

PERSONAL INFORMATION



Name Fatma Shams Lotfy Ali Mahmoud

Location 14st Ahmed El-Akhras, Saft- El Laban, Giza, Egypt

Phone 01022242825

Email Fatma.elsherif@agr.cu.edu.eg

Sex female

Date of birth 22/7/1992

Nationality Egyptians

JOB POSITION

2025-PRESENT

Lecturer at Department of Agricultural Microbiology, Faculty of Agriculture, Cairo University, Giza, Egypt.

2020-2025

Assistant Lecturer at Department of Agricultural Microbiology, Faculty of Agriculture, Cairo University, Giza, Egypt.

2016-2020

Teaching Assistant at Department of Agricultural Microbiology, Faculty of Agriculture, Cairo University, Giza, Egypt.

EDUCATION

Faculty of Agriculture, Cairo University, Giza, Egypt.

January 2021 - January 2025

PhD in Agriculture sciences, Microbiology.

Thesis "Using *Streptomyces* As Potential Biocontrol Agents Against *Rhizoctonia solani* Causing Root Rot Disease".

2016 - July 2020

M.Sc., in Agriculture sciences, Microbiology.

Thesis "Production Of Exopolysaccharides By Bacteria Isolated From Egyptian Soil".

2010 - Jun 2014

B.Sc., in Agriculture sciences, Biotechnology.

PUBLICATION RESEARCHS

June 2025

Shams F., Ali A.M., Makboul H. and Moselhy M. (2025). Isolation, characterization, and optimization of cultivation parameters of two *Streptomyces* species for potential biocontrol of *Rhizoctonia solani* causing root rot disease. Egyptian Journal of Biological Pest Control. 35(26):1-21.

October 2024

Shams F., Ali A.M., Makboul H. and Moselhy M. (2024). LC-ESI-MS/MS Analysis of Bioactive Metabolites from *Streptomyces rochei* with Antimicrobial, Antioxidant, and Cytotoxic Properties. Egypt J Chem. Vol. 67, pp. 1947 – 1956.

November 2020

Moselhy M, **Lotfy F.S.**, Makboul H, Ali A.S (2020). Antimicrobial and antioxidant characteristics of exopolysaccharides produced by *Agrobacterium tumefaciens* Cs5 and T1. Egypt J Chem. Vol. 63, No. 11 pp. 4423 – 4438.

COURSES TAUGHT PARTICIPATE

2016-PRESENT

2016-2025

2016-2024

2016-2024

2016-2019

2016-2019

2016-2019

101 AMB Agriculture Microbiology

203 AMB Fundamental Agriculture Microbiology

303 AMB Microbial Physiology

310 AMB Applied Microbiology

305 AMB Immune

204 AMB Microbial Biotechnology

404 AMB Microbial Taxonomy

301 AMB General Microbiology

TRAINING COURSES

September 2023 – August 2028

Fundamentals of Digital Transformation Certificate, Faculty of Engineering, Cairo University, Egypt.

20-21 June 2022

Competing for Research Funds, Faculty and Leadership Development Center "FLDC" Cairo University, Training, Egypt.

19-20 February 2022

Art of Effective Leadership, Faculty and Leadership Development Center "FLDC" Cairo University, Training, Egypt.

22-23 September 2021

Communication Skills, Faculty and Leadership Development Center "FLDC" Cairo University, Training, Egypt.

31 July - 01 August 2021

Essentials of Integrated Education, Faculty and Leadership Development Center "FLDC" Cairo University, Training, Egypt.

01-02 February 2021

Statistical analysis of Bio-Experiments, Faculty and Leadership Development Center "FLDC" Cairo University, Training, Egypt.

22, 23, 29 and 30 January 2020

Statistical analysis, Career development centre, Faculty of agriculture, Cairo University, Egypt.

20-23 OCTOBER 2019

Basic Techniques in molecular Microbiology and Bacterial Identification Using 16S rRNA Gene Sequencing, Cairo University Research Park, Faculty of agriculture, Egypt.

16-17 OCTOBER 2019

Scientific Writing and International Publishing, Career development centre, Faculty of agriculture, Cairo University, Egypt.

21 MAY – 12 JULY 2019

Course of English B2 Level, CENTRO LINGUISTICO D'ATENCO, UNIVERSITA DEGLI STUDI DI SASSARI, ITALY.

2 March – 13 April 2019

International Computer Driving license (ICDL), Faculty of Engineering, Cairo University, Egypt.

9 March 2019

Academic Research Writing in English, Center for Languages and Translation, Cairo University, Egypt.

1-2 August 2018

Ethical and legal principles in professional practice, Faculty and Leadership Development Center "FLDC" Cairo University, Training, Egypt.

25-26 June 2018

Effective Presentation Skills, Faculty and Leadership Development Center "FLDC" Cairo University, Training, Egypt.

| | |
|----------------------------|--|
| 11-12 April 2018 | Scientific Writing, Faculty and Leadership Development Center "FLDC" Cairo University, Training, Egypt. |
| 26- 27 August 2017 | International Publishing of Scientific Research, Faculty and Leadership Development Center "FLDC" Cairo University, Training, Egypt. |
| 15-16 February 2017 | Research Ethics, Faculty and Leadership Development Center "FLDC" Cairo University, Training, Egypt. |
| 7-8 September 2016 | University Code of Ethics, Faculty and Leadership Development Center "FLDC" Cairo University, Training, Egypt. |
| 13-14 August 2016 | Exam & Students Evaluation System, Faculty and Leadership Development Center "FLDC" Cairo University, Training, Egypt. |
| 6-7 April 2016 | E-learning, Faculty and Leadership Development Center "FLDC" Cairo University, Training, Egypt. |

PERSONAL SKILLS

Mother tongue(s)

Arabic

Other language(s)

English

| UNDERSTANDING | | SPEAKING | | WRITING |
|---------------|-------------|--------------------|-------------------|-------------|
| Listening | Reading | Spoken interaction | Spoken production | |
| Enter level | Enter level | Enter level | Enter level | Enter level |
| B1 | B1 | B1 | B1 | B2 |

Levels: A1/A2: Basic user - B1/B2: Independent user - C1/C2 Proficient user
[Common European Framework of Reference for Languages](#)

PRACTICAL SKILLS

1. Isolation and Purification of Soil Microorganisms (Microbiology Department Faculty of Agriculture, Egypt).

Skilled in aseptic isolation and purification of diverse soil microbes, including actinomycetes, fungi, and plant growth-promoting bacteria.

2. Selective Culturing Techniques (Microbiology Department Faculty of Agriculture, Egypt).

Proficient in utilizing selective and differential media to cultivate agriculturally significant microorganisms such as *Streptomyces* bacteria.

3. Bio-formulation of Beneficial Microbes (Microbiology Department Faculty of Agriculture, Egypt).

Expertise in preparing microbial consortia and formulating bio-inoculants for sustainable crop enhancement and soil fertility management.

4. Biological Control Using Microorganisms (Central Lab. For organic agric., Agriculture Research Center, Egypt).

Extensive hands-on experience in applying microorganisms such as *Streptomyces* spp. as a biocontrol agent against phytopathogenic fungi and bacteria, through secondary metabolite production and competitive exclusion mechanisms.

5. Quantification of Microbial Populations (Microbiology Department Faculty of Agriculture, Egypt).

Competent in viable plate count techniques, serial dilution methods, and spectrophotometric estimation to assess microbial load in soil, compost, and plant rhizosphere.

6. Antimicrobial Assays and Bioactivity Testing (Microbiology Department Faculty of Agriculture, Egypt).

Capable of performing disc diffusion, well diffusion, and MIC determination to evaluate the antagonistic potential of

microbial metabolites.

7. Enzymatic Activity Assays (Central Lab. For organic Agriculture, Agriculture Research Center, Egypt).

Skilled in detection and quantification of key microbial enzymes (e.g., cellulase, protease, amylase, chitinase, phosphatase) relevant to plant health and soil nutrient cycling.

8. Preparation and Application of Organic Substrate Media (Microbiology Department Faculty of Agriculture, Egypt).

Ability to formulate and optimize growth media using agricultural wastes (e.g., Molasses, CSL, rice straw, banana peels) to support eco-friendly cultivation of beneficial microbes.

9. Greenhouse and Field-Level Bioassays (Central Lab. For organic agric., Agriculture Research Center, Egypt).

Experienced in designing and conducting pot and field experiments to assess microbial impact on plant growth, resistance, and productivity under controlled and natural conditions.

10. Molecular and Microscopic Identification (Microbiology Department Faculty of Agriculture, Egypt).

Familiarity with molecular techniques (e.g., PCR, 16S rRNA analysis) and microscopic observation for microbial classification and identification.

11. Design and Monitoring of Microbial Biofertilizer Trials (Central Lab. For organic agric., Agriculture Research Center, Egypt).

Ability to plan, implement, and monitor experimental trials for evaluating the efficacy of microbial biofertilizers under varying soil and crop conditions.

12. Advanced Skill in Statistical Optimization Using Response Surface Methodology (RSM) for Microbial Fermentation (Microbiology Department Faculty of Agriculture, Egypt).

Highly proficient in the application of Response Surface Methodology (RSM) as a robust statistical tool for the design, modeling, and optimization of complex microbial fermentation processes. Experienced in employing Central Composite Design (CCD) and Box-Behnken Design (BBD) frameworks to systematically evaluate the interactive effects of multiple physicochemical and nutritional parameters (e.g., pH, temperature, agitation rate and carbon & nitrogen sources) on microbial metabolite production. Capable of using specialized software platforms such as Design-Expert, Minitab, or JMP for model development, regression analysis, and analysis of variance (ANOVA), ensuring precise prediction of optimal conditions. Adept at interpreting three-dimensional response surface plots, contour maps, and diagnostic residual plots to validate model adequacy and reliability. This skill has been effectively applied to enhance the yield of secondary metabolites (e.g., antibiotics, enzymes, pigments) from agriculturally significant microorganisms including *Streptomyces* spp., under both submerged and solid-state fermentation systems.

13. LC-MS Data Interpretation for Microbial Metabolite Profiling (National Research Centre, Egypt).

Proficient in analyzing and interpreting LC-MS chromatographic and mass spectrometric data to identify bioactive metabolites secreted by agriculturally relevant microorganisms, particularly *Streptomyces* spp. Skilled in comparing mass-to-charge (m/z) ratios, retention times, and fragmentation patterns with established compound libraries (e.g., MassBank) to determine molecular structure and biological relevance of secondary metabolites. Able to distinguish classes of compounds including antibiotics, siderophores, phytohormones, lipopeptides, and link metabolite production to specific microbial functions in biocontrol plant growth promotion and soil health.

14. Statistical Data Analysis Using CoStat Software (Microbiology Department Faculty of Agriculture, Egypt).

Proficient in statistical analysis of experimental data using CoStat software, with the ability to apply a wide range of biostatistical tests including ANOVA, LSD, Duncan's multiple range test, correlation, regression, and cluster analysis. Capable of organizing complex microbiological and agricultural datasets, validating experimental replicates, and interpreting statistical outputs to draw meaningful scientific conclusions. Experienced in comparing microbial treatments and evaluating significant differences in bioassay results, metabolite production, and soil-plant-microbe interactions.

CONFERENCES AND WORKSHOPS ATTENDANCE

23-25/11/2025

Attendance Conference of International Conference on Laser Applications (ICLA 11), National Institute of Laser Enhanced Sciences (NILES), Cairo University, Giza.

28-30 /07 /2025

Attendance Workshop as Lecturer in the training course entitled Practical Application of Microbiology in Animal Production and its Relation with Using Agriculture by-Products in Animal Nutrition, Agriculture Research Centre, Egypt.

19-20 /10 /2019

Attendance Conference of Plant Protection Science Application for Sustainable Development of Desert Areas.

7-9/10/2019

Attendance Workshop of Training Basic of Scholarly Communication / Advanced Scholarly Communication.

17/06/2019

Attendance the events "Let's grow the future together" in Italia.

16/03/2019

Attendance of a Scientific seminar about Biological Sciences and Humans Efforts towards Development and Progress.

6/03/2019

Attendance the Workshop of Tips on CV Writing.

3/03/2019

Attendance the Work shop of Choosing Major/Minor with University at Albany State NY.

16/7/2017

Attendance for conference in the fields of modern Biotechnology entitled "Bio Raise" (BIO INSTITUTION).

2017

Attendance the stem cells Work shop at the national center for poisoning at Al-Aini Palace.

2017

Attendance the Mammalian Cell Culture Work shop at the national center for poisoning at Al-Aini Palace.

2017

Attendance the Bio Medicine Work shop at the national center for poisoning at Al-Aini Palace.

2017

Attendance the Embryology Work shop at the national center for poisoning at Al-Aini Palace.

REFERANCE

heleshemy@yahoo.com

Prof. Dr. Hany El-shemy
Professor, Chemistry Department, Faculty of Agriculture,
Cairo University, Egypt.

ayatmahmood@yahoo.com

Dr. Ayat M. Ali
Associate Professor, Central Lab. For organic Agriculture,
Agriculture Research Center, Egypt