Haydar Aljaafari

Ph.D. Chemical Engineering

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EDUCATION

University of Iowa | Iowa City, IA **May 2022, GPA 3.9/4.00**
PhD, Chemical and Biochemical Engineering

University of Technology | Baghdad, Iraq
Master of Science, Chemical Engineering **(Ranked 1 among 8 graduates)**

University of Technology | Baghdad, Iraq
Bachelor of Science, Chemical Engineering **(Ranked 2 among 288 graduates)**

PROFESSIONAL EXPERIENCE

University of Technology, Baghdad, Iraq **August 2022 – Present**
Assistant Professor, Chemical Engineering Department

- Teaching chemical engineering courses for undergraduate students.
- Leading graduation projects seminars for senior students, chemical engineering department.
- Leading the secretariat audit committee in the chemical engineering department.
- Collaborating with groups of professors in troubleshooting and preparing lab operating manuals for new imported machines.
- Assisting in maintaining grades records and building a new record system for the exam committee.
- Implanting standard operation protocols and safety standards in the Fluid Flow lab.

Integrated DNA Technology, Coralville, IA **May 2021 – Present**
Specialist, Custom Quality Control Department

- Evaluating products in support of all manufacturing areas within Integrated DNA Technologies.
- Determining the quality of IDT products using variety of molecular biology methods and equipment.
- Performing QC tests, record and analyze data according to standard operating procedures.
- Performing troubleshooting, maintenance and calibration on specialized equipment.
- Assisting in implanting and validating standard operation protocols.
- Maintaining safety standards in the lab.

University of Iowa, Iowa City, IA **August 2014 – May 2022**
Graduate Research Assistant, Chemical & Biochemical Engineering Department

- Investigating the effects of thermal shock on biofilm elimination on medical devices surfaces.
- Studying the combined effect of thermal shock and antibiotics on microorganisms' community (biofilm).
- Investigating the methodology by which a community of bacteria respond to heat.
- Preparing and characterizing Iron oxide nanoparticles for induced heating.
- Working on project research implementation and improvement as well as research publications.
- Mentoring two teams of undergrad students in maintaining high level research.
- Writing detailed procedures, maintaining laboratory's instruments, and maintaining safe and secure lab environment.

University of Calabria, Calabria, Italy **September 2011 – December 2011**
Graduate Research Assistant, Institute on Membrane Technology (ITM-CNR)

- Worked with group of professors, grad and undergrad students in conducting Ultrafiltration related research.
- Characterized spinning parameters on preparation of hollow-fiber membranes for protein separation.
- Developing nanoparticles-polymer composite coating for better mechanical properties membrane.
- Set up, adjusted, calibrated, and maintained lab's instruments and equipment such as hollow fiber spinning machine, pore size distribution, mechanical properties testing machine, and surface tension.
- Tested and studied new composite membrane for different separation process.

University of Technology, Baghdad, Iraq
Research Assistant, Membrane Technology Research Unit

- Collaborated with the Iraqi Project Design Company in solving the wastewater problem in the City of Alqaam
- Worked on fabricating and characterizing of polymeric membranes.
- Conducted experiments, analyzed data, wrote reports and published papers.
- Collaborated with Chemical and Petrochemical Research Center in producing super hydrophobic membrane.

Arab Company for Antibiotics Industry, Baghdad, Iraq **(Intern)** **July 2005 – September 2005**

- Planned experiments using design of experiments modules.
- Characterized the physical properties of semi-solid formulations by microscopy and rheological analysis.
- Assisted Technical Services group in tech-transfer & scale-up activities for optimization of exhibit batches.
- Audited analytical data and lab notebooks to ensure testing completion according to standard operating procedures.

INSTRUMENTATION EXPERIENCE

Gas chromatography (GC)	Rheometer
UV-Vis	Laser Diffraction Nanoparticle Size Analyzer
High-performance liquid chromatography (HPLC)	Reflectometer
Polymerase Chain Reaction (PCR)	DNA Extraction
Scanning electron microscopy (SEM)	Contact Angle
Fluorescence Spectroscopy	Ph, O_2, Turbidity, Conductivity Meters
Transmission electron microscopy (TEM)	Alternating Magnetic Field Generator
Fourier-transform infrared spectroscopy (FTIR)	Soxhlet Extractor
Capillary electrophoresis (CE)	Polymer Spinner
Atomic absorption spectroscopy (AAS)	Fermenter

PUBLICATIONS AND CONFERENCES

Publications

- Haydar A.S. Aljaafari, Parham Parnian, Jaymes M. Van Dyne, Eric Nuxoll. Thermal Susceptibility and Antibiotic Synergism of Staphylococcus aureus Biofilms. Under revision (Dec 2022)
- Haydar A.S. Aljaafari, Yuejia Gu, Hannah Chicchelly, Eric Nuxoll. Thermal Shock and Ciprofloxacin Act Orthogonally on Pseudomonas aeruginosa Biofilms. *Antibiotics*. 2021; 10(8). DOI:10.3390/antibiotics10081017
- Hayder A.Alalwan, Malik M.Mohammed, Abbas J.Sultan, Mohammed N. Abbas, Thekra A. Ibrahim, Haydar A. S. Aljaafari, Alaa A. Alminshid. Adsorption of Methyl Green Stain from Aqueous Solutions using Non-conventional Adsorbent Media: Isothermal Kinetic and Thermodynamic Studies. *Bioresource Technology Reports.* 2021; Volume 14, Pages 100680-100686. DOI:10.1016/j.biteb.2021.100680
- Hayder A.Alalwan, Alaa H.Alminshid, Haydar A.S. Aljaafari. Promising evolution of biofuel generations. Subject review. *Renewable Energy Focus.* 2019; Volume 28, March 2019, Pages 127-139. DOI:10.1016/j.ref.2018.12.006
- Erica Ricker, Haydar Aljaafari, Trigg Bader, Bruce Hundley, and Eric Nuxoll. Thermal Shock Susceptibility and Regrowth of *Pseudomonas aeruginosa* Biofilms. *International Journal of Hyperthermia*. 2018; 34(2):168-176. DOI:10.1080/02656736.2017.1347964
- Alsalhy, Q.F., R.I. Ibrahim, H.A. Salih and M.A. Zablouk. Experimental investigation and optimization of air sparging on hollow fiber membrane performance. *Am. J. Mod. Chem. Eng*. 2014; 1: 40-54.
- Alsalhy, Q.F., H.A. Salih, S. Simone, M. Zablouk, E. Drioli and A. Figoli. Poly(ether sulfone) (PES) hollow-fiber membranes prepared from various spinning parameters. *Desalination*. 2014; 345: 21-35. DOI: 10.1016/j.desal.2014.04.029
- Alsalhy, Q.F., H.A. Salih, R.H. Melkon, Y.M. Mahdi and N.A. Abdul Karim. Effect of the preparation conditions on the morphology and performance of poly(imide) hollow fiber membranes. *J. Applied Polym. Sci.* 2014; Vol. 131, No. 12. DOI: 10.1002/app.40428.

Conferences

- More than ten papers presented in Annual Meetings in the US, Italy, Malaysia, Egypt and Iraq.

HONORS AND AWARDS

- Kammermeyer Research Award from the **Department of Chemical and Biochemical Engineering 2022.**
- Microbes at Biomedical Interfaces Graduate Student Competition Award from **AIChE Annual Meeting 2020.**
- Ballard and Seashore Dissertation Fellowships Award from **Graduate College UI Fall 2020**.
- Two Summer Fellowship Award from **Graduate College UI Summer 2020, 2019**.
- Two Travel grants award from **Graduate Student Senate 2020, 2017**
- Finalist of **Three Minute Thesis (3MT) Competition University of Iowa 2019**.
- Winner of Chemical and Biochemical Engineering **Department Three Minute Thesis (3MT) Competition 2019**.
- Graduate College Post-Comprehensive Research Award from **Graduate College UI Fall 2018**.
- Two Travel grant award from **Graduate & Professional Student Government 2017, 2018**.
- Fellowship sponsored by the **Ministry of Higher Education and Scientific Research**.

CETIFICATE OF PROFESSIONAL DEVELOPMENT TRAINING

- **Graduate Certificate in College Teaching.** University of Iowa, College of Education. (May, 2020) Iowa City, IA.
- **Lab Design** by Sandia National Laboratories. (June 2019), Denver, CO.
- **Process Safety** by DOW Chemical Company. (June 2018), Lake Jackson, TX.
- **Chemical and Biological Security Training** by U.S. Department of State. (Dec. 2017), Kansas City, MO.