
Walaa Ahmed Eraqi, PhD

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Education:

2015-2019 Faculty of Pharmacy, Cairo University (FOPCU), Cairo, Egypt

PhD in Microbiology and Immunology

Advisor: Dr. Salwa Ahmed Megahed, PhD and Dr. Aymen Samir, PhD

“Study on the Influence of the Greater Cairo Metropolitan Area on the Microbial Diversity and Bacterial Genotypic Determinants in the Nile River Water”

2012-2014: Faculty of Pharmacy, Cairo University (FOPCU), Cairo, Egypt

MSc in Microbiology and Immunology

Advisor: Dr. Magdy Ali Amin, PhD and Dr. Aymen Samir, PhD

“Studies on Bio-engineering for Microbial production of Rhamnolipid(s) biosurfactant”

2004-2009: Faculty of Pharmacy, Cairo University (FOPCU), Cairo, Egypt

BSc in Pharmaceutical Sciences, Jun. 2009. Excellent with honors

Professional positions-Experience:

September 2024: Lecturer, Department of Microbiology and Immunology, Egyptian Chinese University, Cairo, Egypt.

2019 to Now: Lecturer, Department of Microbiology and Immunology, FOPCU, Cairo, Egypt. Involved in teaching different undergraduate courses, and postgraduate courses, including both master's and diploma programs in the department. In addition to supervising graduate students.

2014- 2019: Lecturer Assistant, Department of Microbiology and Immunology, FOPCU, Cairo, Egypt. Involved in teaching and preparing practical sessions for undergraduate and graduate students, as well as student projects and activities.

2011- 2014: Demonstrator (TA), Department of Microbiology and Immunology, FOPCU, Cairo, Egypt. Involved in teaching and preparing practical sessions for undergraduate and graduate students, as well as student projects and activities.

2010- 2011: Member of specialized scientific committee at Central Administration for Pharmaceutical Affairs (CAPA), Registration Department.

Career History and Research Interest:

- My master thesis was focusing on isolation and characterization of novel Surface active agents-producing strains from different environmental sources and improving the

productivity of these isolates by metabolic engineering tools.

- Regarding my PhD., we investigated the spatial and temporal variations of the microbial communities defining the Nile microbiome as well as determining the water quality and the presence of antibiotic resistance determinants along its flow through Greater Cairo using 16S rRNA gene high-throughput sequencing and bioinformatics analysis tools
- My post-doctoral research includes looking for novel antimicrobial agents and their possible mechanisms of action against different life-threatening pathogens as an alternative therapy to overcome the emergence of the resistance to conventional antibiotics. Alternative therapies includes the use of probiotics, antimicrobial peptides, phage lytic enzymes, screening for microbes with potential bioactive metabolites and others. In addition, I have been working on different project that investigate the microbiological quality of different freshwater systems and the antimicrobial resistance in these environments using sequence-based metagenomics.

Researcher's metrics:

	<u>Google Scholar</u>
h-index	5
Total citations	128

Technical and wet lab skills:

- **Molecular biology techniques:** primer design, PCR, gel electrophoresis, SDS PAGE, cloning, protein expression, protein expression, SDS PAGE, and Real-time PCR.
 - **Metagenomics:** DNA Extraction & Purification and Next Generations Sequencing.
 - **Bioinformatics:** High throughput data analysis; Microbiome Analysis (MOTHUR & QIIME pipelines), CLC Workbench Software and online databases (NCBI).
 - **Biotechnological techniques:** biotechnological proteins' optimization, multi-variant experiments design, manipulations and data analysis.
 - Handling small rodents (mostly mice) and working on in vivo models of infection (skin and systemic).
 - Basic microbiological techniques, e.g., bacterial cultures, light microscopy, microbial counts, preparation of different culture media, diagnostic medical microbiology techniques, and microbiological quality assurance and quality control experiments.
 - **Biostatistics:** GraphPad Prism and R Software.
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Supervision:

Mentoring of internal and external postgraduate students (**Total of 2 master's and 5 PhD**).

Conferences:

- Poster presentation. 4th International Scientific Conference of Faculty of Pharmacy, Cairo University "Pharmacy Education and Community Expectations" (**April 2013**).

- 5th International Scientific Conference of Faculty of Pharmacy, Cairo University "Pharmacy at the Cutting-Edge: Facing Future Challenges" (**April 2014**).
- The TWAS/BioVision Alexandria. NXT 2014, Alexandria, Egypt, (**April 2014**).
- 8th international scientific conference of Faculty of Pharmacy – Cairo University “Pharmacy in Egypt: Ensuring Access to Health”, (**April 2017**)
- 9th international scientific conference of Faculty of Pharmacy, Cairo University “Globally Recognized Egyptian Pharmaceutical Ingredients- A National Priority”, **April 2018**).
- Poster presentation. Transitional Multidisciplinary Research Conference of University of Greenwich and October University for Modern Science and Arts (**October 2018**).
- 27th International Symposium on Hepatitis C Virus and Related Viruses (HCV2021), Virtual (**January 2021**).
- Poster presentation. 4th Egyptian International Conference On Microbiota And Microbiome In Health And Diseases , National Research Center, Cairo University ,

Workshops:

2012:

1. Systems biology workshop at the Biotechnology Center, Faculty of Pharmacy, Cairo University, Egypt.
2. Bioinformatics BTC-003, at the Biotechnology Center, Faculty of Pharmacy, Cairo University, Egypt.
3. Technology of Upstream Bioprocess BTC-009, at the Biotechnology Center, Faculty of Pharmacy, Cairo University, Egypt.

2013: Bacterial Cell Factory BTC-011, at the Biotechnology Center, Faculty of Pharmacy, Cairo University, Egypt.

2016: Fluorometer device training workshop at the Biotechnology Center, Faculty of Pharmacy, Cairo University, Egypt

2019:

1. Metagenomic analysis on MOTHUR workshop , Center of Genome and Microbiome, Research, Faculty of pharmacy Cairo University
2. Advanced Metagenomics Workshop by DR. George wells (Northwestern University, US) at Faculty of Pharmacy, Cairo University, Egypt

2021:

1. European Molecular Biology Laboratory (EMBL) Ensembl Workshop, American University, Cairo (AUC)
2. Bioinformatics for Biologists: an introduction to Linux, Bash Scripting and R, Future learn (online).

Publications/Conference abstracts:

- Studies on Isolation and Characterization of Surface Active Compounds- Producing Bacteria. Aymen S. Yassin, Amal E. Ali, Magdy A Amin. (**4th International Scientific Conference of Faculty of Pharmacy, Cairo University, 2013**).
- Production of Rhamnolipid biosurfactant from glycerol by *Pseudomonas aeruginosa*. Walaa A. Eraqi, Aymen Samir Yassin, Amal E. Ali, Magdy A Amin. (**The V International Conference on Environmental, Industrial and Applied Microbiology, Madrid, Spain, 2013**).
- Utilization of Crude Glycerol as a Substrate for the Production of Rhamnolipid by *Pseudomonas aeruginosa*. Walaa A. Eraqi, Aymen Samir Yassin, Amal E. Ali, Magdy A Amin. **Biotechnology research international 2016**.
- The Nile River Microbiome Reveals a Remarkably Stable Community Between Wet and Dry Seasons, and Sampling Sites, in a Large Urban Metropolis (Cairo, Egypt). Walaa A. Eraqi, Marwa T Elrakaiby, Salwa A. Megahed, Noha H Yousef, Mostafa S Elshahed, Aymen Samir Yassin. **Omics : A journal of integrative biology 2018**.
- Microbial community structure of the Nile river water around Cairo metropolis. Walaa A. Eraqi, Marwa T Elrakaiby, Salwa A. Megahed, Noha H Yousef, Mostafa S Elshahed, Aymen Samir Yassin (**The 17th meeting of International society of microbial ecology, Leipzig, Germany 2018**).
- Spatiotemporal microbial community analysis of the Nile river along the Cairo urban metropolis. Walaa A. Eraqi, Marwa T Elrakaiby, Salwa A. Megahed, Noha H Yousef, Mostafa S Elshahed, Aymen Samir Yassin (**8th Congress of European Microbiologists (FEMS 2019), Glasgow, Scotland, UK 2019**).
- Spatiotemporal Analysis of the Water and Sediment Nile Microbial Community Along an Urban Metropolis. Walaa A. Eraqi, Marwa T Elrakaiby, Salwa A. Megahed, Noha H Yousef, Mostafa S Elshahed, Aymen Samir Yassin. **Microbial Ecology, 2021**.
- Unravelling the beehive air volatiles profile as analysed via solid-phase microextraction (SPME) and chemometrics. Aida A Abd El-Wahed, Mohamed A Farag, Walaa A Eraqi, Gaber AM Mersal, Chao Zhao, Shaden AM Khalifa, Hesham R El-Seedi. **Journal of King Saud University-Science, 2021**.
- Ubiquinol preserves immune cells in gamma-irradiated rats: Role of autophagy and apoptosis in splenic tissue. Nora Mohamed Elkenawy , Heba Ramadan Ghaiad, Sherehan Mohamed Ibrahim , Ramy Karam Aziz , Eman Rashad, Walaa Ahmed Eraqi. **International Immunopharmacology, 2023**.
- Ultra-deformable free fatty acid based nano-carriers for topical delivery of Luteolin: A potential paradigm for management of Methicillin-Resistant *Staphylococcus aureus* skin

infections. Mohamed Y. Zakaria, Walaa A. Eraqi, Sally A. Mohamed. **International Journal of Pharmaceutics, 2023.**

- Gastroprotective and Gut Microbiome-Modulating Effects of Ubiquinol in a Rat Model for Gamma Radiation-Induced Enteropathy. Walaa A. Eraqi, Walaa A. El-Sabbagh, Ramy K. Aziz, Mostafa S. Elshahed, Noha H. Youssef, Nora M. Elkenawy (**4th Egyptian International Conference on Microbiota & Microbiome in Health & Disease, FEMSA, 2023**)
 - Eraqi WA, El-Sabbagh WA, Aziz RK, Elshahed MS, Youssef NH, Elkenawy NM. Gastroprotective and microbiome-modulating effects of ubiquinol in rats with radiation-induced enteropathy. **Animal Microbiome. 2024** Dec;6(1):1-7.
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Grants:

2022: Assessment and mitigation of antimicrobial resistance in freshwater

- **Principal Investigator:** Dr. Ali Hassan Ali Elbehery, Lecturer of Microbiology and Immunology, Faculty of Pharmacy, the University of Sadat City.
- Supported financially by the University of Sadat City for the USC Competitive Applied Research Fund.
- Participants from Faculty of Pharmacy, Cairo University: Prof. Dr. Ramy Karam Aziz, and Prof. Dr. Ayman Yasin

Skills:

Languages: Arabic: Fluent (mother tongue), English: Fluent
