

Abdelhamid Khodja

American University of Sharjah, Sharjah, UAE

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EDUCATION

B.Sc. in Biology

2020-2024

American University of Sharjah (AUS), Sharjah, UAE

Honors: *Magna Cum Laude*

Research Interests: computational structural biology, molecular biology, molecular dynamics, drug design, protein design, computational biology.

Research Projects: Antibacterial Nanoparticle Cellulose Fabrics for Self-Disinfection & Hybrid Antimicrobial Composites.

AWARDS AND HONORS

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| • UAE Distinguished Student Golden Visa | 2024 |
| • Valedictorian, Class of Spring 2024, AUS | Spring 2024 |
| • Outstanding Graduating Student Award, AUS | Spring 2024 |
| • College of Arts and Science Ambassador, AUS | Spring 2024 |
| • Chancellor's List Scholarship, AUS | Fall 2023-Spring 2024 |
| • Sheikh Khalifa Scholarship, Nominee, 2 nd Place, AUS | Spring 2023 |
| • Du Endowed Scholarship, AUS | 2022-2024 |
| • Dean's List Scholarship, AUS | Spring 2022-2024 |
| • Alpha Lambda Delta Honor Society, AUS | 2021 |
| • Financial Grant Award, AUS | 2020-2024 |
| • Outstanding Student Scholarship, AUS | 2020-2024 |

PUBLICATIONS

1. Akram, M., **Khodja, A.**, Majdalawieh, A., Dalibalta, S. The Role of Lipids in Atherosclerosis: Focus on Molecular Biology Mechanisms and Therapeutic Approaches. *Accepted October 18th, 2024, Current Medicinal Chemistry*
2. Ravindran, S., Khan, D., **Khodja, A.**, Terro, T., Radha, R., Diab, R., Ialyshev, V., Al-Sayah, MH. Harnessing Piperine for Enhanced Antimicrobial Activity of Carbon Dot-Modified Cellulose Fibers. *Discover Applied Science* 6, 490 (2024).
3. Makhoulf, Z., Khan, D., Terro, T., **Khodja, A.**, Radha, R., Al-Sayah, MH. Introducing antimicrobial activity into cellulose fibers using carbon dots: A step towards self-disinfecting fabric. *ACS Regional MEA Conference* (2024)
4. Siddiqui, R., **Khodja, A.**, Ibrahim, T. Khamis, M., Anwar, A., Khan, NA. The increasing importance of novel deep eutectic solvents as potential effective antimicrobials and other medicinal properties. *World Journal of Microbiology and Biotechnology* 39, 330 (2023).

RESEARCH GRANTS

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| 1. College of Arts and Sciences Undergraduate Research Grant | Spring 2024 |
| 2. QUWA Research & Innovation Grant | Fall 2023 |
| 3. College of Arts and Sciences Undergraduate Research Grant | Spring 2023 |

RESEARCH EXPERIENCE

Undergraduate Research Assistant

March 2023-July 2024

Supramolecular & Nano-Chemistry Group (SNCG), AUS

Advisor: Dr. Mohammad Al-Sayah

- Developed and synthesized novel antibacterial nanoparticles from phenylboronic acid, piperine, and curcumin and tested against a range of microorganisms.
- Awarded the CAS Undergraduate Research Grant (2024) for our project entitled "*Development of CD-PDA Hybrid Composites on Cellulose and Polyester Fabrics for Enhanced Antimicrobial Textiles*".
- Awarded the QUWA Research & Innovation Grant (2023) for our project entitled "*Cellulose Fibers Modified with Carbon Dots: A Promising Approach for Development of Self-Disinfecting Fabrics*".
- Awarded the CAS Undergraduate Research Grant (2023) for our project entitled "*Modification of Cellulose-Based Fibers with Antibacterial Nanoparticles for Development of Self-Disinfectant Fabrics*".

Lab Assistant

Oct. 2021-2022

Neuroanatomy Laboratory, AUS

Advisor: Dr. Reem Khalil

- Gained exposure to neuroanatomical techniques and data analysis related to the visual system's structural development.
- Shadowed senior lab members on projects investigating developmental changes in neuronal density in the ferret suprasylvian area and primary visual cortex, as well as pyramidal cell morphology in the mouse visual cortex.
- Gained experience with Golgi and Nissl Stains and Neurolucida software for tracing neuronal structures and performing quantitative morphometric analyses in various cortical areas.
- Responsible for setting up lab equipment, preparing PBS buffer, and compiled a detailed manual for the vibrating microtome.

TEACHING

Biochemistry Teaching Assistant

Jan. 2024-June 2024

Department of Biology, Chemistry, and Environmental Sciences (BCE), AUS

Advisor: Dr. Amin Majdalawieh

- Grading assessments and exams for the undergraduate Biochemistry (CHM 350).
- Provided one-on-one and group tutoring to students requiring additional assistance.
- Supported student involvement in research and extracurricular activities related to biochemistry.

BCE Learning Center Academic Tutor

August 2023-June 2024

Department of Biology, Chemistry, and Environmental Sciences (BCE), AUS

- Provided tutoring support for: General Biology I (BIO 101), General Biology II (BIO 102), Introduction to Human Biology (BIO 103), General Chemistry I (CHM 101), Organic Chemistry I (CHM 215), and Organic Chemistry II (CHM 216).
- Successfully tutored over 250+ students with diverse academic backgrounds.
- Instructed students on creating effective study systems, emphasizing prioritization of active learning, and adopting efficient study habits.

CONFERENCES & TALKS

- **Khodja, A.** Terro, T. (2024) Enhancing Cellulose Fibers with Carbon Dots for Antimicrobial Properties. *Student Research Conference on Mathematics and Related Areas, AUS*
- **Khodja, A.**, Makhoul, Z., Khan, D., Terro, T. (2024) Introducing Antimicrobial Activity into Cellulose Fibers using Carbon Dots: A Step Towards Self-Disinfecting Fabric. *American Chemical Society (ACS) Regional Middle East and Africa Conference, New York University Abu Dhabi (NYUAD)*.
- **Khodja, A.**, Terro, T. (2023) Carbon Dot-Modified Cellulose Fibers: Advancements in the Pursuit of Self-Disinfecting Textiles. *College of Arts and Sciences Research Day, AUS*
- Makhoul, Z., Khan, D., Terro, T., **Khodja, A.**, Radha, R., Al-Sayah, MH. (2023) Cellulose Fibers Modified with Carbon Dots: A Promising Approach for Development of Self-Disinfecting Fabrics. *The Fourth Forum for Women in Research, University of Sharjah*
- **Khodja, A.** (2023) Excelling in Chemistry: Learning to Master Organic Chemistry. *American Chemical Society (ACS) - AUS Student Chapter*.

SKILLS

- **Wet lab:** staining, culture preparation, culture isolation, smear preparation, plating techniques, cell culture, ultracentrifugation, molecular cloning, biosafety, mammalian cell culture
- **Major lab equipment:** Rotatory Evaporator, UV/VIS Microplate Spectrophotometer, Lyophilizer, Fourier-Transform Infrared Spectroscopy (FTIR), Fluorescence Spectroscopy, Compressome VF-310-0Z vibrating microtome, Carl Zeiss Axio Imager M2 Microscope
- **Computer:**
 - Python & R
 - Adobe After Effects, Adobe Premiere Pro, Adobe Photoshop, and Adobe Media Encoder; Experienced
 - Maxon Cinema 4D, Blender, Octane Render; Experienced
 - MS Office Suite; Experienced
- **Languages:** English (native), Arabic (native), French (beginner)

LICENSES & CERTIFICATIONS

- Machine Learning Specialization – DeepLearning.ai, 2024 (In progress)
- Data Analysis and Visualization Using Python – AUS, 2024
- Bayesian Belief Networks for Research – AUS, 2024
- Data Analysis and Machine Learning Using Python – AUS, 2024
- Disease Modeling and Target Discovery – Insilico Medicine, 2024
- R Programming for Biologists – NSTC, 2023

ACTIVITIES & LEADERSHIP

Science Educator YouTube Channel	Nov. 2019-present
Channel Link: https://www.youtube.com/@abdelhamidkhodja	
Public Relations Coordinator American Chemical Society (ACS) – AUS Student Chapter	July 2022-May 2023
President, College of Arts and Sciences Student Team American University of Sharjah (AUS)	May 2022-May 2023

Vice President, Neuroscience Society American University of Sharjah (AUS)	May 2022-May 2023
Head of the Logistics Team BCE Student Outreach Committee, American University of Sharjah (AUS)	Feb. 2022-Jan. 2023
Executive Secretary, College of Arts and Science Student Team American University of Sharjah (AUS)	Sept. 2021-May 2022
Founding President, Neuroscience Society American University of Sharjah (AUS)	April 2021-May 2022
COVID-19 Vaccine Campaign Volunteer King Fahd University of Petroleum and Minerals (KFUPM) Dhahran, Saudi Arabia	March-Sept. 2021
<ul style="list-style-type: none"> • +170 volunteering hours; supported Pfizer and AstraZeneca COVID-19 vaccine distribution. • Worked with patients to ensure an efficient experience at the KFUPM vaccine center. • Collaborated closely with the lead clinician and the clinic staff on a daily basis. 	

PRESS & FEATURED WORKS

- Delivered the [AUS Commencement Address](#) as the 2024 Class Valedictorian (2024).
- Featured as the [Spring 2024 Ambassador](#) for the College of Arts and Science (2024).
- Audio podcast interview on [Science Talks with Tala Zoubi](#) (2024).
- Featured on [QUWA Sustaining Women's Empowerment in Research & Innovation Grant](#) (2023).
- Featured in [MIT Technology Review Arabia](#) (2023) for the development of self-disinfectant fabrics.
- Featured in [Al Khaleej News](#) (2023) for the development of novel antibacterial nanoparticles.
- Featured in [AUS News](#) (2023) for nanomaterials for healthcare & environmental applications.
- Audio podcast interview on the [Tea With GenZ](#) (2021).