Academic Vita

HUSSEIN H. S. MOHAMED

PROFESSOR OF BIOLOGY- DALTON STATE COLLEGE - DALTON – GEORGIA

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1. PERSONAL INFORMATION:

- Name in full: **Hussein Saad Mohamed**
- Academic rank: **Professor**

2. EDUCATION:

- **Doctor of Philosophy in Botany (Plant Biology)**, 1992. The University of Alexandria, Egypt, in conjunction with Eberhard Karls University, Tübingen, Germany
  "The application of tissue culture techniques to select salt-tolerant cell lines of economically important fruit trees, Almond (Prunus amygdalus) and Carob (Ceratonia siliqua)."
- **Master of Science in Botany (Plant Biology)**, 1986. The University of Alexandria, Egypt
  "The spatial and temporal variations in morphology, phenology and nutrient flax of the common desert species, Asphodelus microcarpus and Zygophyllum album at North-western ecosystems of Egypt."
- **Bachelor of Science in Biology - Botany**, 1981. University of Alexandria, Egypt

3. ACADEMIC APPOINTMENTS AND OTHER SIGNIFICANT WORK EXPERIENCE:

- **2014-Present: *Professor.*** Dalton State College, Department of Life Science. School of Arts and Sciences. Dalton. GA. Teaching Biology, environmental sciences, Ecology, and Plant Biology.
- **2007-2014: *Adjunct Faculty.*** University of Tampa, Biology Department. Tampa. FL. Taught: environmental sciences and General Biology.
- **2007-2014: *Adjunct Faculty.*** Hillsborough Community College, Biology Department. Tampa. FL. Taught: Biotechnology, cellular biology, Organismal biology, Foundations biology.
- **2004-2005: *Post-doctoral Associate***. Earth & Environ Sci Dept. The University of Texas at San Antonio, TX. The research focused on using phytoremediation technology to reduce the human health risk associated with lead-enriched soils effectively.
- **2000-2003: *Post-doctoral Associate***. Dept Plant & Microbial Biology. The University of California, Berkeley, CA. The research focused on using the plant-bacteria combination to remediate contaminated ecosystems. The efficiency of chloroplast engineering tobacco plants for phytoremediation of organomercurial compounds. Use of flow-through constructed wetlands for the remediation of selenium in agricultural drainage water.
- **1992-2000: *Assistant Professor of Plant Biology.*** Alexandria University, Department of Environmental Sciences, Egypt. Taught: undergraduate and postgraduate courses in ecology and environmental biotechnology. Performed research in ecosystem ecology. Ph.D. & M.Sc. students' Advisor
- **1989-1992: *Ph.D. Scholar.*** Eberhard Karls University, Tübingen, Germany. *Deutscher Academischer Austauschdienst. Advisor: Professor Klaus Wegmann.*
- **1981-1989: *Instructor of Plant Biology.*** Alexandria University, Botany Dept. Egypt.

4. SPECIAL AWARDS, FELLOWSHIPS, AND OTHER HONORS:

Dalton State Leadership Excellence Institute, Cohort 3 Award. Powered by Capstone Performance Solutions, INC. April 25, 2019.

Sultan Qabous Prize for Environmental Protection. The Bureau of the International Coordinating Council of the Program on Man And Biosphere (MAB), UNESCO. 1997

5. PROFESSIONAL ACTIVITIES:

Publications

1. **Allmon A, Mohamed H.** Morphological and Physiological Comparisons between Yellow Toadflax (*Linaria vulgaris*) Individuals Exposed to 2,4-Dichlorophenoxyacetic Acid (2,4-D). J Tissue Cult Bio Bioeng, Online Access 2018.
2. Alexander Allmon and **Hussein Mohamed**. Examining the clonal development of yellow toadflax, *Linaria vulgaris* in response to the herbicide 2,4-D exposure. Association of Southeastern Biologists, 78 Annual Meeting. Montgomery. Alabama 2017.
3. Z.-Q. Lin, N. Terry, S. Gao, **H. Hussein**, Z.H. Ye. Vegetation changes and portioning of selenium in 4-year-old constructed wetlands treating agricultural drainage. *International Journal of Phytoremediation*. 12: 3, 255- 267, 2010.
4. **H. Hussein.** Optimization of Plant-Bacteria complex for phytoremediation of contaminated soil. *International Journal of Botany*, 4(4): 437-443, 2008.
5. **H. Hussein**, Oscar N.R., Daniell H., Terry N. Phytoremediation of mercury and organomercurials in chloroplast transgenic plants: Enhanced root uptake, translocation to shoots and volatilization. *Environmental Science and Technology*, 41: 8439- 8446, 2007.
6. Z.-Q. Lin, **H. Hussein**, Z. H. Ye, N. Terry. Phytorestoration of metal-contaminated industrial wasteland: a greenhouse feasibility study. *In:* **Concepts and Applications in Environmental Geochemistry.** Developments in Environmental Science, D. Sarkar, R. Datta and R. Hannigan (Editors). Volume 5. Chapter 25: 545-561. Elsevier, 2007.
7. Datta R., Sarkar D., **Hussein H**. and Therapong C. Remediation of arsenical pesticide applied soils using water treatment residuals: Preliminary greenhouse results. *In:* **Concepts and Applications in Environmental Geochemistry.** Developments in Environmental Science, D. Sarkar, R. Datta and R. Hannigan (Editors). Volume 5. Chapter 22: 487-501. Elsevier, 2007.
8. Anna E. Tryfonas, John K. Tucker, Paul E. Brunkow, Kevin A. Johnson, **Hussein H**, Zhi-Qing Lin. Metal Accumulation in Eggs of the Red-eared Slider (*Trachemys scripta elegans*) in the Lower Illinois River. Chemosphere 63(1): 39-48, 2006.
9. ***Mohamed, Hussein,*** Therapong, C., Andra, S., Datta, R., and Sarkar, D. Phytoavailability of Arsenic in pesticide-Applied Soils: Effect of Chemical Remediation. **Oral Presentation** in the Symposium: Pollutants in Lotic Systems - III in the *2005 Joint Assembly of the AGU, SEG, NABS and SPD/AAS, New Orleans, LA, May 23-27, 2005.*
10. Oscar N.R., **Hussein** H.S., Terry N., Daniell H. Phytoremediation of Organomercurial Compounds via Chloroplast Genetic Engineering. ***Plant Physiology***, 132(3). 1344-1352, 2003.
11. Z.-Q. Lin, **H. Hussein**, A. Tagmount, A. Lee, and N. Terry. Pickleweed: A Novel Species for Phytoremediation of Se Contamination. 7th International Conference on the Biogeochemistry of Trace Elements: ***ICOBTE***, 15-19 June 2003, SLU, Uppsala, Sweden, 2003.
12. Fox, P.M., D.L. LeDuc, H. **Hussein**, Z.-Q. Lin and N. Terry. Selenium speciation in soils and plants. In: Y. Cai and OC Braids (eds). Biogeochemistry of Environmentally Important Trace Elements. ***American Chemical Society***, Washington DC. Series 835: 339-354, 2003.
13. **Hussein**, H.S. and Terry N. Phytomonitoring the unique colonization of oil-contaminated saline environment by *Limoniastrum monopetalum* (L.) Boiss. In Egypt. ***Environment International***, 2002, 28:127-135, 2002.

14. Kamal, S. A. and **Hussein**, H.S. Vegetative Analysis of Jabel Manzour, Northern Sinai, Egypt. ***VIth National Conference for Environmental Studies & Research***. Ain Shams University, Cairo – Egypt. 7-9 November 1999. Pp. 85-107, 1999.
15. **Hussein**, H.S. Optimization of callus formation and induction of suspension culture from *Cajanus cajan* (L.) Mllsp. ***Journal of Union of Arab Biologists***. Vol. 7(b) 1999, 277-288, 1999.
16. **Hussein**, H.S. Effect of metabolite accumulation on environmental stress tolerance in *Thymelaea articulata* deserts species. ***Bulletin of the Faculty of Science***, Assiut Univ., 1999, vol. 28: 63-76, 1999.
17. El-Darier, S.M. and **Hussein**, H.S. Comparative allocation of biomass and nutrients in *Panceratium maritimum* L. ***VI National Conference for Environmental Studies & Research***. Ain Shams University, Cairo – Egypt. 7-9 November 1999. Pp. 109-126, 1999.
18. **Hussein**, H.S. and Yossef, R. Metabolic Response in Some Desert Species to Physiographic Variations. ***Desert Inst. Bull***. Egypt. 1997, 47 No.2: 455-470, 1997.
19. **Hussein**, H.S. Evaluation of undergraduate curriculum at the department of environmental science, Alexandria University, Egypt. ***Towards a Shared Vision for Higher Education***. Amini, S; Fremerey, M & Wesseler, M (Eds.). Institute for Social-Cultural Studies. University of Kassel. Germany. 139-152, 1997.
20. **Hussein**, H.S. Effect of Salt Stress on Callus Culture of Carob (*Ceratonia Siliqua* L.) Fruit Tree. ***Journal of Union of Arab Biologists***.1 (B): 129-147, 1994.
21. Fawzy, M.A. and **Hussein**, H.S. Seasonal Variations in Species Diversity Pattern at the Mediterranean Coastal Desert of Egypt. ***Journal of Union of Arab Biologists***. 1:163-182, 1994
22. **Hussein**, H.S. and Wegmann, K. Salinity Tolerance in Two Fruit Tree Cultures: Effect of Exogenous Proline Application to the Culture Medium. ***First Egyptian-Hungarian Conference on Environment*** 1993, St. Catherine, Sinai, Egypt, 1993.

Conference Presentations

- Georgia Undergraduate Research Conference (2017)
- Association of Southeastern Biologists (ASB) (from 2016 to 2024)

Grants

- **Dalton State Foundation. Campus Enrichment Grants: 2017-2020**.
  - **Project Title:** Assessment of Physical and Environmental Properties for Sustainable Crop Production Using Field Methods and Geographic Information Systems.
  - **Project Title:** Cutaneous antibacterial effects of plant-derived essential oils
- **U.S. Department of Education Title III, STEM IV: Grants 2021-2022.**
  - **Project Title:** Selection of Salt and Drought Tolerant Cell Lines of *Trifolium repens* L. (white clover) using Tissue Culture Techniques.
  - **Project Title:** Phytoremediation of Arsenic (III) Oxide and Sodium Arsenate with *Vetiveria Zizanioides.*
  - **Project Title:** Resources Allocation of *Linaria Vulgaris* (Yellow Toadflax) As Response of Herbicide Application.
  - **Project Title:** Morphological and Physiological Comparisons between Yellow Toadflax (*Linaria vulgaris*) Individuals Exposed to 2,4-Dichlorophenoxyacetic Acid (2,4-D).
  - **Project Title:** Dirt Free Farming; Feeding a growing population through hydroponics.
- **U.S. Department of Education Title III, HIS Grants: (2022-present)**
  - **Project Title:** Tissue Culture vs Hydroponics as a Small-Scale Tobacco Production for phytoremediation.
  - **Project Title:** Selection of heavy metal hyperaccumulation cell lines using tissue culture techniques as a tool of phytoremediation of heavy metals contaminated ecosystem.

- **Project Title:** Phytoremediation of Selenium by Vetiver grass in a hydroponic system.
- **Project Title:** Selection of salt and drought-tolerant cell lines of Tobacco using tissue culture techniques.
- **Project Title:** Optimization Of Ethanol Levels in the commonly used herbal species as an efficient source of renewable biofuel.

- **Course-embedded Undergraduate Research Experiences (CURE) Grant Program.**
  - Study the decomposition rate across different climatic conditions. Spring 2025, BIOL 3500 Ecology Class.
  - Screening of plants' anti-microbial metabolites as promising inhibitors of various pathogenic bacteria. Spring 2025, BIOL 3510 Plant Biology Class.
  - Study the effect of light quality on plant growth and photosynthetic performance. Fall 2024 and Spring 2025, BIOL 1203 Botany Class.
  - Bioremediation of Industrial Pollution. Fall 2024, BIOL 4275 Bioremediation Class.

6. OTHER PROFESSIONAL GROWTH AND RESEARCH ACTIVITIES:

- A novel phytoremediation method using vetiver grass to clean up lead-based paint-contaminated soils. *Funded by the US Department of Housing and Urban Development and the University of Texas at San Antonio.*
- Optimization of plant-microbial treatment systems for the phytoremediation of PAH-contaminated soils and sediments. *Funded by Electric Power Research Institute, Inc (EPRI) and University of California at Berkeley.*
- Environmental acceptability of the integrated on-farm drainage management system (IFDM). *Funded by California State Water Resources Control Board, Division of Water Quality and University of California at Berkeley.*
- Phytoremediation of Organomercurial Compounds via Chloroplast Genetic Engineering. *Collaborative research project between the Department of Plant and microbial biology (Berkeley, CA) and the Department of Molecular Biology and Microbiology, University of Central Florida (Orlando, Florida). The outstanding achievement of this study is, for the first time, the successful overexpansion of bacterial genes into the chloroplast's genome of tobacco plants.*
- Plant-growth promoting bacteria (PGPR) Pseudomonas to improve polycyclic aromatic hydrocarbon (PAH) phytoremediation. *Funded by US Civilian Research & Development Foundation (CRDF) and University of California at Berkeley.*
- Development of Plant-Microbe Interactions for the Phytoremediation of Heavy Metals in Contaminated Environments. *Funded by NSF (USA)-Egypt Joint Science and Technology Board and University of California at Berkeley.*
- The fate of selenium in constructed wetlands treating agricultural drainage water: Role of sediment Se deposition and Se volatilization. *Funded by UC Center for water resources and UC Salinity/Drainage Program and University of California at Berkeley.*
- Socio-Economic Dimension of Environmental Degradation in Rural Areas of Lower Egypt. *Funded by Egyptian MAB National Committee (UNESCO National Commission), the Ford Foundation- USA.*
- Systems research for integrated resource management and land use analysis in Mediterranean Coastal Desert of Egypt. *Funded by: The Center of Agrobiological Research (CABO), Wageningen, Netherlands.*
- Regional Environmental Management of Desert Ecosystems of Northern Egypt. *Funded by Egyptian Academy of Science and Technology, UNESCO, U.S./Environmental Protection Agency.*

7. SERVICE TO THE CAMPUS/COMMUNITY/PROFESSION

- Near-edge XAS of Mixtures. Stanford Synchrotron Radiation Laboratory (SSRL), Stanford, USA. (2002).
- Environmental Consultants & Operative Studies Group, ECOS–Group, Egypt (1998-2000).
- University Staff Development Program. The University of Kassel, Institute for socio-cultural studies,

Witzenhausen - Germany. (1996).

- Research coordinator: The socio-economic dimension of environmental degradation of the rural areas of Egypt. Sponsored by MAP Program (1996-2000)
- Research Coordinator: Production Levels and Land-Use Planning of the Western Mediterranean Region of Egypt, Sponsored by the Center for Agrobiological Research (CABO), The Netherlands (1985 - 1987).
- Research coordinator: Regional Environmental Management of Mediterranean Desert Ecosystems of Northern Egypt (REMDENE) Project. Sponsored by USA/EPA, Ford Foundation, Egyptian Academy of Science, and UNESCO/MAB Program (1981 - 1987).
- Research Coordinator: Ecological and Socio-Economic Aspects of Wood Cutting and Grazing in Mariut Rangeland, Sponsored by Ford Foundation, 1987.
- Systems research for integrated resource management and land use analysis. The Center of Agrobiological Research - Wageningen, the Netherlands (1986).
- Remote sensing in ecological applications. School of Oriental and African Studies, University of London, UK (1983).
- Ecological Modeling and Data Analysis. The Institute of Terrestrial Ecology, Cambria, UK (1982).

8. MAJOR COMMITTEES: (in the last 10 years)

- Faculty Senate President (2022-2024)
- A member of the Dalton State Senate (2018-2022)
- A member of the Undergraduate Research Committee (2014-present).
- A member of the Academic Curriculum Committee (2019-present).
- A member of several search committees for hiring administrative and faculty at the college, school, and department levels.

9. MEMBERSHIPS:

- Council of Undergraduate Research (CUR Community)
- American Society of Plant Biologists.
- Botanical Society of America.
- Ecological Society of America.
- Association of Southeastern Biologists
- Egyptian Botanical Association