

Mónica Isabel Gonçalves Carvalheira
Researcher
DQ - Departamento de Química
UCIBIO - Applied Molecular Biosciences Unit
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Qualifications

Sustainable Chemistry, Doctorate, The effect of key process operational conditions on enhanced biological phosphorus removal from wastewater, Universidade NOVA de Lisboa
Award Date: 16 Dec 2014

Chemical Engineering, Master, Faculdade de Ciências e Tecnologia (FCT)
Award Date: 10 Nov 2008

Chemical Engineering, Bachelor, Faculdade de Ciências e Tecnologia (FCT)
Award Date: 31 Jul 2006

I have a master degree in Chemical and Biochemical Engineering at Faculdade de Ciências e Tecnologia - Universidade Nova de Lisboa (2008) and I completed her PhD in Sustainable Chemistry, in the area of biological wastewater treatment in 2014 in the same institution. Between 2015 and 2018 I was a postdoctoral researcher at Biochemical Engineering Group, at UCIBIO-i4HB (FCT-NOVA) and since December 2018 I have been researcher at the same group. My research have been focused on wastewater/waste treatment and valorisation through anaerobic digestion process or biopolymers production. I also started new research activities in biogas upgrading (in collaboration with LMP group from LAQV), production of biogas through sludge degradation, nutrient removal from wastewaters using affinity materials (in collaboration with CleanMIPTech group from LAQV) and separation of compounds from biological streams using membrane processes (in collaboration with LMP group from LAQV). I published 16 papers in international peer review journals, 2 book chapters, 10 papers in conferences proceedings and I have a h-index of 11. My scientific work was disseminated in international conferences with 15 oral and 17 poster presentations. I have participated in 7 national and international projects and 1 integrated action with the Catalan Institute for Water Research (ICRA). Also, I am team member of a capacity building project (TESS) in the field of Higher Education 2019 (Erasmus+ programme). In the scope of one European project, I was involved in the technology transfer from academia(pilot-scale) to industry (semi-industrial scale). I am member of Environmental Biotechnology (EB) Division of the European Federation of Biotechnology (EFB). I have supervised 1 postdoctoral research, 6 research assistants, 9 master students and 11 undergraduate students and currently I am supervising 3 PhD student (international internship). Furthermore, I participate in several dissemination activities and I am involved in pedagogic activities through practical lectures of Biotechnology master at FCT NOVA.

Peer review papers

Research › Article

Donnan Dialysis for Recovering Ammonium from Fermentation Solutions Rich in Volatile Fatty Acids. / Barros, Kayo Santana; Carvalheira, Mónica; Marreiros, Bruno Costa et al.
In: Membranes, Vol. 13, No. 3, 347, 17.03.2023.
Research output: Contribution to journal › Article › peer-review

Pilot-scale valorisation of salmon peptone into polyhydroxyalkanoates by mixed microbial cultures under conditions of high ammonia concentration. / Marreiros, Bruno C.; Carvalheira, Mónica; Henriques, Cláudia et al.
In: Journal of Environmental Chemical Engineering, Vol. 11, No. 3, 110100, 06.2023.
Research output: Contribution to journal › Article › peer-review

Polyhydroxyalkanoates from industrial cheese whey: Production and characterization of polymers with differing hydroxyvalerate content. / Carvalheira, Mónica; Hilliou, Loic; Oliveira, Catarina S. S. et al.
In: Current Research in Biotechnology, Vol. 4, 01.2022, p. 211-220.
Research output: Contribution to journal › Article › peer-review

Valorization of Brewery Waste through Polyhydroxyalkanoates Production Supported by a Metabolic Specialized Microbiome. / Carvalheira, Mónica; Amorim, Catarina L.; Oliveira, Ana Catarina et al.
In: Life, Vol. 12, No. 9, 1347, 30.08.2022.
Research output: Contribution to journal › Article › peer-review

Development and Characterization of Electrospun Biopapers of Poly(3-hydroxybutyrate- co-3-hydroxyvalerate) Derived from Cheese Whey with Varying 3-Hydroxyvalerate Contents. / Melendez-Rodríguez, Beatriz; Reis, Maria A. M.; Carvalho, Mónica et al.

In: Biomacromolecules, Vol. 22, No. 7, 12.07.2021, p. 2935-2953.

Research output: Contribution to journal › Article › peer-review

A novel metabolic-ASM model for full-scale biological nutrient removal systems. / Santos, Jorge M. M.; Rieger, Leiv; Lanham, Ana B. et al.

In: Water Research, Vol. 171, 115373, 15.03.2020.

Research output: Contribution to journal › Article › peer-review

Two-stage anaerobic digestion system treating different seasonal fruit pulp wastes: Impact on biogas and hydrogen production and total energy recovery potential. / Mateus, Sara; Carvalho, Mónica; Cassidy, Joana et al.

In: Biomass and Bioenergy, Vol. 141, 105694, 10.2020.

Research output: Contribution to journal › Article › peer-review

Performance of a two-stage anaerobic digestion system treating fruit pulp waste: the impact of substrate shift and operational conditions. / Carvalho, Mónica; Cassidy, Joana; Ribeiro, João M. et al.

In: Waste Management, Vol. 78, 01.08.2018, p. 434-445.

Research output: Contribution to journal › Article › peer-review

Distinctive denitrifying capabilities lead to differences in N₂O production by denitrifying polyphosphate accumulating organisms and denitrifying glycogen accumulating organisms. / Ribera-Guardia, Anna; Marques, Ricardo; Arangio, Corrado et al.

In: Bioresource Technology, Vol. 219, 01.11.2016, p. 106-113.

Research output: Contribution to journal › Article › peer-review

The impact of aeration on the competition between polyphosphate accumulating organisms and glycogen accumulating organisms. / Carvalho, Mónica Isabel Gonçalves; Oehmen, Adrian; Carvalho, Gilda et al.

In: Water Research, Vol. 66, 01.12.2014, p. 296-307.

Research output: Contribution to journal › Article › peer-review

Monitoring intracellular polyphosphate accumulation in enhanced biological phosphorus removal systems by quantitative image analysis. / Mesquita, Daniela P.; Luis Amaral, A.; Leal, Cristiano et al.

In: Water Science and Technology, Vol. 69, No. 11, 2014, p. 2315-2323.

Research output: Contribution to journal › Article › peer-review

Survival strategies of polyphosphate accumulating organisms and glycogen accumulating organisms under conditions of low organic loading. / Carvalho, Mónica; Oehmen, Adrian; Carvalho, Gilda et al.

In: Bioresource Technology, Vol. 172, 20.09.2014, p. 290-296.

Research output: Contribution to journal › Article › peer-review

The effect of substrate competition on the metabolism of polyphosphate accumulating organisms (PAOs). / Carvalho, Mónica; Oehmen, Adrian; Carvalho, Gilda et al.

In: Water Research, Vol. 64, 01.11.2014, p. 149-159.

Research output: Contribution to journal › Article › peer-review

Determination of the extraction kinetics for the quantification of polyhydroxyalkanoate monomers in mixed microbial systems. / Lanham, Ana B.; Ricardo, Ana Rita; Albuquerque, Maria G. E. et al.

In: Process Biochemistry, Vol. 48, No. 11, 01.11.2013, p. 1626-1634.

Research output: Contribution to journal › Article › peer-review

Optimisation of glycogen quantification in mixed microbial cultures. / Lanham, Ana B.; Ricardo, Ana R.; Coma, Marta et al.

In: Bioresource Technology, Vol. 118, 01.08.2012, p. 518-525.

Research output: Contribution to journal › Article › peer-review

Ethylenediamine-N,N'-diglutamic acid (EDDG) as a promising biodegradable chelator: quantification, complexation and biodegradation. / Lanham, Ana B.; Carvalheira, Mónica; Rodrigues, Alexandre Mourão et al.
In: Journal of Environmental Science and Health - Part A Toxic/Hazardous Substances and Environmental Engineering, Vol. 46, No. 6, 01.01.2011, p. 553-559.
Research output: Contribution to journal › Article › peer-review

Effect of temperature on the dynamic and steady-shear rheology of a new microbial extracellular polysaccharide produced from glycerol byproduct. / Alves, Vítor ; Freitas, Filomena ; Costa, Nuno et al.
In: Carbohydrate Polymers, Vol. 79, No. 4, 17.03.2010, p. 981-988.
Research output: Contribution to journal › Article › peer-review

Production of a new exopolysaccharide (EPS) by Pseudomonas oleovorans NRRL B-14682 grown on glycerol. / Freitas, Filomena; Alves, Vítor D.; Pais, Joana et al.
In: Process Biochemistry, Vol. 45, No. 3, 03.2010, p. 297-305.
Research output: Contribution to journal › Article › peer-review

Emulsifying behaviour and rheological properties of the extracellular polysaccharide produced by Pseudomonas oleovorans grown on glycerol byproduct. / Freitas, Filomena ; Carvalheira, Mónica; Oliveira, Rui Manuel Freitas et al.
In: Carbohydrate Polymers, Vol. 78, No. 3, 01.01.2009, p. 549-556.
Research output: Contribution to journal › Article › peer-review

Book chapter

Acids (VFAs) and bioplastic (PHA) recovery

Carvalheira, M., Marreiros, B. C. & Reis, M. A. M., 2022, *Clean Energy and Resource Recovery: Wastewater Treatment Plants as Biorefineries, Volume 2*. Amsterdam: Elsevier, Vol. 2. p. 245-254 10 p.

From food waste to volatile fatty acids towards a circular economy

Carvalheira, M. & Duque, A. F., 29 Mar 2021, *Fermentation - Processes, Benefits and Risks*. Laranjo, M. (ed.). IntechOpen

Conference proceedings

Anaerobic digestion of leather pickling wastewater and leachate mixture: effect of salinity on reactor performance

Carvalheira, M., Oliveira, B., Sampaio, A. M., Cassidy, J., Oliveira, C. S. S. & Reis, M. A. M., 2019, *Book of Abstracts of the 3RD IWA Resource Recovery Conference 2019*. IWA, p. 391-392 2 p.

Poster presentation

Supervising

Activities

Anaerobic Nitrogen Removal: The start-up of an Anammox Reactor with pre-treated Real wastewater from the Anaerobic Digestion of municipal solid waste.

Mónica Isabel Gonçalves Carvalheira (Main Examiner)

2017

Activity: Examination

Tratamento de lamas oleosas e biodegradação de efluentes da Refinaria de Sines

Mónica Isabel Gonçalves Carvalheira (Main Examiner)

2019

Activity: Examination

COST-Action PURPLEGAIN (External organisation)

Mónica Isabel Gonçalves Carvalheira (Member)

2022 → ...

Activity: Membership › Membership of network/project

Environmental Biotechnology (EB) Division of the European Federation of Biotechnology (EFB) (External organisation)

Mónica Isabel Gonçalves Carvalheira (Member)

2020 → ...

Activity: Membership › Membership of network/project

Biopolymers production by microbial fermentation on Glycerol-rich Product

Maria Filomena Andrade de Freitas (Speaker), Vítor D. Alves (Speaker), Joana Oliveira Pais (Speaker), Nuno Costa (Speaker), Mónica Isabel Gonçalves Carvalheira (Speaker), Rui Manuel Freitas Oliveira (Speaker) & Maria D'ascensão Carvalho Fernandes Miranda Reis (Speaker)

2008

Activity: Talk or presentation › Oral presentation

Conversion of glycerol byproduct into value-added bacterial polysaccharide

Maria Filomena Andrade de Freitas (Speaker), Vítor D. Alves (Speaker), Cristiana Andreia Vieira Torres (Speaker), Mónica Isabel Gonçalves Carvalheira (Speaker), Nuno Costa (Speaker), Rui Manuel Freitas Oliveira (Speaker) & Maria D'ascensão Carvalho Fernandes Miranda Reis (Speaker)

2009

Activity: Talk or presentation › Oral presentation

Conversion of Glycerol-rich Product (GRP) into Biopolymers

Maria Filomena Andrade de Freitas (Speaker), Joana Oliveira Pais (Speaker), Vítor D. Alves (Speaker), Mónica Isabel Gonçalves Carvalheira (Speaker), Nuno Costa (Speaker), Rui Manuel Freitas Oliveira (Speaker) & Maria D'ascensão Carvalho Fernandes Miranda Reis (Speaker)

2008

Activity: Talk or presentation › Oral presentation

Do dGAOs produce more N₂O than dPAOs?

Anna Ribera-Guardia (Speaker), Ricardo Marques (Speaker), C. Arangio (Speaker), Mónica Isabel Gonçalves Carvalheira (Speaker), Adrian Michael Oehmen (Speaker) & Maite Pijuan (Speaker)

2016

Activity: Talk or presentation › Oral presentation

From beer to biopolymers

Cristina Silva (Speaker), Eliana da Costa Guarda (Speaker), Margarida Ribau Teixeira (Speaker), Mónica Isabel Gonçalves Carvalheira (Speaker), Ana Catarina Martins de Oliveira (Speaker), Elisabete de Figueiredo Quintas Borges de Freitas (Speaker), Cláudia Filipa Reis Galinha Loureiro (Speaker), Anouk Ferreira de Freitas Baptista Duque (Speaker) & Maria D'ascensão Carvalho Fernandes Miranda Reis (Speaker)

2021

Activity: Talk or presentation › Oral presentation

New microbial galactose-rich polysaccharide produced from glycerol: properties and applications

Vítor D. Alves (Speaker), Maria Filomena Andrade de Freitas (Speaker), Loïc Hugues Gilles Hilliou (Speaker), Joana Oliveira Pais (Speaker), Nuno Costa (Speaker), Mónica Isabel Gonçalves Carvalheira (Speaker), Isabel Maria Rola Coelho (Speaker), Rui Manuel Freitas Oliveira (Speaker) & Maria D'ascensão Carvalho Fernandes Miranda Reis (Speaker)

2008

Activity: Talk or presentation › Oral presentation

New value-added bacterial extracellular polysaccharide produced from glycerol byproduct

Maria Filomena Andrade de Freitas (Speaker), Vítor D. Alves (Speaker), Cristiana Andreia Vieira Torres (Speaker), Mónica Isabel Gonçalves Carvalheira (Speaker), Nuno Costa (Speaker), Rui Manuel Freitas Oliveira (Speaker) & Maria D'ascensão Carvalho Fernandes Miranda Reis (Speaker)

2009

Activity: Talk or presentation › Oral presentation

Novel method to quantify intracellular accumulation of polyphosphate in EBPR systems

Daniela P. Mesquita (Speaker), A. Luis Amaral (Speaker), Cristiano Leal (Speaker), Mónica Isabel Gonçalves Carvalheira (Speaker), J. R. Cunha (Speaker), Adrian Michael Oehmen (Speaker), Maria D'ascensão Carvalho Fernandes Miranda Reis (Speaker) & Eugénio C. Ferreira (Speaker)

2013

Activity: Talk or presentation › Oral presentation

PAO-GAO competition: the effect of dissolved oxygen concentration

Mónica Isabel Gonçalves Carvalheira (Speaker), Adrian Michael Oehmen (Speaker), Gilda de Sousa Carvalho Oehmen (Speaker) & Maria D'ascensão Carvalho Fernandes Miranda Reis (Speaker)

2013

Activity: Talk or presentation › Oral presentation

Pilot scale production of polyhydroxyalkanoates using mixed microbial cultures and cheese whey

Mónica Isabel Gonçalves Carvalheira (Speaker), Catarina Oliveira (Speaker), Eliana da Costa Guarda (Speaker), Nuno Marques (Speaker), Daniela Fortio Pequito (Speaker), David Lopes (Speaker) & Maria D'ascensão Carvalho Fernandes Miranda Reis (Speaker)

2019

Activity: Talk or presentation › Oral presentation

Polyhydroxyalkanoates production from brewery waste

Mónica Isabel Gonçalves Carvalheira (Speaker), Ana Catarina Martins de Oliveira (Speaker), Eliana da Costa Guarda (Speaker), Anouk Ferreira de Feitas Baptista Duque (Speaker) & Maria D'ascensão Carvalho Fernandes Miranda Reis (Speaker)

2021

Activity: Talk or presentation › Oral presentation

Production of biopolymers by Pseudomonas Strain grown on Glycerol-rich Product

Maria Filomena Andrade de Freitas (Speaker), Joana Oliveira Pais (Speaker), Vítor D. Alves (Speaker), Nuno Costa (Speaker), Mónica Isabel Gonçalves Carvalheira (Speaker), Rui Manuel Freitas Oliveira (Speaker) & Maria D'ascensão Carvalho Fernandes Miranda Reis (Speaker)

2008

Activity: Talk or presentation › Oral presentation

Production of Value-Added Bacterial Polysaccharides from Glycerol Byproduct from the Biodiesel Industry

Maria Filomena Andrade de Freitas (Speaker), Vítor D. Alves (Speaker), Cristiana Andreia Vieira Torres (Speaker), Mónica Isabel Gonçalves Carvalheira (Speaker), Nuno Costa (Speaker), Rui Manuel Freitas Oliveira (Speaker) & Maria D'ascensão Carvalho Fernandes Miranda Reis (Speaker)

2009

Activity: Talk or presentation › Oral presentation

The Impact Of Dissolved Oxygen Concentration On The PAO-GAO Competition

Mónica Isabel Gonçalves Carvalheira (Speaker), Adrian Michael Oehmen (Speaker), Gilda de Sousa Carvalho Oehmen (Speaker) & Maria D'ascensão Carvalho Fernandes Miranda Reis (Speaker)

2014

Activity: Talk or presentation › Oral presentation

Valorization of brewery waste through polyhydroxyalkanoates production

Mónica Isabel Gonçalves Carvalheira (Speaker), Ana Catarina Martins de Oliveira (Speaker), Eliana da Costa Guarda (Speaker), Anouk Ferreira de Feitas Baptista Duque (Speaker) & Maria D'ascensão Carvalho Fernandes Miranda Reis (Speaker)

2021

Activity: Talk or presentation › Oral presentation

High saline anaerobic digestion

Mónica Isabel Gonçalves Carvalheira (Invited speaker)

2019

Activity: Talk or presentation › Invited talk

Encontro com a Ciência e Tecnologia em Portugal

Mónica Isabel Gonçalves Carvalheira (Participant)

2017 → ...

Activity: Participating in or organising an event › Participation in workshop, seminar, course

EXPO-FCT

Mónica Isabel Gonçalves Carvalheira (Participant)

2010 → ...

Activity: Participating in or organising an event › Participation in workshop, seminar, course

International Nitrogen Cycle Workshop

Mónica Isabel Gonçalves Carvalheira (Participant)

2018

Activity: Participating in or organising an event › Participation in workshop, seminar, course

Microbial ecology in wastewater treatment

Mónica Isabel Gonçalves Carvalheira (Participant)

2010

Activity: Participating in or organising an event › Participation in workshop, seminar, course

Noite Europeia dos Investigadores: Ciência na Cidade

Mónica Isabel Gonçalves Carvalheira (Participant)

2019 → ...

Activity: Participating in or organising an event › Participation in workshop, seminar, course

NOVEDAR Summerschool "Innovative technologies for urban wastewater treatment plants"

Mónica Isabel Gonçalves Carvalheira (Participant)

2010

Activity: Participating in or organising an event › Participation in workshop, seminar, course

Paper Writing Course

Mónica Isabel Gonçalves Carvalheira (Participant)

2016

Activity: Participating in or organising an event › Participation in workshop, seminar, course

Programa "Cientificamente Provável"

Mónica Isabel Gonçalves Carvalheira (Invited speaker)

2021

Activity: Participating in or organising an event › Participation in workshop, seminar, course

Research skills development course - Nova Doctoral School

Mónica Isabel Gonçalves Carvalheira (Participant)

2013

Activity: Participating in or organising an event › Participation in workshop, seminar, course

Chemical Engineering Journal (Journal)

Mónica Isabel Gonçalves Carvalheira (Peer reviewer)

2015 → ...

Activity: Publication peer-review and editorial work › Publication peer-review

International Biodeterioration & Biodegradation (Journal)

Mónica Isabel Gonçalves Carvalheira (Peer reviewer)

2015 → ...

Activity: Publication peer-review and editorial work › Publication peer-review

Journal of Water and Environment Technology (Journal)

Mónica Isabel Gonçalves Carvalheira (Peer reviewer)

2016 → ...

Activity: [Publication peer-review and editorial work](#) › [Publication peer-review](#)

Water Research (Journal)

Mónica Isabel Gonçalves Carvalheira (Peer reviewer)

2019 → ...

Activity: [Publication peer-review and editorial work](#) › [Publication peer-review](#)

Water Science and Technology (Journal)

Mónica Isabel Gonçalves Carvalheira (Peer reviewer)

2014 → ...

Activity: [Publication peer-review and editorial work](#) › [Publication peer-review](#)

Water (Switzerland) (Journal)

Mónica Isabel Gonçalves Carvalheira (Peer reviewer)

2016 → ...

Activity: [Publication peer-review and editorial work](#) › [Publication peer-review](#)