, BERNARDI, MILENA, FINO, DEBORA, Giuseppe Mancini (2015). The selection of pretreatment options for anaerobic digestion (AD): A case study in olive oil waste production. CHEMICAL ENGINEERING JOURNAL, vol. 259, p. 630-639, ISSN: 1385-8947, doi: 10.1016/j.cej.2014.08.035

Anno della pubblicazione Year of publication:	2020
Citazione Citation:	Battista F, Remelli G, Zanzoni S, Bolzonella D (2020). Valorization of Residual Orange Peels: Limonene Recovery, Volatile Fatty Acids, and Biogas Production. ACS SUSTAINABLE CHEMISTRY & ENGINEERING, ISSN: 2168-0485

Anno della pubblicazione Year of publication:	2019
Citazione Citation:	Federico Battista, Melanie Gomez Almendros, Romain Rousset, Pierre-Antoine Bouillon (2019). Enzymatic hydrolysis at high lignocellulosic content: Optimization of the mixing system geometry and of a fed-batch strategy to increase glucose concentration. RENEWABLE ENERGY, vol. 131, p. 152-158, ISSN: 0960-1481, doi: 10.1016/j.renene.2018.07.038

Anno della pubblicazione Year of publication:	2018
Citazione Citation:	Federico Battista, Mélanie Gomez Almendros, Romain Rousset, Serge Boivineau, Pierre-Antoine Bouillon (2018). Enzymatic hydrolysis at high dry matter content: The influence of the substrates' physical properties and of loading strategies on mixing and energetic consumption. BIORESOURCE TECHNOLOGY, vol. 250, p. 191-196, ISSN: 0960-8524, doi: 10.1016/j.biortech.2017.11.049

**DESCRIZIONE DEI PRINCIPALI PROGETTI DI RICERCA E PREMI CONSEGUITI NEGLI ULTIMI 10 ANNI (CON ANNESSO ELENCO DI MASSIMO 10 RISULTATI, INCLUDENDO, A TITOLO DI ESEMPIO, PRINCIPAL INVESTIGATOR O COORDINATORE LOCALE DI PROGETTI DI RICERCA COMPETITIVI NAZIONALI O INTERNAZIONALI, SIGNIFICATIVI PREMI CONSEGUITI PER LA PROPRIA ATTIVITÀ DI RICERCA)/ DESCRIPTION OF THE MAIN RESEARCH PROJECTS AND AWARDS AWARDED IN THE LAST 10 YEARS (WITH ATTACHED LIST OF MAXIMUM 10 ACHIEVEMENTS, INCLUDING, FOR EXAMPLE, PRINCIPAL INVESTIGATOR OR LOCAL COORDINATOR OF NATIONAL OR INTERNATIONAL COMPETITIVE RESEARCH PROJECTS, SIGNIFICANT AWARDS AWARDED FOR YOUR RESEARCH ACTIVITY):**

Descrizione Description:	<i>Over the past decade, my research has focused on the development and optimization of sustainable technologies for the valorisation of organic waste within the framework of circular economy and integrated biorefineries. I have been actively involved in several national and European research projects, often with coordination or leadership roles. Currently, I am</i>
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	<p><i>Work Package Leader in the LIFE DIMITRA project (2023–2027), which focuses on converting anaerobic digestates into climate-friendly bio-fertilisers. I am also involved as site leader in BRIC-INAIL (2023–2025), which develops safe and circular processes from agro-industrial waste, and as key partner in HORIZON ELLIPSE and HORIZON AGRILLOOP, addressing bioproducts and nutrient recovery in agriculture and packaging. Since 2024, I have been contributing to a national project funded by MIMIT on innovative biomethane production from OFMSW and co-substrates. From 2022, I managed the University of Verona’s contribution to the Hydrogen BECCS Innovation Programme, and in 2023 I served as Visiting Professor at the Federal University of Pernambuco (Brazil) to deliver lectures on EU environmental policy and biorefinery technologies. My work has resulted in three international patents (US and FR) related to enzymatic hydrolysis and substrate optimization in bioprocesses, and the “Fertibox” trademark for nutrient recovery from digestate. I have received several recognitions, including inclusion in the Stanford-Elsevier “Top 2% World Scientists” ranking in both 2023 and 2024, and the Elsevier Outstanding Paper Award (2022) for a highly cited article in Environmental Technology &amp; Innovation. I was also the recipient of Publons Peer Review Awards (2018, 2019) as one of the top 1% reviewers worldwide. Editorially, I serve as Associate Editor of Frontiers in Chemical Engineering and Editorial Board Member of Renewable Energy (IF 8.6). I have also been Managing Guest Editor for two Special Issues in Renewable Energy on biorefinery strategies. Since 2024, I am a member of the Portuguese Foundation for Science and Technology (FCT) evaluation panel for competitive national calls in the area of sustainable bioeconomy.</i></p>
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<p>Descrizione Description:</p>	<p>World’s 2% Top Scientists ranking of the 2024 and 2023 released by Stanford University and Elsevier</p>
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<p>Descrizione Description:</p>	<p>Work Package Leader in the EU-funded project LIFE DIMITRA (2023–2027), focusing on the valorisation of anaerobic digestates into bio-fertilisers for climate-resilient agriculture.</p>
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<p>Descrizione Description:</p>	<p>Local Coordinator of the national research project BRIC-INAIL (2023–2025), aiming at safe and circular bioprocesses from agro-industrial waste.</p>
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<p>Descrizione Description:</p>	<p>Partner and Scientific Leader in HORIZON ELLIPSE and AGRILLOOP projects (2022–2027), developing integrated biorefinery systems and nutrient recovery for agriculture and packaging.</p>
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Descrizione Description:	Project Manager for the University of Verona in the Hydrogen BECCS Innovation Programme (UK Department for Business, Energy & Industrial Strategy, 2022).
Descrizione Description:	Co-inventor of three international patents (US and FR) on enzymatic hydrolysis and biorefinery processes, and co-author of the "Fertibox" trademark (2024) for nutrient recovery from digestate.
Descrizione Description:	Co-inventor of three international patents (US and FR) on enzymatic hydrolysis and biorefinery processes, and co-author of the "Fertibox" trademark (2024) for nutrient recovery from digestate.
Descrizione Description:	Editorial leadership as Associate Editor of Frontiers in Chemical Engineering and Editorial Board Member of Renewable Energy (IF 8.6), including two Guest Editorships.
Descrizione Description:	Evaluator for competitive research proposals for the Portuguese Foundation for Science and Technology (FCT), Polish National Science Centre, and Israeli Ministry of Innovation.
Descrizione Description:	Visiting Professor at the Federal University of Pernambuco (Brazil, 2023), delivering lectures on EU biorefinery frameworks and supporting international research cooperation.

**DESCRIZIONE DEI PRINCIPALI RISULTATI CONSEGUITI NEGLI ULTIMI 10 ANNI IN TERMINI DI SVILUPPO DI RETI E RELAZIONI SCIENTIFICHE NAZIONALI E INTERNAZIONALI (CON ANNESSO ELENCO DI MASSIMO 5 RISULTATI, INCLUDENDO, A TITOLO DI ESEMPIO, PARTECIPAZIONE O ORGANIZZAZIONE DI CONVEGNI NAZIONALI E INTERNAZIONALI; CONTRIBUTI A CONSORZI DI RICERCA) / DESCRIPTION OF THE MAIN RESULTS ACHIEVED IN THE LAST 10 YEARS IN TERMS OF DEVELOPMENT OF NATIONAL AND INTERNATIONAL SCIENTIFIC NETWORKS AND RELATIONS (WITH ATTACHED LIST OF MAXIMUM 5 RESULTS, INCLUDING, FOR EXAMPLE, PARTICIPATION OR ORGANIZATION OF NATIONAL AND INTERNATIONAL CONFERENCES; CONTRIBUTIONS TO RESEARCH CONSORTIA):**

Descrizione Description:	<i>Over the past decade, I have built and consolidated a strong national and international scientific network across academia, industry, and public institutions, primarily in the fields of circular economy, environmental biotechnology, and sustainable bioresource valorisation. At the European level, I am actively involved in several Horizon Europe and LIFE projects (DIMITRA,</i>
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	<p><i>ELLIPSE, AGRILLOOP), working closely with multidisciplinary consortia including universities, research centres, SMEs, and environmental agencies from over 15 countries. These collaborations have led to the development of joint research platforms on nutrient recovery, volatile fatty acids production, and advanced biorefinery concepts. Through these projects, I have strengthened scientific relations with institutions such as KU Leuven, Universidade de Santiago de Compostela, TU Vienna, and NIBIO (Norway). I served as Guest Editor and reviewer for major international journals, facilitating scientific exchange and visibility. I am Associate Editor for <i>Frontiers in Chemical Engineering</i> and Editorial Board Member of <i>Renewable Energy</i> (Elsevier), where I have coordinated two Special Issues with co-editors from Greece, Saudi Arabia, Lebanon, and France. My collaboration with Brazilian institutions began with the BiogasMENA project (Eranetmed) and was further reinforced during my Visiting Professorship at the Federal University of Pernambuco (UFPE) in 2023, where I lectured and supported ongoing joint research on anaerobic bioprocesses. Nationally, I maintain strong ties with research groups at the University of Padua, University of Trento, and Politecnico di Torino (where I completed my PhD), with whom I share ongoing collaborations in the areas of biofuels, membrane processes, and LCA. I am also involved in technology transfer and innovation projects with regional stakeholders through INAIL and MIMIT-funded initiatives. In recent years, I have participated in evaluation panels for national and international research programs: I am currently a reviewer for the Portuguese Foundation for Science and Technology (FCT) and have evaluated proposals for the Polish National Science Centre and the Israeli Ministry of Innovation. These activities have further expanded my scientific network and understanding of emerging research priorities across Europe. My network includes over 100 co-authors from 20+ countries, with frequent co-publications and joint participations in international conferences, demonstrating a consolidated ability to operate in collaborative, interdisciplinary, and multicultural research environments.</i></p>
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<p>Descrizione Description:</p>	<p>Chairman and Scientific Committee Member at the 11th International Conference on Sustainable Solid Waste Management (Rhodes, 2024) and the 8th ISEBE - International Symposium on Environmental Biotechnology and Engineering (Recife, Brazil, 2025).</p>
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<p>Descrizione Description:</p>	<p>Member of the Organising Committee of the GreenWINE Scientific Congress (Verona, 2025), dedicated to sustainable innovation in the wine production sector.</p>
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<p>Descrizione</p>	<p>Invited Speaker at the 9th Green &amp; Sustainable</p>
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Description:	Chemistry Conference (Pune, India, 2025) and multiple editions of the GREENERING and Sustainable Solid Waste Management international conferences (2021-2024).
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Descrizione Description:	Managing Guest Editor of two international Special Issues on integrated biorefineries in the journal Renewable Energy (Elsevier), in collaboration with researchers from Greece, Lebanon, and Saudi Arabia.
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Descrizione Description:	Active Contributor in European Research Consortia within the Horizon Europe framework (e.g. AgriLoop, Ellipse, DIMITRA), involving over 20 partner institutions across academia, industry and public authorities.
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**DESCRIZIONE DEI PRINCIPALI RISULTATI CONSEGUITI NEGLI ULTIMI 10 ANNI IN TERMINI DI SUPPORTO ALLA COMUNITÀ SCIENTIFICA (CON ANNESSO ELENCO DI MASSIMO 5 RISULTATI, INCLUDENDO, A TITOLO DI ESEMPIO, RESPONSABILITÀ DI DIREZIONE DI COMITATI EDITORIALI; INCARICHI DI VALUTAZIONE DELLA RICERCA PRESSO ISTITUZIONI NAZIONALI O INTERNAZIONALI; RESPONSABILITÀ ISTITUZIONALI ALL'INTERNO DELL'ISTITUZIONE DI APPARTENENZA O DI ALTRE ISTITUZIONI) / DESCRIPTION OF THE MAIN RESULTS ACHIEVED IN THE LAST 10 YEARS IN TERMS OF SUPPORT TO THE SCIENTIFIC COMMUNITY (WITH ATTACHED LIST OF MAXIMUM 5 RESULTS, INCLUDING, FOR EXAMPLE, MANAGEMENT RESPONSIBILITIES OF EDITORIAL COMMITTEES; RESEARCH EVALUATION ROLES AT NATIONAL OR INTERNATIONAL INSTITUTIONS; INSTITUTIONAL RESPONSIBILITIES WITHIN THE INSTITUTION OF AFFILIATION OR OTHER INSTITUTIONS):**

Descrizione Description:	
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**DESCRIZIONE DEI PRINCIPALI RISULTATI CONSEGUITI NEGLI ULTIMI 10 ANNI IN TERMINI VALORIZZAZIONE DELLE CONOSCENZE (CON ANNESSO ELENCO DI MASSIMO 3 RISULTATI, RELATIVI ALLA PARTECIPAZIONE DEL CANDIDATO ALLE ATTIVITÀ DI VALORIZZAZIONE DELLE CONOSCENZE) / DESCRIPTION OF THE MAIN RESULTS ACHIEVED IN THE LAST 10 YEARS IN TERMS OF KNOWLEDGE VALORIZATION (WITH ATTACHED LIST OF MAXIMUM 3 RESULTS, RELATING TO THE**

**CANDIDATE'S PARTICIPATION IN KNOWLEDGE VALORIZATION ACTIVITIES):**

<p>Descrizione Description:</p>	<p><i>In the last decade, my research has strongly contributed to the valorisation of scientific knowledge through patents, technology transfer, collaborations with industry and public institutions, and public engagement. A key achievement is the development of three international patents (US and FR) related to enzymatic hydrolysis strategies for complex lignocellulosic biomasses, improving the efficiency of glucose release in bioethanol production. These patents have originated from applied research carried out during my postdoctoral period at IFP Energies Nouvelles (France) and later optimized in collaboration with the University of Verona. In 2024, I co-authored the “Fertibox” trademark, registered with colleagues at the University of Verona. This system is designed for the high-added-value recovery of nutrients (N, P, K) from anaerobic digestate via sequential membrane-based processes. A pilot plant is currently being developed and tested within the LIFE DIMITRA project, with the aim of commercial exploitation in collaboration with regional waste treatment facilities. In addition, my research has led to the industrial valorisation of agro-industrial residues (e.g. coffee grounds, orange peels, red grape marcs) for the production of biofuels (biogas, hydrogen, ethanol), volatile fatty acids, and Single Cell Proteins. These solutions are being implemented or tested in partnership with SMEs and public utilities participating in HORIZON and LIFE projects (e.g. AgriLoop, Ellipse, BRIC-INAIL). I have collaborated with Austep SpA and other technology providers to apply anaerobic digestion strategies and waste valorisation protocols at industrial scale. Furthermore, I have contributed to Green Public Procurement (GPP) guidelines for the Regione Veneto, with a focus on waste management for large-scale events — an example of knowledge application in public policy. My knowledge valorisation efforts are also reflected in my editorial roles and scientific outreach activities. I regularly chair sessions in international conferences, evaluate national and international projects (Portugal, Poland, Israel), and supervise technology-focused MSc theses and PhD research with a strong emphasis on application, scalability, and industrial transfer. Overall, my work bridges the gap between research, society, and industry, creating real-world impact from advanced environmental biotechnologies.</i></p>
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**Informazioni aggiornate alla data di candidatura 16-05-2025**

**FEDERICO BATTISTA**

*Il presente curriculum costituisce allegato e parte integrante dell'incarico sottoscritto*

