CURRICULUM VITAE

CONTACT DETAILS

Dr. Esam Hummadi
Professor
Department of Biology
College of Science
University of Diyala
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RESEARCH PROFILES:

SCOPUS PROFILE
https://www.scopus.com/authid/detail.uri?authorId=57205514780

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RESEARCHGATE PROFILE
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https://orcid.org/0000-0003-2827-1294

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AREA OF SPECIALIZATION
Studies the potential of organisms, fungi, bacteria, plants to provide useful metabolites, biomass and bioremediation and act as agents for biotechnological applications.

Keywords: Environmental Biotechnology, Biocontrol, Bioprospecting Natural Products, Antimicrobial Agents.

TECHNICAL SKILLS
- Production and purification of bioactive compounds.
- Bioassays of bioactive metabolites.
- Handling of Nucleic acids.
- Handling of enzymes.
- Molecular Biology techniques.

EDUCATION
Ph.D., Biotechnology (2018)

Swansea University, UK
Thesis: "Bioactive Volatile and Secretory Metabolites of the Entomopathogenic Fungus *Metarhizium*".

M.Sc. Biotechnology (2003)
University of Baghdad, Iraq
Dissertation: "Biochemical Study on Streptodornase Produced from *Streptococcus pyogenes*".

B.Sc., Plant Protection (1994)
University of Baghdad, Iraq

ADMINISTRATIVE RESPONSIBILITIES

Position: Head of Department of Biology
Period: 6/2/2007 to 14/2/2010
Institution: University of Diyala, College of Science

Position: Assistant Head of Department of Biology
Period: 29/9/2007 to 2/11/2011
Institution: University of Diyala, College of Science

Position: Head of Department of Biotechnology
Period: 26/12/218 to 31/3/2022
Institution: University of Diyala, College of Science

Position: Head of Department of Biology
Period: 4/7/2023 - present
Institution: University of Diyala, College of Science

ACADEMIC POSITIONS

Position: Associate Professor
Period: 13/6/2021-present
Institution: University of Diyala, College of Science

Position: Lecturer
Period: 2011-2021
Institution: University of Diyala, College of Science

Position: Assistant Lecturer
Period: 2006-2011
Institution: University of Diyala, College of Science

SELECTED SCIENTIFIC AND ADMINISTRATIVE COMMITTEES

2018-2022 Chairman of Examinations and Assessments Committee, Department of Biotechnology, College of Science, University of Diyala.
2020 Chairman of Human Right Committee, College of Science, University of Diyala.
2020-2021 Chairman of Quality Assurance, College of Science, University of Diyala.
2022 Chairman of the Strategic Planning Committee (2021-2026), Department of Biotechnology, College of Science, University of Diyala.
2022 Chairman of Laboratory Quality Assurance Committee

2020 Member of Central Examinations Committee, College of Science, University of Diyala.
2022 Member of Scientific Committee, Department of Biotechnology, College of Science, University of Diyala.
2020 Member of CBRN Committee, College of Science, University of Diyala.
2022 Member of the Biotechnology Curriculum Committee, Ministry of Higher Education and Scientific Research, Iraq.
2021 Member of Study of Health and Environmental Situation Committee in Diyala Province, Iraq.
2021 Member of Biosafety and Risk Assessment Guidance Catalog Committee, College of Science, University of Diyala.
2021 Member of The eLearning Management Committee, College of Science, University of Diyala.
2021 Member of the Central Civil Defense Committee, College of Science, University of Diyala.
2020-2022 Coordinator of Student Advisory Committee, College of Science, University of Diyala.
2021 Member of Conference Organizing Committee of the International Conference, College of Science, University of Diyala.
2021 Member of Two Master's Thesis Examination Committees, College of Science, University of Diyala.
2021 Member of Master's Thesis Examination Committee, College of Education for Pure Science, University of Diyala.
2022 Member of Three Master's Thesis Examination Committees, College of Science, University of Diyala.
2022 Member of Master's Thesis Examination Committee, College of Education for Pure Science, University of Diyala.
2025-present Chairman of the Scientific Committee, Department of Biology, College of Science, University of Diyala.

TEACHING EXPERIENCE (UNDERGRADUATE COURSES TAUGHT)

Subject	Level	Semester	Period
Principles of Biotechnology	BSc/First	First	2006-2011 and 2018-present
Environmental Biotechnology	BSc/Second	Second	2018-present
Environmental Biotechnology	MSc	First	2021- present
Antibiotics	BSc/Third	Second	2018-2020
Enzymology	BSc/Fourth	First	2006-2012
Practical Molecular Biology	BSc/Third	First	2006-2012
Practical Microbial Genetic	BSc/Third	Second	2006-2012
Research Methodology	MSc	First	2023-2026
Bioseparation	PhD, MSc	Second	2023-present
Bioseparation	BSc/Fourth	First	2025- present

SUPERVISION OF MSc. STUDENTS

2021 Molecular identification of *Pseudomonas aeruginosa* using multiple locus variable number of tandem repeat units.
2022 Effect of *Lactobacillus* spp. bacteria on expression pf pyocyanin genes in *Pseudomonas aeruginosa* isolated from clinical sources.
2022 Synthesis and Evaluation of Biological Activity of some New Compounds Derived from Hydrazon Amide.

2025 The inhibitory effect of *Lactobacillus* spp. extract against some virulence factors in clinical *Staphylococcus aureus*.

SUPERVISION OF PhD STUDENTS

2026 Investigation and Remediation by Biosorption of Some Heavy Metals on the Surrounding Area of Diyala State Company

SUPERVISION OF BSc. STUDENTS

2021 Isolation of Bacteria for Removal of Congo Red Dye from Water.
2020 Vaccine Production: Covid-19 Vaccine as an Example.
2019 Evaluation of Waste Agricultural Biomass for Adsorption of Different Types of Oils.
2018 Detection of Antibacterial Activity in Mycelia of *Rhizopus stolonifer*
2012 Culture Media Optimization of Nuclease Production from *Staphylococcus* spp. EH69.
2011 Isolation of Nuclease from *Staphylococcus* spp. EH69.
2010 Study Some Condition for α-amylase from *Bacillus* sp.
2009 Effect of Plant Extract of *Eucalyptus* Against Pathogenic Bacteria.

INTERNATIONAL COLLABORATIONS

Professor Tariq Butt
Name of the research group:
Biocontrol and Natural Products Research Group (BANP), Swansea University, UK.

AWARDS

2021 The University Academic Staff Award, College of Science, University of Diyala.
2022 Best Research Paper Award, University of Diyala.

ACADEMIC JOURNAL REVIEWING

- Process Safety and Environmental Protection/Elsevier
- Heliyon/ Elsevier
- Phytochemical Analysis/John Wiley and Sons Ltd.
- International Journal of Energy Research/John Wiley and Sons Ltd.
- Waste and Biomass Valorization/Springer
- Bulletin of Environmental Contamination and Toxicology/Springer
- Biomass Conversion and Biorefinery/Springer
- catalysts/MDPI
- molecules/MDPI
- sustainability/MDPI
- Journal of Environmental Science and Health, Part B/Taylor & Francis
- Journal of Visualized Experiments/MYJoVE Corporation
- Academic Science Journal, College of Science, University of Diyala
- Natural and Life Sciences Communications/Chiang Mai University
- New Journal of Chemistry/Royal Society of Chemistry
- Journal of Material Chemistry B/ Royal Society of Chemistry
- Micro & Nano Letters/John Wiley and Sons Ltd.
- FEMS Microbiology Letters/ Oxford University Press
- BMC Infectious Diseases/BioMed Central Ltd

PROFESSIONAL AFFILIATIONS

Member of:
2015 Royal Society of Biology (UK)

2017 The British Mycological Society (UK)
2022 American Society for Microbiology
2018 Iraqi Academics Syndicate
2019 The Biological Society of Iraq

PATENTS

2021 Butt, Tariq, and **Esam Hummadi**. "Use of Volatile Organic Compounds as Pesticides." U.S. Patent Application No. 17/042,541.

2025 Mustafa Hameed, . . . and **Esam Hummadi**. "New method for preparation of active nano-tetracycline against *Pseudomonas aeruginosa* and *Staphylococcus aureus* MLD" Iraq. Patent Application No. IQ/00230269.

PUBLICATIONS

1) AE Ali, A. E., Al-Taai H. R., **Hummadi, E. H.** (2022). Molecular Typing of *Pseudomonas aeruginosa* by Multilocus Variable-Number Tandem Repeat Analysis. Biochemical and Cellular Archives, 22 (2) 3449-3454.
2) Ahmed, M. J., Hameed, B. H., & **Hummadi, E. H.** (2020). Review on recent progress in chitosan/chitin-carbonaceous material composites for the adsorption of water pollutants. *Carbohydrate Polymers*, 116690.
3) Ahmed, M. J., Hameed, B. H., & **Hummadi, E. H.** (2021). Insight into the chemically modified crop straw adsorbents for the enhanced removal of water contaminants: A review. Journal of Molecular Liquids, 115616.
4) Ahmed, M. J., Okoye, P. U., **Hummadi, E. H.,** & Hameed, B. H. (2019). High-performance porous biochar from the pyrolysis of natural and renewable seaweed (*Gelidiella acerosa*) and its application for the adsorption of methylene blue. *Bioresource technology*.
5) Al-Khalidy, S. H. H., Abdilhameed A. M. and **Hummadi E. H.** (2013). Detection the Optimum Conditions for Alginase Production by *Bacillus* sp. Isolated from Soil. Al-Mustansiriyah Journal of Science. Vol. 24, issue 1, p: 19-28.
6) Al-Tamimi, A., **Hummadi, E.,** & Hammadi, M. (2019). Antibacterial activity of ZnO and CO_3O_4 nanoparticles synthesized by co-precipitation method. Biochem. Cell. Arch., 19(2), 3489-3494.
7) Anastopoulos, I., Ahmed, M. J., & **Hummadi, E. H.** (2022). Eucalyptus-based materials as adsorbents of heavy metals and dyes pollutants from (waste) waters. Journal of Molecular Liquids, 118864.
8) Gatie I. H., Al-Taai H. R. R. and **Hummadi E. H.** (2010). Isolation of Formaldehyde Resistant Bacteria from Different Environmental Samples. Diyala Journal for Pure Sciences. Vol.7, No. 4.
9) Hameed, I. A., Habeeb, A. A., Al-Zanganawee, J., & **Hummadi, E. H.** (2020). Effect of Colloidal Gold Nanoparticles Preparation Conditions on Viability of MCF-7 Breast Cancer Cells. Diyala Journal for Pure Science, 16(04).
10) Hammadi, M. **Hummadi, E. H.** Sabah, R. (2022). Synthesis of Cus Nanoparticle and Characterization, as well as Investigation of their Anticancer Activity Against a Human Breast Cancer Cell Line. Journal of Pharmaceutical Negative Results, 13(2), 76-81.
11) **Hummadi, E. H.** (2011). Isolation of Nuclease from *Staphylococcus sp*. EH69 Diyala Journal for Pure Sciences. Vol.8, No.1, p: 11-25.
12) **Hummadi, E. H.,** & Ramadan, Z. L. (2026). Antibiotic susceptibility and biofilm pattern in Staphylococcus aureus from clinical sources in Diyala Governorate. ASJ-Academic Science Journal, 4(2), 9-16.
13) **Hummadi, E.** H., Cetin, Y., Demirbek, M., Kardar, N. M., Khan, S., Coates, C. J., ... &

Butt, T. M. (2022). Antimicrobial Volatiles of the Insect Pathogen Metarhizium brunneum. Journal of Fungi, 8(4), 326.
14) **Hummadi, E. H.,** Dearden, A., Generalovic, T., Clunie, B., Harrott, A., Cetin, Y., ... & Butt, T. (2020). Volatile Organic Compounds of *Metarhizium brunneum* Influence the efficacy of Entomopathogenic Nematodes in Insect Control. *Biological Control*, 104527.
15) Hussein, Y. A., Al-zanganawee, J., **Hummadi, E. H.,** Brincoveanu, O., Romanitan, C., & Gavrila, R. (2026). Graphene Oxide–Silver–Zinc Oxide Nanocomposites Prepared by PLAL and Ultrasonication: Synthesis, Structure, and Antimicrobial Activity. BioNanoScience, 16(1), 21.
16) Kasoob, D. S., & **Hummadi, E. H.** (2022). Expression of *rhlR* gene in *Pseudomonas aeruginosa* affected by *Lactobacillus* spp. Journal of Pharmaceutical Negative Results, 13(3), 508-512.
17) Kassob, D. S., & **Hummadi, E. H.** (2023). Study of pyocyanin production and biofilm formation in clinical *Pseudomonas aeruginosa*. Academic Science Journal, 1(2), 139-152.
18) Khanday, W. A., Ahmed, M. J., Okoye, P. U., & **Hummadi, E. H.** (2025). Single-step H3PO4 activation of chitosan for efficient adsorption of amoxicillin and doxycycline antibiotic pollutants. Inorganic Chemistry Communications, 175, 114189.
19) Khanday, W. A., Ahmed, M. J., Okoye, P. U., **Hummadi, E. H.,** & Hameed, B. H. (2019). Single-step pyrolysis of phosphoric acid-activated chitin for efficient adsorption of cephalexin antibiotic. *Bioresource Technology*.
20) Khanday, W. A., Soon, K. A., Ahmed, M. J., & **Hummadi, E. H.** (2025). Cross-linked chitosan/pencil clay hybrid beads for the adsorption of reactive black 5. International Journal of Biological Macromolecules, 285, 138301.
21) Mahmood, M. M.; Khudhaier M. K. and **Hummadi, E. H.** (2010). A drug sensitivity of bacteria isolated from otitis media patients and a study of transmission agents of the disease in Diyala government. Journal of Research Diyala Humanity. Vol. 42, p: 304-313.
22) Marrakchi, F., Hameed, B. H., & **Hummadi, E. H.** (2020). Mesoporous biohybrid epichlorohydrin crosslinked chitosan/carbon–clay adsorbent for effective cationic and anionic dyes adsorption. International Journal of Biological Macromolecules, 163, 1079-1086.
23) Mohammed, D. A., Rathi, M. H., & **Hummadi, E. H.** (2026). Pollution Levels of Lead and Copper in the Areas Surrounding Diyala State Company, Iraq: 10.32526/ennrj/24/20250191. Environment and Natural Resources Journal, 24(2), 186-198.
24) Salah, M, Hammadi, M., **Hummadi, E. H.** (2021). Anticancer Activity and Cytotoxicity of ZnS Nanoparticles on Mcf-7 Human Breast Cancer Cells. Biochemical and Cellular Archives, 21(1), 95-99.
25) Tan, Y. L., Ahmed, M. J., **Hummadi, E. H.,** & Hameed, B. H. (2019). Kinetics of Pyrolysis of Durian (*Durio zibethinus* L.) Shell Using Thermogravimetric Analysis. *Journal of Physical Science*, 30.
26) Ramadan, Z. L., & **Hummadi, E. H.** (2026). Anti-staphyloxanthin of Lactobacillus spp. derived supernatant against methicillin-resistant Staphylococcus aureus §. The Microbiological Society of Korea, 62(3), 271-279.
27) **Hummadi, E. H.,** Almamoori, A. A. N., & Ramadan, Z. L. (2026). Phytosynthesis of Zinc Oxide Nanoparticles by Date Palm Extract with Anti-Methicillin-Resistant Staphylococcus aureus (MRSA).
28) **Hummadi, E. H.,** & Almamoori, A. A. N. (2026). Culture-Dependent Antibacterial Activities of Metarhizium anisopliae under Different Growth Conditions.

29) **Hummadi, E. H.,** & Ramadan, Z. L. (2026). Antibiotic susceptibility and biofilm pattern in Staphylococcus aureus from clinical sources in Diyala Governorate. ASJ-Academic Science Journal, 4(2), 9-16.
30) Mohammed, D. A., Rathi, M. H., & **Hummadi, E. H.** (2026). Pollution Levels of Lead and Copper in the Areas Surrounding Diyala State Company, Iraq: 10.32526/ennrj/24/20250191. Environment and Natural Resources Journal, 24(2), 186-198.
31) Hussein, Y. A., Al-zanganawee, J., **Hummadi, E. H.,** Brincoveanu, O., Romanitan, C., & Gavrila, R. (2026). Graphene Oxide–Silver–Zinc Oxide Nanocomposites Prepared by PLAL and Ultrasonication: Synthesis, Structure, and Antimicrobial Activity. BioNanoScience, 16(1), 21.