

Curriculum Vitae for  
**Nilmara Braz Dias, Ph.D.**

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## **1. EDUCATIONAL BACKGROUND**

2016	Ph.D. in Environmental Engineering	University of Lisbon- Instituto Superior Técnico, Lisbon, Portugal
2012	M.S. in Environmental Engineering (integrated)	University of Lisbon- Instituto Superior Técnico, Lisbon, Portugal
2003	MBA in Environmental Management System	Catholic University of Parana, Brazil
1999	B.S. in Chemical Engineering	Catholic University of Parana, Brazil

## **2. EMPLOYMENT HISTORY**

8/2024 -	Florida Southern College – Chemistry Instructor – Full time
8/2024 – Today	Valencia College – Chemistry professor – Part-time
6/2024- 7/2024	Valencia College – Chemistry professor – Summer course
9/2023 – 7/2024	OCPS – Science – Chemistry teacher – Dr. Philips High School. Orlando-EUA
10/2018 – 09/2023	Invited adjunct Professor, Department of chemical and biological engineering, Polytechnical Institute of Setubal (IPS), Portugal
06/2016 – 09/2018	Poliversal, Account Manager, Technical support, R&D, Aveiras de Cima, Portugal
10/2012 – 05/2016	Doctoral Research Fellow of Center of Natural Resources and Environment, Instituto Superior Tecnico – University of Lisbon, Lisbon- Portugal
9/2009 – 10/2012	Master Research in the Center of Natural Resources and environment, Instituto Superior Tecnico - University of Lisbon, Lisbon - Portugal
06/2003 – 06/2009	Environmental Engineer Consultant - Self employer
05/2002 – 05/2003	Environment Engineer consultant- Andrade Engenharia/ EnvLab – Curitiba-Pr- Brasil

## **3. HONORS AND AWARDS**

- Marcelino Champagnat award- Best academic perform during 5 years of the chemical engineering course, 1999.
- Sociedade Ponto Verde- Portugal (Green dot company): 2012-2014 Funded the project I worked on since my master's degree.
- CERENA – University of Lisbon (STRATEGIC PROJECT - UI 4028 - 2011-2012) – Project Grant
- ProteAlgaFeed - Researcher -Escola Superior de Tecnologia do Barreiro do Instituto Politécnico de Setúbal. Set 2019 - Dec. 2021- Protealgafeed.

#### 4. TEACHING AND EDUCATION

##### List of Course Taught

Course Title		Formats taught	UG/G	/Semester	No. # Students
General Chemistry	High School	Face-to-face			185
General chemistry		Face-to-face		Summer course	7
Organic chemistry	BIOT081/ BINF012/ TPD012	Face-to-face	UG	Spring 2019	110
	BIOT081	Online *	UG	Spring 2020	66
	BIOT081	Face-to-face	UG	Spring 2021	65
	BINF012	Face-to-face	UG	Spring 2022	32
General Chemistry	BINF006/ BIOT148/ TPD005	Face-to-face	UG	Fall 2018	106
		Online *	UG	Fall 2019	137
		Face-to-face	UG	Fall 2020	161
		Face-to-face	UG	Fall 2021	142
		Face-to-face	UG	Fall 2022	152
Transfer Phenomena II	BIOT088/ TPD021	Face-to-face	UG	Spring 2019	68
		Online*	UG	Spring 2020	82
		Face-to-face	UG	Spring 2021	98
		Face-to-face	UG	Spring 2022	103
		Face-to-face	UG	Spring 2023	91
Petroleum Technology Laboratory I	TPD018	Face-to-face	UG	Spring 2018	9
Petroleum Technology Laboratory II	TPD026	Face-to-face	UG	Spring 2021	15
		Face-to-face	UG	Spring 2022	19
		Face-to-face	UG	Spring 2023	06
Petroleum Technology Laboratory III	TPD035	Face-to-face	UG	Fall 2019	06
		Online*	UG	Fall 2020	15
		Face-to-face	UG	Fall 2021	14
		Face-to-face	UG	Fall 2022	13
Biofuel	TPD030	Face-to-face	UG	Fall 2019	06
	TPD035	Online*	UG	Fall 2020	15
	TPD035	Face-to-face	UG	Fall 2021	17
	TPD035	Face-to-face	UG	Fall 2022	12
Bioethanol		Face-to-face	**	Fall 2019	6
		Face-to-face		Fall 2021	6
		Face-to-face		Fall 2022	7

- \* Due to covid
- \*\* Research Experiences for senior students (from high school): Collaborative Multidisciplinary Engineering – Production of ethanol from waste for senior students (young researchers).
- → BIOT – Biotechnology course
- → YPD- Petroleum Technology
- → BINF - Bioinformatic

## List of graduate and MS students directed and in progress.

### MS Students (Thesis): graduated (6)

- Tiago Miguel da Costa Novais Jerónimo Quality Control of primary packaging in the pharmaceutical industry. . Polytechnic Institute of Setubal- Portugal and Hikma industry
- Joao Dias -September 2021-December 2023 Sustainable Silver Recovery from Electric and Electronic Waste Using Alternative Lixivants: Thiosulfate and Thiourea. Polytechnic Institute of Setubal- Portugal
- Kateryna Cherevko Determination of molecular mass average of acrylonitrile copolymers by capillary viscosimeter. 2019-2021- SGL Composite Portugal and Polytechnic Institute of Setubal - Portugal
- Ângela Leonardo Máximo-Potential for recovering the glass contained in the MBT heavy reject – 2011-2013- RecGlass project- University of Lisbon- CERENA- Portugal
- Nuno Miguel Afonso Carvalho – recovery of glass contained in the MBT heavy reject, 2011-2013 - RecGlass project- University of Lisbon- CERENA- Portugal
- Maria Margarida Machado Neves Leite Martins – Optimization of recovery of glass contained in the MBT heavy reject, 2012-2014 RecGlass project- University of Lisbon- CERENA- Portugal

### Undergraduate Students (thesis)

- Tiago Alexandre - Quantification of trace metals in tissues of marine organisms. Polytechnic Institute of Setubal and Portuguese Institute of the Sea and Atmosphere (IPMA)- Portugal. Aug 2020
- Miguel Santos - Quantification of trace metals in tissues of marine organisms. Polytechnic Institute of Setubal and Portuguese Institute of the Sea and Atmosphere (IPMA)- Portugal. Oct 2020
- Sofia Quendera - Spatial variation of nutrients along the Portuguese coast- Polytechnic Institute of Setubal and Portuguese Institute of the Sea and Atmosphere (IPMA)- Portugal. Oct 2020
- Inês Rute Torres Serrano Fernandes Alves - Qualification and requalification of equipment at IBERFAR, pharmaceutical industry s.a. Polytechnic Institute of Setubal and IBERFAR- Portugal. Jun 2020
- Sara Pinto - Conversion of waste from wineries into biomass for microalgae culture- ProteAlgaFeed- Polytechnic Institute of Setubal (IPS)- Portugal. Aug 2020
- Zuelma Florinda de Barros António - Study of the viscosity of mixtures of compounds in the petrochemical industry. Polytechnic Institute of Setubal and SGL composites, S.A – Portugal Aug. 2021
- Beatriz Jerónimo Rodrigues - Bioactive Lipids in Functional Yoghurts Enriched with
- microalgae *Skeletonema* sp. Polytechnic Institute of Setubal and Portuguese Institute of the Sea and Atmosphere (IPMA)- Portugal. Feb 2021
- Miguel Barbosa Louro dos Santos- Nitrous oxide reductase, an enzyme with mitigating potential in N<sub>2</sub>O emissions. Polytechnic Institute of Setubal and FCT- Feb 2021
- Carlos Teixeira - Optimization of the syrup preparation process for the production of carbon fiber precursor (pfc) and development and validation of the analysis method of
- fused filaments- Polytechnic Institute of Setubal and SGL composites, S.A.- Portugal- Sep- 2021
- Amarildo dos Santos - Sizing and design of an atmospheric tank with an internal floating roof for gasoline storage. Polytechnic Institute of Setubal and Projecto Detalhe (engineering company) – Portugal – Sep.2021.
- Elizandra Dalva Júlio Kandiangó - Sizing of a heat exchanger in an oil refinery. Polytechnic Institute of Setubal and *Projecto Detalhe* (engineering company) – Portugal – Oct. .2021.
- Julieta de Oliveira Panzo - Pumping systems - selection of a centrifugal pump for transferring the heavy fraction of petroleum from the fractional distillation tower at atmospheric pressure to the vacuum distillation tower. Polytechnic Institute of Setubal and *Projecto Detalhe* (engineering company) – Portugal – Oct. .2021.
- Núria Rossana Emílio Venâncio - Reduction of sulfur contained in cooking oils used for biodiesel production. Polytechnic Institute of Setubal and Prio. Dec. 2022

- Sorana Daniela Viriato Rodrigues- Characterization of edible oils and fats to produce biodiesel in Carmona. Polytechnic Institute of Setubal and CARMONA. Nov.2022
- Lúcia Miguel - Determination of oxygen, BOD and COD in coastal waters. Polytechnic Institute of Setubal and Portuguese Institute of the Sea and Atmosphere (IPMA)- Portugal. Nov 2022
- Jaime Olivares Miron - Estudio de la influencia del peróxido alcalino como pre- tratamiento químico en la hidrólisis enzimática para la optimización de la producción de bioetanol. Polytechnic Institute of Setubal and Universidad Politécnica de Madrid – Madrid- 2023
- Lara De Rajani - Treatment of lignocellulosic biomass for ethanol production- Polytechnic Institute of Setubal (IPS) and STEX®. Since 2022(in progress)
- Vitor Jorge Arsenio Estevão - Potential for valorizing effluents from the dairy industry in the production of bioethanol - Polytechnic Institute of Setubal (IPS) and STEX®. December 2023

## 5. Language

- Portuguese - fluent
- Spanish - fluent
- English - fluent

## 6. RESEARCH

### Research Areas of Specialty & Interests

- Waste management, technology in waste treatment, recycling - Main researcher in the project of recovery of packaging from heavy residual fraction refused by MBT facilities. Funder: Green Dot Company (
- Reduction of sulfur content from waste feedstock for biodiesel production
- Waste to energy – Ethanol production form lignocelulósica biomass
- Agro-industrial waste as nutrients source to microalgae grown.
- BOD and DO in coastal water.

### List of Publications

#### MAIN SCIENTIFIC PAPERS AND BOOK CHAPTER

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- Tudella, Joana., Dias, Nilmara B., Santos, Carla A. Agro-industrial wastes as nutrients for sustainable microalgae cultivation. Wastes: Solutions, treatments, and opportunities IV – Vilarinho, Castro & Quina (eds) 2024. The Authors. ISBN 978-1-032-38441-2.
- N. B. Dias, F. N. Serralha, W. H. Lee, N. E. Venâncio, F. S. Pereira. Relevance of sulfur content from waste feedstock for biodiesel production. Wastes: Solutions, treatments, and opportunities IV – Vilarinho, Castro & Quina (eds) 2024. The Authors. ISBN 978-1-032-38441-2. DOI: 10.12019781003345084-37
- Serralha, Fátima; Dias, Nilmara; Duarte, R.G, Borges, R.; Chapter 2 Contribution of sustainable fuels for the future of the energy sector. Handbook of Research on Solving Societal Challenges Through Sustainability-Oriented Innovation. DOI: 10.4018/978-1-6684-6123-5 / ISBN13: 9781668461235 / ISBN10: 1668461234 / EISBN13: 9781668461259. March, 2023.
- Serralha, Fátima; Dias, Nilmara; Duarte, R.G, Borges, R.; Chapter 2 Contribution of sustainable fuels for the future of the energy sector. Handbook of Research on Solving Societal Challenges Through Sustainability-Oriented Innovation. DOI: 10.4018/978-1-6684-6123-5 / ISBN13: 9781668461235 / ISBN10: 1668461234 / EISBN13: 9781668461259. March, 2023.
- Dias, Nilmara & Vieceli, Nathalia. Dezembro de 2018. Mechanical Biological Treatment. In Jacobos-Lopes, E.; et al. Waste-To-Energy (WTE). Renewable Energy: Research, Development and Policies. Nova Science Publisher. Chapter 11. ISBN: 978-1-53614-431-4
- Dias, N., Carvalho, M.T.,Pina, Pedro. 2012. Characterization of Mechanical Biological Treatment Reject Aiming at Packaging Glass Recovery for Recycling. London, Minerals Engineering, 2012. Volume 29. P.72-76.

- Dias, N., Máximo, A., Belo, N. & Carvalho, M. T., 2014. Packaging glass contained in the heavy residual fraction refused by Portuguese Mechanical and Biological Treatment. Recycling, Resource and Conservation, 85. P.98-105. Volume 85
- Dias, N., Belo, N., Máximo, A., Carvalho, M.T.,2014. Recovery of Glass Contained In The Heavy Residual Fraction Of Portuguese Mechanical Biological Treatment Plants. Journal of Cleaner Production. Volume 79. P271-275.
- Carvalho,M.T.; Dias, N.; Brogueira, P.,2015. Separation by particle shape – the RecGlass device. International Journal of Mineral Processing. Volume 140, Pages 1-7.
- Carvalho,M.T.; Dias, N.; Brogueira, P.,2015. Separation by particle shape – the RecGlass device. International Journal of Mineral Processing. Volume 140, Pages 1-7.
- Dias, N; Garrinhas, I., Máximo, A., Belo, N., Carvalho, M.T., Roque, P., 2015. Recovery of glass from the inert fraction refused by MBT plants in a pilot plant. Waste Management. Volume 46, Pages 201-211.

#### MAIN PROCEEDING PAPERS AND PRESENTATION

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- Santos, Carla A., Sousa, Ana Cláudia, Gomes, Ana Gabriela, Tudella, Joana, Serralha, Fatima, Osorio, Natalia., Dias, Nilmara, Justino, Marta, Santos, Sónia. Closing the loop: microalgae-based solutions for agro-industrial waste in Setúbal. 1<sup>st</sup> International Conferences on Resilience and Sustainable Regions-Portugal- November, 2023.
- Dias, Nilmara, Carvalho, Teresa, Reis, Alexandre L, Serralha, M. Fatima. Mini-rproject of Ethanol Production from Waste as Teaching Methodology- E-book CNaPPES 2022 - 8<sup>o</sup> Congresso Nacional de Práticas Pedagógicas no Ensino Superior (CNaPPES.22 - 8th National Congress of Pedagogical Practices in Higher Education) - Portugal, 2022
- Jardim, H., Dias, N., Carvalho, M.T., 2016. The sanitary landfill of the xxi century in Portugal. The streams produced by municipal incineration and mechanical and biological treatment. Third International Symposium on Enhanced Landfill Mining (ELFM III). Portugal
- Dias, N., Garrinhas, I. Carvalho, M.T., 2015. Optimization of optical sorting to recover glass from the heavy residual fraction refused by MBT plants fed with mixed waste'. ISWA. Poster. Antwerp, Belgium
- Dias, N. & Carvalho, M.T.,2015 Recovery of packaging Glass refused by Mechanical Biological Treatment Plants – Case Study. São Paulo, Brazil. Pages:164-174. III Progress of Recycling in the built environment. e-ISBN: 978-2-35158-158-2
- Martins, M.M, Dias, N., Carvalho, M.T. Application of the shaking table to separates stones from glass cullet in the fine heavy reject of the Mechanical and Biological Treatment of MSW. XXVII International Mineral Processing Congress, Santiago, Chile. October, 2014.
- S. Landim, F. Durão, A. Máximo, N. Dias, C. Ulsen, M.T. Carvalho.,2014 Recovery of glass from MBT heavy rejects - optimization of the gravity concentration flowsheet. Symposium on Urban Mining. SUM 2014. Bergamo Italy.
- Dias,N., Carvalho, M.T., Limons, R., 2013. Challenges in the deactivation of more than 2000 open dumping sites in Brazil.14 th international waste management and landfill symposium. Sardinia.
- Dias, N., Máximo, A., Belo, N., Carvalho, M.T.,2013. Recuperação de vidro proveniente de uma linha de refugo do TMB. In: Proceedings of 8<sup>a</sup> jornadas técnicas internacionais de resíduos. Lisboa- Portugal; p. 91-94.
- Carvalho, T., Dias, N., Belo, N., Máximo, A., Landim, S., Pina, P., Sousa, J., 2013. Recovery of Glass from MBT Residue by Gravity Concentration: Effect of Up Stream Processing in Particle Shape. In: Proceedings of The 28th International Conference on Solid Waste Technology and Management, Washignton, USA.
- Dias, N., Máximo, A., Belo, N., Carvalho, M.T.,2012. Potential for recovery of packaging glass from the heavy residual fraction refused by Portuguese MBT plants. In: Proceedings of First International

EIMpack Congress, Lisbon-Pt.

- Dias, N. & Carvalho, M. T., 2012. Novel equipment to separate contaminants from glass cullet. In: Proceedings of XIII International Mineral Processing Symposium, Bodrum, Turkey. Department of Mining Engineering, Osmangazi University; p. 931–937.
- Dias, N. & Carvalho, M. T., Recovery of packaging glass from Mechanical Biological Treatment reject, Fray international Symposium 2011, Cancun.

#### Volunteer

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Engineers for a week -ALFREDO DA SILVA HIGH SCHOOL -

- 2020-21 – Working in a project with students from- Alfredo da Silva High School (ages 14-17) Project\_ Ethanol production from banana peel and ethanol content in gasoline. Jun 2021
- 2021-22 Working in a project with students from- Alfredo da Silva High School (ages 14-17) “Ethanol production from orange peel” at the Barreiro Academic Fair, an event promoted by the Barreiro City Council, June 2022.
- 2022-23 Working in a project with students from- Alfredo da Silva High School (ages 14-17) “Ethanol production from eucalyptus residue” at the Barreiro Academic Fair, an event promoted by the Barreiro City Council, June 2023

#### Honours and awards

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- Merit Award Marcellin Champagnat - Award received at the end of the chemical engineering course due to the best academic performance during the five years of the course. Pontifical Catholic University of Paraná - 2000.

#### Funded projects

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- Strategic Project-UID/ECI/04028/2013. Valnor Project – Project on the recovery of glass contained in a waste line at Valnor's biological mechanical treatment facility. Financier: Sociedade Ponto Verde: 2011/2012. Institution: IST CERENA research center.
- RecGlass- Project on the recovery of glass contained in a waste line at 6 mechanical biological treatment facilities in mainland Portugal. Financier: Sociedade Ponto Verde: 2011/2012. Institution: IST CERENA research center. Project partners. Valnor; tractlixo and Vidrociclo.
- Project - Algafeed. Biotechnological process for producing microalgae in a reactor, with a view to obtaining protein for animal feed. Investigator. Start: July 2020. Project Funded by Polytechnic Institute of Setubal- Portugal.
- Project - ARSUS - Assessment of the pozzolanicity of bottom ash from biomass burning plants in fluidized beds. Project funded by Polytechnic Institute of Setubal- Portugal. Since 2023
- Evaluation of Oxygen Dissolved in marine waters of the Portuguese coast – Project funded by IPMA (Institute of the Sea and the Atmosphere) – Portugal. Since 2022

#### Skills

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- Organization and verbal Communication
- Teaching
- Analytical/Problem Solving
- Data analysis
- Analytical/Problem Solving
- Strong grasp in process engineering principles (Mass & Energy Balances, Fluid Dynamics, Transport Phenomena, Process Control)