

# CV Dr. Elham Farouk MOHAMED

# **Professor**

Air Pollution Department, Environment and Climate Change Research Institute, National Research Centre, 33 EL Buhouth St., Dokki, Giza, P.O.12622, Egypt

# **Personal Details**

Surname	MOHAMED		
First Name	Elham		
Title	Professor		
Gender	Female		
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Present Work	Professor Air Pollution Department, Environment and Climate Change		
rresent work	Research Institute, NRC, Egypt		
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Mobile 01	le 011 45285662 E-mail elham_farouk0000@yahoo.com		
Date of birth	ate of birth 8 October 1973 Place of birth Sohag		
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<b>ORCID</b> http://orcid.org/0000-0001-5405-6147			
LANGUAG			
French and English: Courant Arabic: Maternal language			

# **EDUCATION**

Collage	Degree obtained	Date
INPT/Toulouse University /Laboratory of chemical engineering ,Toulouse France	Ph.D (Process engineering and Environment)	2011
Ain Shams University, <b>Egypt</b>	M.Sc (Plants and air pollution)	2001
Ain Shams University, Egypt	B.Sc (with grade VERYGOOD in Botany/Chemistry)	1995

# FIELD OF INTEREST

- -Environmental pollutant Remediation
- Advanced Technology for pollutants treatment
- Nanotechnology and pollution control
- Waste recycling and valorization

### **Scientific Mission**

-Full Ph.D. scholarship at the INPT/ University of Toulouse, France, Institute national Polytechnique de Toulouse/ Laboratory of chemical engineering, sponsored by the Egyptian Government (2007 - 2011).

-Postdoctoral fellowship at the Institute national Polytechnique of Toulouse/ Laboratory of chemical engineering ,INPT University ,Toulouse-France Funded by the Campus France-Embassy of France (2months/2013)

Postdoctoral fellowship at the Institute national Polytechnique of Toulouse/ Laboratory of chemical engineering ,INPT University ,Toulouse-France Funded by the Campus France-Embassy of France (4months/2014)

-Postdoctoral fellowship at the LAVAL University, Laboratory of chemical engineering /Quebec-Canada Funded Egyptian by the Government (6 months/2016)

### **TRAINING**

Training Attended	Place	Dates
Print and television press	Institut Universitaire de	23/2/2009-25/5/2009
in France	Technologie (UPS-IUT A),	
	Toulouse, France	
Scientific French writing, Institut National Sciences Appliquées	(INSA), Toulouse, France	22/10/2008-4/2/2009
French foreign language courses	Institut Universitaire de Technologie (UPS-IUT A), Toulouse, France	23/2/2009-25/5/2009
Safety Laboratory Management	(INSA), Toulouse, France	2010
Formation SIMDUT -	LAVAL UNIVERSITY,	2016

WHMIS training COURSE. Management of chemical risks.	Quebec City, Canada	
Attendant in Workshop entitled: Introduction and Roadmap for Laboratory Management System ISO17025	Focusera Academy, on line, Egypt	29/11/2024 (2 hours)
Diploma of Training of Trainer (TOT), qualified to International Certified Trainer	Cairo Governorate, Human Resources Development Centre and Ahed Training Centre, Cairo, Egypt	Consisting of 40 training hours, 2025
Diploma of Tico Talks: From Lab to Market	National Research Centre, Egypt	22/01/2025- 26/02/2025
Diploma of Carbon Footprint	Zfuture for Training and Consulting Services, Cairo, Egypt	Consisting of 30 training hours, 08 March to 20 April 2025

# TRAINER AND LECTURER

Title	Place	Dates
Conducted certified training workshop of Carbon footprint and Sustainability	Focusera Academy, on line, Egypt	10/01/2025 (2 hours)
Conducted certified training webinar of Carbon footprint: From Concept to Sustainability	Future Scientists Platform. Egypt	02/05/2025 (2 hours)

# EMPLOYMENT HISTORY

Employer	Position	Dates (from-to)
NRC	Professor, Air pollution Research Department Environmental Science Division	30 Jan. 2023-till now
NRC	Associated Professor, Air pollution Research Department Environmental	2017 -2022

	Science Division	
NRC	Researcher Department	2011-2017
INPT University, Toulouse-France	PhD student, Process engineering and Environment, Institut national Polytechnique of Toulouse/ Laboratory of chemical engineering	2007-2011
NRC	Assistant Researcher, Air pollution Research Department Environmental Science Division	2001-2007
NRC	Research Assistant, Air pollution Research Department Environmental Science Division	1998-2001

Rewards & Prizes	Year of award
Within the most Researcher	
in NRC that have high	2015
impact-factor	

### **International Project**

- 1. Member of the project titled: Managing air quality and health risk: from airborne fine particulate (PM2.5) characterization to the biological mechanism of action. (2017 2021), funded by STDF: Science & Technology Development Fund, Cairo, Egypt.
- 2. 2007-2009.Reduction, modification and valorisation of sludge. REMOVALS

(Grant agreement ID: 18525: 91/271/EEC), Toulouse, France.

- 3. 2008 -2010. Ecotechnologies and Sustainable Development program: Hybrid Adsorption and Reaction Process for the treatment of water and industrial effluents PHARE (Projet ANR PRECODD, PRogramme ECOtechnologies et Développement Durable: Procédé Hybride d'Adsorption et de Réaction pour le traitement de l'Eau et de effluents industriels PHARE), France.
- 4. 2008-2010. Research projects Working Community of the Pyrenees (projets

recherche Communauté de Travail des Pyrénées: Traitement des colorants, Projet CTP – Région Midi Pyrénées), France.

# INTERNATIONAL COLLABORATION:

<b>Professional Body</b>	Level of Membership	Dates (from-to)
- Air and Waste Management Association (A&WMA, ID: 1222660)	Member	2015 to date
- Editorial board of Journal of Applied Biotechnology.	Editorial board	2014to date
Editorial board of Environmental Management and Sustainable Development.	Editorial board	2015 to date
International Journal of Agricultural Policy and Research.	Reviewer	2015 to date
Science and Technology	Reviewer	2015 to date
Fibers and Polymers	Reviewer	2015 to date
EGAC, National Accreditation Council, Egypt	Member	From 2021

# Women's community activities

Women Leadership Program, presented by Cairo Governorate, Human Resources Development Center, and the General Assembly for Organization and Administration, under the supervision of the Council of Ministers, in cooperation with the National Council for Training and Education

2024

### MEMBERSHIP OF PROFISSIONAL ASSOCIATIONS

- -Member of African Society for Nile Basin Studies, Cairo, Egypt., National Research Centre.
- -Member of Committee International Scientific the and Cultural on Relations. Environmental Research Division. National Research Center, (from March 2016 to February 2017) Cairo, Egypt
- -Member of the Committee on Technical for Services and Occupational Safety and Health, Environmental Research Division, National Research Center, (from 2019 to 2020) Cairo, Egypt
- Member of Organization for **Women in Science for the Developing World** (OWSDA).
- -Member of **Global Ambassadors of Sustainability** (GAoS), (from 2025 2026), Awarded official membership in recognition of active efforts and contributions to global sustainability practices, climate action, and sustainable living.

### Workshops

- -Participate in Workshop entitled: Patent Problems workshop, National Research Centre, Cairo, November 24, 2015, Egypt.
- -Participate in Workshop in World Meteorological Organization, 3-5/5/2015, Cairo, Egypt.
- -Teaching in the training course held at the Environmental Monitoring and

### Environmental Studies Center. 31/1/-4/2/2016, Giza, Egypt

Participate in Workshop entitled: Journal Editor 2-Positive author & reviewer experiences and journal promotion & workshop, National Research Centre, Cairo, February 23, 2021, Egypt.

Organized a Workshop entitled: Air pollution and COVID-19 lockdown workshop, National Research Centre, Cairo, Avr. /6, 2021, Egypt.

Attendant in Workshop entitled: Research Grants: Spotting, Positioning- Drafting (Clarivate Certificate), National Research Centre, Cairo, November 21, 2024, Egypt.

Attendant in Workshop entitled: From papers to patents-Innovation Roadmap for Universities (Clarivate Certificate), National Research Centre, Cairo, November 21, 2024, Egypt.

Attendant in Workshop entitled: Publication Ethics and Research Misconduct (Clarivate Certificate), National Research Centre, Cairo, December 3, 2024, Egypt.

Participate in online conference: International day of clean energy: Global perspectives and GCC pathways in energy transition, 26/01/2025, Sustainability Institute, Kuwait.

### **SCIENTIFIC SUPERVISION:**

- Scientific Supervision for M.Sc. These NRC
- -For the 2nd year of engineering faculty (2 months; Training), LGC, Toulouse, France

-For engineering faculty (6 months; Training), LGC, Toulouse, France

#### The Published Books:

- <u>Elham F Mohamed</u>, Gamal Awad. Nanotechnology and Nanobiotechnology for Environmental Remediation, Chapter 5, Magnetic Nanostructures pp 77-93, Part of the *Nanotechnology in the Life Sciences book series* (NALIS), **Springer** Link, 24 May 2019.
- **Elham F. Mohamed** and Gamal Awad. Zinc Nanoparticles in Marine Environment: An Overview, Chapter 23, In: Kamel Abd-Elsalam, *Zinc-Based Nanostructures for Environmental and Agricultural Applications*, 1<sup>st</sup> Edition, **Elsevier**, 1<sup>st</sup> June 2021.
- <u>Elham Farouk Mohamed</u>, Gamal Awad, Nanostructured Ceramics for Air Pollution Control: Removal of Gaseous Pollutants and Pathogenic Organisms Chapter in *Advanced Ceramics for Energy and Environmental Applications*, 1<sup>st</sup> Edition **CRC Press**, 299-312, 2021.
- **Elham Farouk Mohamed**, Gamal Awad, Development of nano-sensor and biosensor as an air pollution detection technique for the foreseeable future Chapter 6 in *Environmental Nanotechnology: Implications and Applications*, 1<sup>st</sup> **Elsevier**, 2022.
- **Elham Farouk Mohamed**, Gamal Awad, Biological processes for air pollution control, Chapter 6 in *Hybrid and Combined Processes for Air Pollution Control*

- Methodologies, Mechanisms and Effect of Key Parameters, Elsevier, 2022.
- **Elham F Mohamed**, Gamal Awad, Nanofertilizers versus traditional fertilizers for a sustainable environment: A recent trend in climate change mitigation, 2024, 387-402, **Elsevier**.

### **Patents:**

- 1-Air Purifier using Activated Carbon Prepared from water hyacinths, Certificate No. 29239, Academy of Scientific Research and Technology, Egypt.
- 2-Registered patent for Manufacture of stable and strong nano-catalysts of mono-oxygenase Cytochromes P450 BM3 enzyme installed on hollow nanoparticles, No.415/2019, Academy of Scientific Research and Technology, Egypt.

### **Published Papers**

- 1. C. J. Lebigue, C. Andriantsiferana, N. Krou, C. Ayral, <u>E. Mohamed</u>, A.Marie Wilhelm, H. Delmas, L. Le Coq, C. Gerente, K. M. Smith, S. Pullket, G Fowler, N.J.D. Graham (2010). Application of sludge-based carbonaceous materials in a hybrid water treatment process based on adsorption and catalytic wet air oxidation. Journal of Environmental Management.91: 2432 2439.
- **E.F. Mohamed**, C. Andriantsiferana, A. M. Wilhelm and H. Delmas (2011). Competitive adsorption of phenolic compounds from aqueous solution using sludge based activated carbon. **Environmental Technology 32 (12): 1–12.**
- 3. C. Andriantsiferana, E.F. Mohamed, and H. Delmas (2013). Photocatalytic degradation of an azo-dye on TiO2 activated carbon composite material. Environmental Technology 35(3):355-363.
- 4. H. Essawy, A. Shakour, M. Tawfik, <u>E.F Mohamed</u>, S.El Sabbagh, M. El-Hashemy (2014). Composite membranes derived from immiscible NBR/SBR blends and amphiphilic montmorillonites: permeability evaluation of these membranes for benzene and toluene in their binary mixtures. **RSC Advanced 4(63): 33555-33563**.
- **5.** Caroline Andriantsiferana, <u>Elham Farouk Mohamed</u>, Henri Delmas. Sequential adsorption -photocatalytic oxidation process for wastewater treatment using a composite material TiO2/activated carbon. **Environ. Eng. Res. 2015; 20(2): 181-189.**
- 6. Elham F. Mohamed, Mohammed A. El-Hashemy, Nasser M. Abdel-Latif (2015). Production of sugarcane bagasse-based activated carbon for formaldehyde gas removal from potted plants exposure chamber, Journal of the Air & Waste Management Association, 65, 1413-1420.
- **7.** Elham F. Mohamed, Sohair A. Sayed Ahmed, Nasser M. Abdel-Latifa and Asmaa ELMekawya (2016). Air purifier devices based on adsorbents produced from valorization

- of different environmental hazardous materials for ammonia gas control, **RSC Advances. 6, 57-84.**
- **8. Elham F Mohamed**, Gamal Awad, Caroline Andriantsiferana, Ahmed I El-Diwany (2016). Biofiltration technology for the removal of toluene from polluted air using Streptomyces griseus. **Environmental Technology 37(10), 1197-1207.**
- **9.** H Zaitan, **EF Mohamed**, H Valdés, M Nawdali, S Rafqah, MH Manero (2016). Toluene, Methanol and Benzaldehyde Removal from Gas Streams by Adsorption onto Natural Clay and Faujasite Y type Zeolite, **Acta Chimica Slovenica 63 (4), 798-808.**
- **EF Mohamed**, WH Shetaya, A El-Mekawy, AA Shakour, G Awad (2017). Coupling of Solvent Extraction and Ultrasonic Waves for Regeneration of Spent Activated Carbon after Treatment of Polluted Air with Toluene Vapor, **Journal of Applied Biotechnology 5 (2), 1-19**
- 11. <u>EF Mohamed</u> (2017).Nanotechnology: future of environmental air pollution control. Environmental Management and Sustainable Development,6 (2), 429-454
- 12. WH Shetaya, ER Marzouk, <u>EF Mohamed</u>, M Elkassas EH Bailey, SD Young. Lead in Egyptian soils: Origin, reactivity and bioavailability measured by stable isotope dilution. Science of The Total Environment 618, 460-468
- **EF Mohamed**, G Awad, H Zaitan, C Andriantsiferana, MH Manero (2018). Transition metals incorporated zeolites as environmental catalysts for indoor air ozone decomposition, **Environmental Technology**, **39** (7), **878-886**
- **14.** G Awad, **EF Mohamed** (2019). Immobilization of P450 BM3 monooxygenase on hollow nanosphere composite: Application for degradation of organic gases pollutants under solar radiation lamp. **Applied Catalysis B: Environmental 253, 88-95.**
- 15. WH Shetaya, ER Marzouk, EF Mohamed, EH Bailey, SD Young (2019). Chemical and isotopic fractionation of lead in the surface soils of Egypt. Applied Geochemistry 106, 7-16.
- **EF Mohamed**, G Awad, C Andriantsiferana, H Delmas (2019). Effect of Salinity and PH on the industrial effluent treatment by activated carbon: modeling of the kinetic adsorption and equilibrium isotherms. **Environmental Management and Sustainable Development 8 (1), 77-94.**
- 17. Sara Marchetti, Salwa K. Hassan, Waleed H. Shetaya, Asmaa El-Mekawy, <u>Elham F. Mohamed</u>, Atef M. F. Mohammed, Ahmed A. El-Abssawy, Rossella Bengalli, Anita Colombo, Maurizio Gualtieri and Paride Mantecca (2019). Seasonal Variation in the Biological Effects of PM<sub>2.5</sub> from Greater Cairo. Int. J. Mol. Sci., 20(20), 1-21

- 18. **E.F. Mohamed**, TO Do (2020). Synthesis of New Hollow Nanocomposite Photocatalysts: Sunlight Applications for Removal of Gaseous Organic Pollutants. Journal of the Taiwan Institute of Chemical Engineers 111, 181-190.
- 19. **EF Mohamed**, G Awad. Photodegradation of gaseous toluene and disinfection of airborne microorganisms from polluted air using immobilized TiO<sub>2</sub> nanoparticle photocatalyst–based filter. Environmental Science and Pollution Research, 2020, 27, 24507–24517.
- 20. **EF Mohamed**, Awad, G. (2020). The Global War Against the Novel Coronavirus Enemy: What Is COVID-19? Of Course, Nothing Is Certain Yet. Journal of Applied Biotechnology, Vol. 8, No. 2.
- 21. **EF Mohamed**, Awad, G. Hollow N-TiO<sub>2</sub>/MnO<sub>2</sub> nanocomposite based yeast biomass for gaseous formaldehyde degradation under visible light. Journal of Industrial and Engineering Chemistry, Available online 24 March 2021, in press.
- 22. **Elham F. Mohamed**, Gamal Awad. Solar photocatalytic degradation of organic pollutants from indoor air using novel direct flame combustion based hollow nanocomposite of Pd/Anatase–Rutile TiO<sub>2</sub> mixed phase and evaluation of the biocompatibility. Advanced Powder Technology 2021, 32, 2555-2565.
- 23. **EF Mohamed**, G Awad. Nanostructured Ceramics for Air Pollution Control: Removal of Gaseous Pollutants and Pathogenic Organisms. Advanced Ceramics for Energy and Environmental Applications, 2021, 299-312.
- 24. AMF Mohammed, **EF Mohamed**, IA Saleh. Air Pollution and COVID-19 Lockdown. Material Sci & Eng 2021, 5 (4), 111-122.
- 25. <u>Elham F. Mohamed</u>, Gamal Awad. Development of nano-sensor and biosensor as an air pollution detection technique for the foreseeable future. Comprehensive Analytical Chemistry Available online 28 January 2022.
- 26. **Mohamed E. F.** Air pollution remediation using synergetic coupling of AC/TiO<sub>2</sub> filter for benzene gas removal: regeneration and reuse of spent activated carbon after the treatment process. Journal of Physics: Conference Series 2022, 2305, 012031.
- 27. <u>Elham F Mohamed</u>, G Awad. Biological processes for air pollution control, Hybrid and Combined Processes for Air Pollution Control, 2022, 153-166.
- 28. <u>Elham F Mohamed</u>, H Ali. New Pt/TiO2/Ti2Fe2O7 nanocomposite using sugarcane bagasse agro-waste for photodegradation of toluene gas pollutant under sunlight. Materials Science and Engineering: B 2023, 295, 116583.

- 29. <u>Elham F Mohamed</u>, F Mohamed, A El-Mekawy, W El Hotaby. Development of PVA/GO Nanocomposites Membranes for Air-Filtration and Purification. Journal of Inorganic and Organometallic Polymers and Materials, 2023, 1-13.
- 30. **Elham F Mohamed**, G Awad. Advanced Nano-biotechnology for Chlorinated Volatile Compound Pollutants Control. Environmental Management and Sustainable Development 2023, 12 (1), 34-66.
- 31. <u>Elham F Mohamed</u>, Gamal Awad, Abdelnasser SS Ibrahim, Biodegradation of formaldehyde gas pollutant by a novel immobilized haloalkaliphilic Salipaludibacillus agaradhaerens strain NRC-R isolated from hypersaline soda lakes. Results in Engineering 2023, 19, 101374.
- 32. <u>Elham F Mohamed</u>, A El-Mekawy, SAS Ahmed, NA Fathy. High Adsorption Capacity of Ammonia Gas Pollutant Using Adsorbents of Carbon Composites. Arabian Journal for Science and Engineering, 2024,47, 261–271.
- 33. <u>Elham F Mohamed</u>, El-Mekawy, A. & Abdel-Latif, N.M. Airborne microplastic contamination and health risks in Greater Cairo, Egypt. Environ Sci Pollut Res **32**, 7705–7721 (2025). https://doi.org/10.1007/s11356-025-36204-x

# Publications in conference proceedings with oral communication

- 1. **E.F. Mohamed**, C. Adriantsiferana, H. Delmas. Towards a New Sustainable Sequential Process for Wastewater Treatment using Sludge Based Activated Carbon. 3rd International Conference of Environmental Research Division, Under The Theme of Environmental Science & Technology, NRC, Cairo, Egypt 2008, April 1-3, 2008.
- 2. **E.F. Mohamed**, C. Andriantsiferana, H. Delmas. Photocatalytic oxidation of phenol under UV irradiation on a combined TiO2-AC Tissue. International "Ozone and UV: Leading-edge science and technologies" 23-27 May 2011, pairs, France.
- 3. Elham F. Mohamed, Environmental Air Pollution Control by New Egyptian Ward El Nile Based Filter. **Military Technical College, Egypt.** Volume 8, 8th International Conference on Chemical & Environmental Engineering, Spring 2016, Page 115-126.
- 4. **Elham F. Mohamed**, Gamal Awad and Ahmed I. El-Diwany. Treatment of Polluted Air Using Biofilter Based *S. griseous* Species. 66th Canadian Chemical Engineering

- Conference, Sustainability and prosperity, Quebec City, QC, October 16-19, 2016, Canada.
- 5. **Elham F. Mohamed,** Review Article Revolution of Nanotechnology in Air Pollution, Military Technical College, Egypt., Volume 9, 9th International Conference on Chemical & Environmental Engineering, Spring 2018, Page 205-216.
- 6. P Mantecca, S Hassan, A El-Abssawy, Shetaya W.H., A El-Mekawy, **E Mohamed**, A Mohammed, R Bengalli, S Marchetti, A Zerboni, E Longhin, M Camatini. Comparative toxicity of airborne fine and ultrafine particles from different regions and emission sources. 10th Congress of Toxicology in Developing Countries and 12th Serbian Congress of Toxicology, April 18-21, 2018, Belgrade, Serbia. (Oral Presentation).
- 7. **Elham F. Mohamed,** Air pollution remediation using synergetic coupling of AC/TiO<sub>2</sub> filter for benzene gas removal: regeneration and reuse of spent activated carbon after the treatment process, Military Technical College, Egypt, 11th International Conference on Chemical & Environmental Engineering (ICEE-11), March 29-31, 2022, Cairo, Egypt.

### Publications in conference proceedings with poster presentation

- 1. M. Nasralla, Ali, I. Aziz (**E. F. Mohamed**). The use of cement kiln dust to control lead absorption by plant from polluted Soil, A case study. International Conference on Heavy Metals in the Environment August 6-10, 2000, University of Michigan, Ann Arbor, MI University of Michigan, Dearborn U.S. Geological Survey Environment Canada.
- 2. **E. F. Mohamed**, C. Andriantsiferana, H. Delmas, A. M. Wilhelm. *Élimination des Composés Phénoliques par Charbons Actifs Issus de Boues*. Xèmes Journées Cathala-Letort de prospective scientifique et technique, SFGP, Octobre 2008, Toulouse III "Le Génie des Procédés au service de l'Environnement Enjeux et défis, France.
- 3. **E. F. Mohamed**, C. Andriantsiferana, H. Delmas, A. M. Wilhelm. Competitive Adsorption of Phenolic Compounds from Aqueous Solution using Sludge Based Activated Carbon. *the International Green Process Engineering Congress and the European Process Intensification Conference*, 14-17 june 2009, Venice, Italy.
- 4. **E. F. Mohamed**, C. Andriantsiferana, H. Delmas. Photocatalytic Regeneration of Activated Carbon Saturated with Phenol using Novel Kind of Combined TiO2-AC Tissue. International Journée Européenne de la photocatalyse, JEP), 21 et 22 September 2009, Cité Mondiale, Bordeaux, France.

- 5. **E.F. Mohamed**, C. Andriantsiferana, H. Delmas. Influences of Temperature, pH and Inorganic Salt on the Removal of Phenols from Aqueous solution and Industrial Effluent onto Commercial Activated Carbon S23. International IWA: « Sustainable Solution for Small Water and Wastewater Treatment Systems (S2Small 2010) 19-22 April 2010, Girona, Catalonia, Spain.
- 6. Ezzat Marzouk, Waleed Shetaya, Mohamed Elkassas, **Elham Mohamed**, Elizabeth Bailey, Scott Young Bioavailability and Sources of Lead in the Terrestrial Environment of EgyptEGU General Assembly 2016, held 17-22 April, 2016 in Vienna Austria, id. EPSC2016-1711.