



- University of Porto (LSRE), Portugal, Visiting Researcher, May-June/1995
- University of Porto (LSRE), Portugal, Visiting Researcher, June-July/1996
- University of Porto (LSRE), Portugal, Visiting Researcher, September/1997
- University of Porto (LSRE), Portugal, Visiting Researcher, June/1998
- University of Porto (LSRE), Portugal, Visiting Researcher, May-June/1999
- University of Porto (LSRE), Portugal, Visiting Researcher, June-July/2000
- University of Porto (LSRE), Portugal, Visiting Researcher, September/2001
- University of Porto (LSRE), Portugal, Visiting Researcher, September/2002

### **PROFESSIONAL SOCIETIES AND ACTIVITIES**

- Angolan Institution of Engineers (member)
- Angolan Institution of Engineers, 1<sup>st</sup> President of the Chemical Engineering Branch, 1993/2000
- South African Institution of Chemical Engineers, SAIChE (member)
- Institution of Chemical Engineers, IChemE (member)
- International Adsorption Society, IAS (member)
- Reviewer of manuscripts for: Adsorption Journal, Journal of Hazardous Materials, Chemical Engineering Journal, Journal of Environmental Monitoring and Assessment, Journal of Environmental Science and Pollution Research

### **TRAINING IN INDUSTRY**

- Fina Petroleum Refinery, Luanda, 1979

### **ATTENDANCE AT SCIENTIFIC EVENTS**

- NATO ASI "Multiphase Chemical Reactors", Portugal, 1980
- NATO ASI "Catalyst Deactivation", Portugal, 1981
- NATO ASI "Mass Transfer and Kinetics of Ion Exchange", Italy, 1982
- NATO ASI "Chemical Reactor Design and Technology", Canada, 1985
- NATO ASI "Ion Exchange: Science and Technology", Portugal, 1985
- NATO ASI "Adsorption: Science and Technology", Portugal, 1988
- CHEMPOR'89, Portugal, 1989

- ISCRE 11, Canada, 1990
- ACHEMA 91, Germany, 1991
- World Congress IV of Chemical Engineering "Strategies 2000", Germany, 1991
- 4<sup>th</sup> International Conference on Fundamentals of Adsorption, Japan, 1992
- CHEMPOR'93, Portugal, 1993
- 1<sup>st</sup> International Conference of the SAIChE, South Africa, 1994
- 5<sup>th</sup> International Conference on Fundamentals of Adsorption, USA, 1995
- 11<sup>o</sup> COBEQ, Brazil, 1996
- 8<sup>th</sup> National Meeting of the SAIChE, SAIChE'97, South Africa, 1997
- 6<sup>th</sup> International Conference on Fundamentals of Adsorption, France, 1998
- 1<sup>st</sup> Congress on Aromatic and Medicinal Plants of PALOP, Portugal, 1999
- CHEMPOR 2001, Portugal, 2001
- 5<sup>th</sup> Brazilian Meeting of Adsorption, EBA5, Natal, Brazil, 2004
- Meeting "Science 2009", Fundação para a Ciência e Tecnologia, Portugal, 2009
- 1<sup>st</sup> National Conference on Science and Technology, Luanda, Angola, 2009
- 2<sup>nd</sup> National Conference on Science and Technology, Luanda, Angola, 2011
- 1<sup>st</sup> National Conference on Environmental Sanitation, Luanda, Angola, 2011
- 1<sup>st</sup> International Congress on Solid Wastes of ISWA/APESB in Africa, Lobito, Angola, 2012
- 2<sup>nd</sup> Latin American Conference on Sustainable Sanitation, II ECOSANLAC, Espírito Santo, Brazil, 2012
- 3<sup>rd</sup> National Conference on Science and Technology, Luanda, Angola, 2013
- 2<sup>nd</sup> International Congress on Solid Wastes of ISWA/APESB in Africa "*Africa Sustainable Waste Management*", Luanda, Angola, 2014
- 12<sup>th</sup> International Conference on Chemical and Biological Engineering CHEMPOR 2014, Porto, Portugal, 2014
- World Congress of Water "*Shaping our Water Future*", International Water Association (IWA), Lisboa, Portugal, 2014
- XX Brazilian Congress of Chemical Engineering, COBEQ 2014, Brazil, 2014
- 4<sup>th</sup> National Conference on Science and Technology, Luanda, Angola, 2015
- 3<sup>rd</sup> International Conference on Energy and Environmental Research "*ICEER*

2016", Barcelona, Spain, 2016

- 1<sup>st</sup> Engineering and Architecture Conference "CEAFE2016", Faculty of Engineering, Agostinho Neto University, Luanda, Angola, 2016
- 5<sup>th</sup> National Conference on Science and Technology, Luanda, Angola, 2017
- 4<sup>th</sup> International Conference on Energy and Environmental Research "ICEER 2017", Porto, Portugal, 2017
- Scientific Conference "CCUAN2017", Agostinho Neto University, Luanda, Angola, 2017
- 2<sup>nd</sup> Engineering and Architecture Conference "CEAFE2018", Faculty of Engineering, Agostinho Neto University, Luanda, Angola, 2018
- 6<sup>th</sup> International Conference on Energy and Environmental Research "ICEER 2019", Aveiro, Portugal, 2019
- 5<sup>th</sup> International Conference on Wastes: Solutions, Treatments and Opportunities "WASTES 2019", Lisboa, Portugal, 2019

## **SPONSORED RESEARCH**

- Sonangol, Cabinda Gulf Oil Company and Gulbenkian Foundation, "Dye Adsorption from Aqueous Solution onto Activated Carbon", Agostinho Neto University, Angola, 1988/93.
- Sonangol and Cabinda Gulf Oil Company, "Catalytic and Adsorptive Processes Using Large-Pore Materials", Agostinho Neto University, Angola, 1993/94.
- Sonangol and Gulbenkian Foundation, "Studies on the Hydrodynamic Behaviour of a Laboratory Stirred Tank Reactor", Agostinho Neto University, Angola, 1994/98.
- Angolan Ministry of Petroleum and Gulbenkian Foundation, "Design of Biofilm Reactors", Agostinho Neto University, Angola, 1995/98.
- Angolan Ministry of Petroleum and Sonangol, "Modeling and Simulation of Chromatographic Processes Using Permeable Packings", Agostinho Neto University, Angola, 1998/02.

## UNIVERSITY SERVICE

- Head of the Chemical Engineering Department, Agostinho Neto University, 1981/84.
- Deputy Directress of the Faculty of Engineering, Agostinho Neto University, October 1989/March 2002.
- Deputy Rectress of the Agostinho Neto University, May 1997/January 2002.
- National Coordinator of the UNESCO CHAIR on Chemical and Environmental Engineering, April 1997/April 2016.
- Coordinator of the Research Laboratory on Separation, Chemical Reaction and Environmental Engineering (LESRA), Agostinho Neto University, August 1998/January 2011.
- Deputy Dean of the Faculty of Engineering, Agostinho Neto University, August 2010/.. .
- Directress of the Research Laboratory on Separation, Chemical Reaction and Environmental Engineering (LESRA), Agostinho Neto University, January 2011/.. .
- Coordinator of the 1<sup>st</sup> edition of the PhD course on Chemical Engineering, Agostinho Neto University, March 2002/November 2012.
- Coordinator of the 1<sup>st</sup> edition of the MSc course on Environmental Engineering, Agostinho Neto University, July 2007/February 2011.
- Local Coordinator of the project “Appropriate Technological Solutions for the Treatment of Waste Waters in Brazil and Angola”, Federal University of Espírito Santo and Agostinho Neto University, Brazilian PROAFRICA Programme, December 2008/December 2009.
- Coordinator of the 2<sup>nd</sup> edition of the MSc course on Environmental Engineering, Agostinho Neto University, February 2013/November 2015.
- Coordinator of the 1<sup>st</sup> edition of the PhD course on Environmental Engineering, Agostinho Neto University, January 2013/.. .
- Coordinator of the 3<sup>rd</sup> edition of the MSc course on Environmental Engineering, Agostinho Neto University, March 2018/.. .
- Courses taught at the Faculty of Engineering, Agostinho Neto University:
  - Undergraduate Course on Chemical Engineering:

Fundamental Chemistry  
Organic Chemistry  
Linear Algebra  
Physical Chemistry  
Transport Phenomena  
Introduction to Chemical Engineering  
Chemical Reaction Engineering  
Plant Design and Economics for Chemical Engineers  
Design/Research  
MSc Course on Environmental Engineering:  
Water and Wastewater Quality  
Treatment of Water and Wastewaters

## ORGANIZATION OF ADVANCED COURSES

- “*Adsorptive Processes: Fundamentals, Design and Operation*”, Agostinho Neto University, 22-30 April 1997.
- “*Environmental Chemical Engineering*”, Agostinho Neto University, 17-26 November 1997.
- “*Simulation of Petroleum Reservoirs*”, Agostinho Neto University, 2-11 March 1999.
- “*Environmental Biotechnology*”, Agostinho Neto University, 1-10 October 2001.
- “*Chemical Engineering*”, 1<sup>st</sup> edition PhD course, Agostinho Neto University, 2002/12.
- “*Environmental Engineering*”, 1<sup>st</sup> edition MSc course, Agostinho Neto University, 2007/11.
- “*Environmental Engineering*”, 2<sup>nd</sup> edition MSc course, Agostinho Neto University, 2013/15.
- “*Environmental Engineering*”, 1<sup>st</sup> edition PhD course, Agostinho Neto University, 2013/.. .
- “*Environmental Engineering*”, 3<sup>rd</sup> edition MSc course, Agostinho Neto University, 2018/.. .

## SUPERVISION OF THESIS

### Dipl. Ing. (concluded)

- **Conceição, E. & Santos, R.**, "*Dye Adsorption from Aqueous Solution onto Activated Carbon: Application to the Merox Process*", Faculty of Engineering, Agostinho Neto University, 1990.
- **Carlos, P. & Santos, S.**, "*Studies on the Hydrodynamic Behaviour of Laboratory Packed Bed Columns*", Faculty of Engineering, Agostinho Neto University, 1995.
- **Rodrigues, S. & Correia, A.**, "*Modelling of Fixed-Bed Biofilm Reactors*", Faculty of Engineering, Agostinho Neto University, 1997.
- **Lobo, A. & Bastos, S.**, "*Studies on the Hydrodynamic Behaviour of a Laboratory Stirred Tank Reactor*", Faculty of Engineering, Agostinho Neto University, 1998.
- **Serrão, R.**, "*Studies on the Adsorption of Phenolic Compounds from Aqueous Solutions on Activated Carbon: Prediction of Multi-Component Equilibria from Single-Component Equilibrium Data*", Faculty of Engineering, Agostinho Neto University, 2003.
- **Goula, A. & Manuel, M.**, "*Binary Adsorption of Phenol and m-Cresol Mixtures on Activated Carbon Fixed-Beds*", Faculty of Engineering, Agostinho Neto University, 2005.
- **Simões, S.**, "*Determination of Heavy Metals in Luanda Bay Sediments by Using Different Extraction Procedures*", Faculty of Engineering, Agostinho Neto University, 2005.
- **Neves, J. & Delly, A.**, "*Studies on the Adsorption of Phenolic Compounds from Aqueous Solutions Using Low Cost Non-Conventional Materials*", Faculty of Engineering, Agostinho Neto University, 2006.
- **Vasconcelos, L. & Luís, V.**, "*Characterization of the Sludges of Luanda-Sudeste Water Treatment Plant and Definition of an Adequate Alternative for its Final Disposal*", Faculty of Engineering, Agostinho Neto University, 2006.
- **Silva, C.**, "*Effects of the Axial Dispersion and Mass Transfer Resistances on the Outlet Conversion of an Isothermal Fixed-Bed Reactor for a Single*

*Reaction* ", Faculty of Engineering, Agostinho Neto University, 2008.

- **Felizardo, I. & Dias, N.**, "*Textile Dyes Removal from Aqueous Solutions Using Natural Adsorbent Materials*", Faculty of Engineering, Agostinho Neto University, 2008.
- **Silva, E.**, "*Optimization of the Coagulation-Flocculation Step in a Water Treatment Plant using a Natural Coagulant*", Faculty of Engineering, Agostinho Neto University, 2009.
- **Kiala, B. & Eduardo, N.**, "*Revitalization and Characterization of the GUNT CE 310 Laboratory Unit for Training in Chemical Reactors*", Faculty of Engineering, Agostinho Neto University, 2011.
- **Gonçalves, O.**, "*Kinetic Study of COD Removal from Lixivate of Urban Solid Wastes Landfill by using the Fenton Process*", Faculty of Engineering, Agostinho Neto University, 2013.

#### **M.Sc. (concluded)**

- **Ribeiro, A.**, "*Application of Moringa Oleifera to Water Treatment for Human Consumption: Removal of Pollutants by Coagulation-Flocculation and Adsorption*", Faculty of Engineering, Agostinho Neto University and University of Porto, 2010.
- **Gonçalves, J.**, "*Evaluation of Air Pollution by Particulate Lead and other Heavy Metals*", Faculty of Engineering, Agostinho Neto University, 2011.
- **Ferreira, F.**, "*Source, Characterization and Treatment of Effluents with Heavy Metals in Luanda*", Faculty of Engineering, Agostinho Neto University, 2011.
- **Jorge, F.**, "*Modelling of a Low Cost System for the Treatment of Urban Wastewaters in Sumbe-Angola*", Faculty of Engineering, Agostinho Neto University, 2011.
- **Diavita, L.**, "*Consumption of Chlorine in the Organic Mater Oxidation from Bengo River Water*", Faculty of Engineering, Agostinho Neto University, 2011.
- **Fernandes, M.**, "*Biologic Sludges Improvement for Use in Agriculture*", Faculty of Engineering, Agostinho Neto University, 2011.
- **Trigo, O.**, "*Study of the Performance of Vegetated Submerged Bed Systems in the Treatment of Luanda Urban Wastewaters*", Faculty of Engineering,



Agostinho Neto University, 2011.

- **Kabongo, C.**, "*Suspended Solids Removal from River Kwanza Water in the Rainy Season Fed to the Luanda Southeast Water Treatment Plant*", Faculty of Engineering, Agostinho Neto University, 2011.
- **Victor, L.**, "*Evaluation of the Health Impact Associated to the Atmospheric Suspended Particles in the City of Luanda*", Faculty of Engineering, Agostinho Neto University, 2011.
- **Serrão, R.**, "*Characterization and Treatment of the Lixivate from Luanda Urban Solid Wastes Landfill*", Faculty of Engineering, Agostinho Neto University, 2011.
- **Maria, J.**, "*Anaerobic Treatment of Dairy Industry Effluent using a UASB Reactor*", Faculty of Engineering, Agostinho Neto University, 2015.
- **Paca, J.**, "*Quality Indexes of Surface Water: Application to Water Courses of the Provinces of Luanda and Bengo*", Faculty of Engineering, Agostinho Neto University, 2015.
- **Bernardo, K.**, "*Study of the Efficiency of Sewage Treatment in the Kilamba WWTP*", Faculty of Engineering, Agostinho Neto University, 2015.
- **Manuel, P.**, "*Study of the Water Quality for the Consumption of Populations of the City of Uíge: Treated Water from the Public Supply System and Untreated Water from Alternative Sources*", Faculty of Engineering, Agostinho Neto University, 2015.

#### **Ph.D. (concluded)**

- **Justin, M.M.**, "*Studies on Angolan Medicinal Plants with Hepatoprotective Activity*", Faculty of Engineering, Agostinho Neto University, 2012.
- **Santos, A.M.**, "*Studies on Luanda Bay Water Quality: Distribution of Heavy Metals in Water, Suspended Solids and Sediments*", Faculty of Engineering, Agostinho Neto University, 2012.
- **Costa, E.S.**, "*Analysis of Intensive Precipitations and Extreme Flows in Countries with Emerging Economies of Rapid Development: Application to Angola*", Higher Technical Institute (IST), University of Lisbon, 2015 (co-supervisor).

## M.Sc. Students

- **Zeye, C.**, "*Application of Moringa Oleifera to the Treatment of a Domestic Waste Mixed with Industrial Waste*", Faculty of Engineering, Agostinho Neto University, 2019/.. .
- **Moni, D.**, "*Anaerobic Digestion of Organic Solid Waste in Batch Reactors for Biogas Production*", Faculty of Engineering, Agostinho Neto University, 2019/.. .
- **Ribeiro, B.**, "*Wastewater Treatment Efficiency Study at SEQUELE WWTP*", Faculty of Engineering, Agostinho Neto University, 2019/.. (co-supervisor).
- **Santana, E.**, "*Toxicological Assessment of Groundwater Quality in Cacuaco Municipality (Luanda)*", Faculty of Engineering, Agostinho Neto University, 2019/.. (co-supervisor).
- **Guelengue, B.**, "*Application of Low Cost Adsorbents for Treatment of Phosphorus Contaminated Effluents*", Faculty of Engineering, Agostinho Neto University, 2019/.. (co-supervisor).
- **Nenganga, I.**, "*Study of Solar Disinfection Technique for Water Treatment in Rural Communities of Angola*", Faculty of Engineering, Agostinho Neto University, 2019/.. (co-supervisor).
- **Bandeira, J.**, "*Rural Water Treatment by Low Cost Filtration Systems*", Faculty of Engineering, Agostinho Neto University, 2019/.. (co-supervisor).
- **Alves, N.**, "*Design of a Filter (Moringa Oleifera) to Treat Water Contaminated by Nitrates*", Faculty of Engineering, Agostinho Neto University, 2019/.. (co-supervisor).
- **Lopes, S.**, "*Moringa Oleifera Seed in Sludge Dewatering from Water and Wastewater Treatment Plants*", Faculty of Engineering, Agostinho Neto University, 2019/.. (co-supervisor).
- **Campos, A.**, "*Modeling WWTP Sludge Dewatering in Drying Beds for Angola*", Faculty of Engineering, Agostinho Neto University, 2019/.. (co-supervisor).
- **Neto, M.**, "*Water Quality Index: Formulation and Application to Watercourses of Angola*", Faculty of Engineering, Agostinho Neto University, 2019/.. (co-supervisor).

## Ph.D. Students

- **Jorge, F.A.**, "*Contribution to the Study of Lagoon Systems in the Treatment of Urban Waste Waters*", Faculty of Engineering, Agostinho Neto University, 2013/.. .
- **Maria, C.J.**, "*Energetic Evaluation of the Biogas Generated by the Anaerobic Decomposition of Urban Solid Wastes in Landfill in Luanda*", Faculty of Engineering, Agostinho Neto University, 2015/.. (co-supervisor).
- **André, A.R.**, "*Mapping of River Flood Risk Areas in Locations with a Shortage of Conventional Hydro Meteorological Data: Application to a Pilot Basin in Angola*", Faculty of Engineering, Agostinho Neto University, 2017/.. (co-supervisor).
- **Diogo, J.J.**, "*Use of Low Cost Local Adsorbent Materials for the Removal of Textile Dyes from Waste Waters*", Faculty of Engineering, Agostinho Neto University, 2017/.. .
- **Bernardo, E.C.**, "*Increasing the Value of Angolan Beer Industry By-Products in the Framework of a Circular Economy*", Faculty of Engineering, Agostinho Neto University, 2019/.. (co-supervisor).
- **Luís, K.F.**, "*Integration of Oxidation Processes with Fenton Reagent and Adsorption for the Treatment of Hospital Effluents*", Faculty of Engineering, Agostinho Neto University, 2019/.. (co-supervisor).

## LECTURERS AND RESEARCHERS DIRECTION

### Scientific Capacity Test

- **Rosa, P.**, "*Importance of Large-Pore Materials in the Performance of Chromatographic Processes*", Faculty of Engineering, Agostinho Neto University, 1999.
- **Gonçalves, J.**, "*Studies on the Effects of the Flow-Rate and Composition of Solvents on the Efficiency of Separation by High Performance Liquid Chromatography*", Faculty of Engineering, Agostinho Neto University, 2005.

## SCHOLARSHIPS

- Recipient of Gulbenkian Foundation Scholarship, Portugal, 1984/87
- Recipient of INABE Scholarship, Portugal, 1984/87
- Recipient of Cabinda Gulf Oil Company Scholarship, USA, July/1989
- Recipient of JNICT Scholarship, Portugal, May/1992
- Recipient of Angolan Ministry of Petroleum/Texaco Company Scholarship, Portugal, April/1993
- Recipient of Angolan Ministry of Petroleum Scholarship, Portugal, May/1995
- Recipient of Gulbenkian Foundation Scholarship, Portugal, May/1995
- Recipient of Angolan Ministry of Petroleum Scholarship, Portugal, June/ 1996
- Recipient of JNICT Scholarship, Portugal, June/1996
- Recipient of Angolan Ministry of Petroleum Scholarship, Portugal and South Africa, January/1997

## PRIZES

- Merit Medal, Agostinho Neto University, Angola, 1984
- Distinction Award, Ph.D. Thesis, University of Porto, Portugal, 1987
- Merit Award, University Service, Agostinho Neto University, Angola, 2002
- Merit Award, University Service, Agostinho Neto University, Angola, 2009

## PUBLICATIONS

### Articles in International Journals and Conferences

- 1 LEITÃO, A., Costa, C. & Rodrigues, A., "Studies on the Merox Process", *World Congress III of Chemical Engineering*, Tokyo (Japan), September 1986.
- 2 LEITÃO, A., Costa, C. & Rodrigues, A., "Mercaptans Oxidation: Catalyst Impregnation and Kinetics", *International Chemical Reaction Engineering Conference (ICREC-2)*, Pune (India), April 1987.
- 3 LEITÃO, A., Costa, C. & Rodrigues, A., "Studies on the Impregnation Step of the Merox Process", *Chemical Engineering Science*, 42 (10), 2291-2299 (1987).

- 4 Rodrigues, A., Costa, C., Loureiro, J., LEITÃO, A. & Ferreira, R., "Design Aspects of Fixed-Bed Adsorption Processes", *NATO ASI on Adsorption: Science and Technology*, Portugal, July 1988.
- 5 LEITÃO, A. & Rodrigues, A., "Studies on the Merox Process: Kinetics of n-Butyl Mercaptan Oxidation", *Chemical Engineering Science*, 44 (5), 1245-1253 (1989).
- 6 LEITÃO, A. & Rodrigues, A., "Oxidation of Mercaptans: Kinetic Study of the Catalytic Oxidation of Mercaptans in n-Heptane", *International Chemical Engineering Conference (CHEMPOR'89)*, Portugal, September 1989.
- 7 LEITÃO, A. & Rodrigues, A., "Fixed-Bed Reactor for Gasoline Sweetening: Kinetics of Mercaptans Oxidation and Simulation of the Merox Reactor Unit", *Chemical Engineering Science*, 45 (3), 679-685 (1990).
- 8 LEITÃO, A. & Rodrigues, A., "Modeling and Simulation of the Impregnation Step of the Merox Process", *Computers and Chemical Engineering*, 15 (5), 287-296 (1991).
- 9 LEITÃO, A., Conceição, E., Santos, R. & Rodrigues A., "Modeling of Solid-Liquid Adsorption: Effects of Adsorbent Loads on Model Parameters", *Canadian Journal of Chemical Engineering*, 70 (8), 690-698 (1992).
- 10 LEITÃO, A. & Rodrigues, A., "Concentration Dependence of Surface Diffusion Coefficient in Dye Adsorption from Aqueous Solution on Activated Carbon", *4th International Conference on Fundamentals of Adsorption*, Kyoto (Japan), May 1992.
- 11 LEITÃO, A. & Rodrigues, A., "Modeling of Solid-Liquid Adsorption: Effects of Adsorbent Heterogeneity", *The Chemical Engineering Journal*, 51, 159-166 (1993).
- 12 LEITÃO, A., Carlos, P., Santos, S. & Rodrigues, A., "Tracer Experiments in Fixed-Beds: Effects of Flow Maldistribution on the Estimation of Transport Kinetic Parameters", *International Chemical Engineering Conference (CHEMPOR'93)*, Portugal, April 1993.
- 13 LEITÃO, A., Carlos, P., Santos, S. & Rodrigues, A., "Tracer Experiments in Fixed-Beds: Effects of Flow Maldistribution on the Estimation of Transport Kinetic Parameters", *The Chemical Engineering Journal*, 53 (3), 193-199

- (1994).
- 14 LEITÃO, A., Dias, M. & Rodrigues, A., "Effectiveness of Bidisperse Catalysts with Convective Flow in the Macropores", *The Chemical Engineering Journal*, 55, 81-86 (1994).
  - 15 LEITÃO, A. & Rodrigues, A., "The Adsorption of a Dyestuff from the Aqueous Phase onto Activated Carbon Beds: Prediction of Breakthrough Curves Based on Surface Diffusion and Heterogeneity of the Adsorbent", *1<sup>st</sup> International Conference of the SAChE: Chemical Engineering into the Future - The South African Perspective*, Johannesburg, August 1994.
  - 16 LEITÃO, A. & Rodrigues, A., "The Simulation of Solid-Liquid Adsorption in Activated Carbon Columns Using Estimates of Intraparticle Kinetic Parameters Obtained from CSTR Experiments", *The Chemical Engineering Journal*, 58, 239-244 (1995).
  - 17 LEITÃO, A. & Rodrigues, A., "The Influence of Intraparticle Convection on Product Distribution for Series-Parallel Catalytic Reactions", *Trans IChemE, Part A: Chemical Engineering Research and Design*, 73, 130-135 (1995).
  - 18 LEITÃO, A. & Rodrigues, A., "Adsorptive Processes Using Large-Pore Materials: Analysis of a Criterion for Equivalence of Diffusion/Convection, Apparent Diffusion and Extended Linear Driving Force Models", *The Chemical Engineering Journal*, 60, 81-87 (1995).
  - 19 LEITÃO, A. & Rodrigues, A., "Catalytic Processes Using Large-Pore Materials: Effects of the Flow Rate and Operating Temperature on the Conversion in a Plug-Flow Reactor for Irreversible First-Order Reactions", *The Chemical Engineering Journal*, 60, 111-116 (1995).
  - 20 LEITÃO, A. & Rodrigues, A., "The Performance of the Extended Linear Driving Force Model to Simulate Adsorptive Processes Using Large-Pore Materials", *5th International Conference on Fundamentals of Adsorption*, California (USA), May 1995. Proceedings edited by M. Douglas Le Van, Kluwer Academic Publishers (1996).
  - 21 LEITÃO, A. & Rodrigues, A., "Modeling of Biodegradation/Adsorption Combined Processes in Fixed-Bed Biofilm Reactors: Effects of the Intraparticle Convective Flow", *Chemical Engineering Science*, 51 (20), 4595-4604 (1996).

- 22 LEITÃO, A. & Rodrigues, A., "Modeling of Biofilm Reactors Using Large-Pore Supports", *11º Congresso Brasileiro de Engenharia Química*, Rio de Janeiro (Brasil), September 1996.
- 23 LEITÃO, A. & Rodrigues, A., "Modeling of Fixed-Bed Biofilm Reactors: The Effect of the Intraparticle Convective Flow on Substrate Removal for a Substrate Inhibition Kinetic Model", *SAICHE'97: Chemical Engineering and the 3 Es*, Cape Town (South Africa), April 1997.
- 24 Diez, S., LEITÃO, A., Ferreira, L. & Rodrigues, A., "Adsorption of Phenylalanine onto Polymeric Resins: Equilibrium, Kinetics and Operation of a Parametric Pumping Unit", *Separation and Purification Technology*, 13, 25-35 (1998).
- 25 LEITÃO, A. & Rodrigues, A., "Wastewater Treatment By Attached-Growth Microorganisms on an Adsorbent Support", *6th International Conference on Fundamentals of Adsorption (FOA6)*, France, May 1998. Proceedings edited by Francis Meunier, Elsevier (1998).
- 26 LEITÃO, A. & Rodrigues, A., "Dynamic Behaviour of a Fixed-Bed Biofilm Reactor: Analysis of the Role of the Intraparticle Convective Flow Under Biofilm Growth", *Biochemical Engineering Journal*, 2, 1-9 (1998).
- 27 Garcia, A., Ferreira, L., LEITÃO, A. & Rodrigues, A., "Binary Adsorption of Phenol and m-Cresol Mixtures onto Polymeric Adsorbents", *Adsorption Journal*, 5, 359-368 (1999).
- 28 LEITÃO, A. & Rodrigues, A., "Modeling and Simulation of Protein Adsorption in Permeable Chromatographic Packings: A Double Linear Driving Force Model", *Biochemical Engineering Journal*, 3, 131-139 (1999).
- 29 LEITÃO, A., Li, M. & Rodrigues, A., "The Role of Intraparticle Convection in Protein Adsorption by Liquid Chromatography using POROS 20 HQ/M Particles", *Biochemical Engineering Journal*, 11 (1), 33-48 (2002).
- 30 Garcia, A., Silva, J., Ferreira, L., LEITÃO, A. & Rodrigues, A., "Regeneration of Fixed-Bed Adsorbents Saturated with Single and Binary Mixtures of Phenol and m-Cresol", *Industrial & Engineering Chemistry Research*, 41 (24), 6165-6174 (2002).
- 31 LEITÃO, A. & Serrão, R., "Adsorption of Phenolic Compounds from Water on Activated Carbon: Prediction of Multicomponent Equilibrium Isotherms Using

- Single Component Data", *5th Brazilian Meeting of Adsorption (EBA5)*, Brazil, July 2004.
- 32 LEITÃO, A. & Serrão, R., "Adsorption of Phenolic Compounds from Water on Activated Carbon: Prediction of Multicomponent Equilibrium Isotherms Using Single Component Data", *Adsorption Journal*, **11** (2), 167-179 (2005).
- 33 Ferreres, F., Sousa, C., Justin, M., Valentão, P., Andrade, P., Llorach, R., Rodrigues, A., Seabra, R. & LEITÃO, A., "Characterization of *Boerhaavia Diffusa* L. Phenolic Profile by HPLC-DAD-MS-ESI as a Tool for Quality Control", *Phytochemical Analysis*, **16** (6), 451-458 (2005).
- 34 Santos, A., LEITÃO, A. & Boaventura, R., "Especiação de Metais Pesados nos Sedimentos da Baía de Luanda", *XIX Encontro da AULP*, Luanda, Maio de 2009.
- 35 LEITÃO, A., "Um Contributo para a Promoção da Sustentabilidade Ambiental em Angola", *Encontro CIÊNCIA 2009*, Lisboa (Portugal), Julho de 2009.
- 36 Ribeiro, A., LEITÃO, A. & Boaventura, R., "Estudo da Viabilidade de Aplicação da Moringa Oleifera no Tratamento de Águas para Consumo Humano", In a Gestão da Água e dos Recursos Hídricos, *Revista Internacional em Língua Portuguesa*, AULP, III Série, nº 22, 105-113 (2009).
- 37 Santos, A., LEITÃO, A. & Boaventura, R., "Heavy Metal Pollution of Sediments from Coastal Areas: Assessment of the Environmental Impact of Polluted Surface Sediments from the Bay of Luanda, Angola", *Journal of Environmental Science and Engineering*, Vol.15, Nº10, 1317-1336 (2011).
- 38 Serrão, R., Gonçalves, O., LEITÃO, A. & Boaventura, R., "Caracterização e Tratabilidade do Lixiviado do Aterro de Resíduos Sólidos Urbanos de Luanda", *1º Congresso Internacional sobre Resíduos Sólidos da ISWA/APESB em África*, Lobito, 23-25 de Julho de 2012.
- 39 Serrão, R., Gonçalves, O., LEITÃO, A. & Boaventura, R., "Caracterização e Tratabilidade do Lixiviado do Aterro de Resíduos Sólidos Urbanos de Luanda", *2ª Conferência Latino-Americana em Saneamento Sustentável – II ECOSANLAC*, Espírito Santo (Brasil), 4-7 de Novembro de 2012.
- 40 LEITÃO, A., Santos, A. & Boaventura, R., "Especiação do Cobre na Baía de Luanda Usando Técnicas Electroquímicas", *XX Congresso Brasileiro de*



*Engenharia Química – COBEQ 2014*, Florianópolis/SC (Brasil), 19-22 de Outubro de 2014.

- 41 Maria, C., Góis, C. & LEITÃO, A., "Enhancement of Anaerobic Digestion of Municipal Solid Waste in Landfill with Leachate Recirculation: State of the Art Review", *Wastes: Solutions, Treatments and Opportunities (3rd International Conference)*, Viana do Castelo (Portugal), 14-16 de Setembro de 2015.
- 42 Martins, R., LEITÃO, A. & Maria, J., "Tratamento de Efluente da Indústria de Lactínios Usando Reactor UASB ", *XXI Congresso Brasileiro de Engenharia Química – COBEQ 2016*, Fortaleza (Brasil), 25-29 de Setembro de 2016.
- 43 LEITÃO, A., Santos, A. & Boaventura, R., "Complexation of Lead by Organic Matter in Luanda Bay, Angola", *Environmental Monitoring and Assessment Journal*, Vol.188, Nº10, 563-580 (2016).
- 44 Manuel, P., LEITÃO, A. & Boaventura, R., "Qualidade da Água para Consumo Humano na Cidade do Uíge (Angola): Água tratada do sistema de abastecimento público e água não tratada de fontes alternativas", In Ciências da Saúde e Tecnologia, *Revista Internacional em Língua Portuguesa*, AULP, IV Série, nº 33, 75-93 (2018).
- 45 Paca, J., Santos, F., Pires, J., LEITÃO, A. & Boaventura, R., "Quality Assessment of Water Intended for Human Consumption from Kwanza, Dande and Bengo rivers (Angola)", *Environmental Pollution*, Vol. 254, Part B, (2019) 113037 (<https://doi.org/10.1016/j.envpol.2019.113037>).
- 46 Maria, C., Góis, J. & LEITÃO, A., "Challenges and Perspectives of Greenhouse Gases Emissions from Municipal Solid Waste Management in Angola", *6th International Conference on Energy and Environment Research – ICEER 2019*, Aveiro (Portugal), 22-25 July 2019. Accepted for publication in *Energy Reports* (Elsevier).
- 47 Maria, C., Góis, J. & LEITÃO, A., "Estimation of Biogas Production by a Landfill in Luanda using First-order-decay Model", *5th International Conference on WASTES: Solutions, Treatments, Opportunities – WASTES 2019*, Lisboa (Portugal), 4-6 September 2019.

## Articles in National Journals and Conferences

- 1 LEITÃO, A., "A Importância dos Materiais de Poros-Largos na Indústria Química: Aplicação a Processos Catalíticos e Adsorptivos", Ordem dos Engenheiros de Angola, Colégio de Engenharia Química, 1995.
- 2 LEITÃO, A., "Modelização de Reactores de Biomassa Fixa: Aplicação ao Tratamento de Efluentes da Indústria Química", Ordem dos Engenheiros de Angola, Colégio de Engenharia Química, 1996.
- 3 LEITÃO, A., "Contributos da Engenharia Química para o Tratamento de Efluentes com Impactos Ambientais Negativos", Núcleo Ambiental, Faculdade de Ciências, Universidade Agostinho Neto, 1997.
- 4 LEITÃO, A. & Rodrigues, A., "Engenharia Química na UAN: Evolução Histórica, Futuro e Impacto na Sociedade", Universidade Agostinho Neto, 1998.
- 5 LEITÃO, A., "Gestão dos Resíduos Sólidos Urbanos", Ordem dos Engenheiros de Angola, Colégio de Engenharia Química, 2000.
- 6 LEITÃO, A., "Biotecnologia: Novas Visões e Novas Esperanças – O Papel da Engenharia Química", Ordem dos Engenheiros de Angola, Colégio de Engenharia Química, 2001.
- 7 LEITÃO, A., "Poluição da Baía de Luanda", Faculdade de Engenharia, Universidade Agostinho Neto, 2003.
- 8 LEITÃO, A. & Santos, A., "Poluição da Baía de Luanda", Conferência dada no workshop sobre *Land Based Marine Pollution* a convite do Programa BCLME, Instituto de Investigação Marinha, Luanda, 2005.
- 9 LEITÃO, A., "Pressupostos para a Investigação Fundamental em Angola", *Revista Estudos e Opiniões*, 0, 135-143 (2007).
- 10 LEITÃO, A., "Um Contributo para a Promoção da Sustentabilidade Ambiental em Angola", Comunicação apresentada na 1ª Conferência Nacional sobre Ciência e Tecnologia, Luanda, 2009.
- 11 LEITÃO, A., "Gestão da Qualidade da Água", Comunicação apresentada na Conferência Alusiva ao Dia Mundial da Água, Luanda, 2010.
- 12 LEITÃO, A., "Uma Contribuição da Universidade Agostinho Neto para a Promoção de Sustentabilidade Ambiental em Angola", Comunicação apresentada no 1º Conselho Consultivo do Ministério do Ensino Superior e da

- Ciência e Tecnologia, Benguela, 2012.
- 13 LEITÃO, A., "Água e Saúde Ambiental", Comunicação apresentada na Conferência do Ambiente 2013, organizada pela Universidade Katyavala Bwila por ocasião da celebração do Centenário da Cidade do Lobito, Lobito, 2013.
  - 14 LEITÃO, A., Santos A. & Boaventura, R., "Especiação do Chumbo na Baía de Luanda usando Técnicas Electroquímicas", *3ª Conferência Nacional de Ciência e Tecnologia*, Luanda, 11-13 de Setembro de 2013.
  - 15 Serrão, R., Gonçalves, O., LEITÃO, A. & Boaventura, R., "A Oxidação Química de Lixiviados pelo Processo de Fenton: Estudo de Caso do Aterro de Mulenvos", *3ª Conferência Nacional de Ciência e Tecnologia*, Luanda, 11-13 de Setembro de 2013.
  - 16 Gonçalves, J., LEITÃO, A. & Viegas, L., "Medição de Metais em Partículas Atmosféricas", *3ª Conferência Nacional de Ciência e Tecnologia*, Luanda, 11-13 de Setembro de 2013.
  - 17 Maria, J., Martins, R. & LEITÃO, A., "Tratamento Anaeróbio do Efluente da Indústria de Lacticínios usando um Reactor UASB", *4ª Conferência Nacional de Ciência e Tecnologia*, Luanda, 9-11 de Setembro de 2015.
  - 18 Paca, J., Boaventura, R. & LEITÃO, A., "Índices de Qualidade de Água Superficial: Aplicação a Cursos de Água das Províncias de Luanda e Bengo", *4ª Conferência Nacional de Ciência e Tecnologia*, Luanda, 9-11 de Setembro de 2015.
  - 19 Bernardo, K., LEITÃO, A. & Boaventura, R., "Estudo da Eficiência do Tratamento de Esgoto na ETAR do Kilamba", *4ª Conferência Nacional de Ciência e Tecnologia*, Luanda, 9-11 de Setembro de 2015.
  - 20 Manuel, P. & LEITÃO, A., "Estudo da Qualidade da Água para o Consumo das Populações da Cidade do Uíge: Água Tratada do Sistema de Abastecimento Público e Água não Tratada de Fontes Alternativas", *4ª Conferência Nacional de Ciência e Tecnologia*, Luanda, 9-11 de Setembro de 2015.
  - 21 Bernardo, K., LEITÃO, A. & Boaventura, R., "Avaliação do Desempenho da ETAR do Kilamba no Tratamento de Esgoto", *I Conferência de Engenharia e Arquitectura "CEAFE 2016"*, Luanda, 25-27 de Outubro de 2016.
  - 22 Manuel, P. & LEITÃO, A., "Qualidade Físico-Química e Microbiológica da Água

- para o Consumo das Populações da Cidade do Uíge: Água Tratada do Sistema de Abastecimento Público e Água não Tratada de Fontes Alternativas", *I Conferência de Engenharia e Arquitectura "CEAFE 2016"*, Luanda, 25-27 de Outubro de 2016.
- 23 José, F., Francisco, T., Chipate, A., Serrão, R., Gonçalves, J. & LEITÃO, A., "Determinação da Carência Química de Oxigénio em Amostras Consideradas Difíceis de Analisar", *5ª Conferência Nacional de Ciência e Tecnologia*, Luanda, 26-28 de Abril de 2017.
- 24 LEITÃO, A. & Santos, A., "Avaliação do Impacto Ambiental de Sedimentos Poluídos Através de Estudos de Especificação", *Conferência Científica CCUAN2017*, Luanda, 27-29 de Setembro de 2017.
- 25 José, F., Francisco, T., Chipate, A., Serrão, R., Gonçalves, J. & LEITÃO, A., "Melhoria da Qualidade na Determinação da Carência Química de Oxigénio de Amostras Consideradas Difíceis de Analisar", *Conferência Científica CCUAN2017*, Luanda, 27-29 de Setembro de 2017.
- 26 Gonçalves, J., LEITÃO, A. e Viegas, L., "Avaliação de Teores de Metais Pesados em Partículas Atmosféricas", *Conferência Científica CCUAN2017*, Luanda, 27-29 de Setembro de 2017.
- 27 Serrão, R., LEITÃO, A. e Boaventura, R., "Tratamento de Lixiviado por Processos de Oxidação Avançada", *Conferência Científica CCUAN2017*, Luanda, 27-29 de Setembro de 2017.
- 28 André, A., LEITÃO, A. & Maia, R., "Simulação dos Caudais na Bacia de Catumbela com o Modelo de Monte Carlo", *II Conferência de Engenharia e Arquitectura "CEAFE 2018"*, Luanda, 24-26 de Outubro de 2018.
- 29 Maria, C., Góis, J. & LEITÃO, A., "Análise Experimental da Digestão Anaeróbia de Resíduos Urbanos à Escala Piloto em Biodigestores Batch", *II Conferência de Engenharia e Arquitectura "CEAFE 2018"*, Luanda, 24-26 de Outubro de 2018.
- 30 Cauanga, G., LEITÃO, A. & Serrão, R., "Adsorção do Corante Azul de Metileno a partir de Soluções Aquosas usando Resíduos ou Desperdícios Agrícolas como Adsorventes", *II Conferência de Engenharia e Arquitectura "CEAFE 2018"*, Luanda, 24-26 de Outubro de 2018.

- 31 Clemente, E., Proença, E. & LEITÃO, A., "Estudo dos Efeitos da Micromistura sobre a Distribuição de Produtos para Reacções em Série", II Conferência de Engenharia e Arquitectura "CEAFE 2018", Luanda, 24-26 de Outubro de 2018.
- 32 Proença, E., Clemente, E. & LEITÃO, A., "Estudo dos Efeitos da Micromistura sobre a Distribuição de Produtos para Reacções em Paralelo", II Conferência de Engenharia e Arquitectura "CEAFE 2018", Luanda, 24-26 de Outubro de 2018.

### **Thesis and Lecture Notes**

- 1 "Studies on the Merox Process", *Ph.D. Thesis*, University of Porto, Portugal, 1987.
- 2 "Engenharia das Reacções Químicas: Reactores II", *Lecture Notes*, Agostinho Neto University, Angola, 1980.
- 3 "Projecto de Instalações Industriais", *Lecture Notes*, Agostinho Neto University, Angola, 1981.
- 4 "Engenharia da Reacções Químicas: Reactores I", *Lecture Notes*, Agostinho Neto University, Angola, 1982.
- 5 "Estimativa de Parâmetros num Modelo não Linear pelo Método dos Mínimos Quadrados", *Lecture Notes*, Memória D.E.Q.1., Agostinho Neto University, Angola, 1988.

### **REFERENCES**

- Prof. Alírio Rodrigues  
Laboratory of Separation and Reaction Engineering  
School of Engineering, University of Porto  
Rua Dr. Roberto Frias  
4200-465 Porto, Portugal
- Prof. Carlos Costa  
Department of Chemical Engineering  
School of Engineering, University of Porto  
Rua Dr. Roberto Frias

4200-465 Porto, Portugal

- Prof. David Glasser  
Department of Chemical Engineering  
University of the Witwatersrand  
Wits, 2050 South Africa
- Prof. M. Douglas LeVan  
Department of Chemical Engineering  
Vanderbilt University  
Nashville, TN - USA