

BALSAM TALAL MOHAMMAD

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German Jordanian University,
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EDUCATION

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|------------|---|-----------|
| PhD | Heriot Watt University, Engineering and Physical Sciences, UK
Dissertation: "Application of solvent tolerant bacteria for biocatalytic oxidation of high concentration 2-propanol. | 2000-2003 |
| MS | The University of Jordan, Chemical Engineering
Courses taken for one year, then joined PhD program. | 1999-2000 |
| BS | The University of Jordan, Chemical Engineering | 1994-1999 |

PROFESSIONAL POSITIONS

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|---|---------------|
| German Jordanian University, Jordan
Associate Professor at Pharmaceutical and Chemical Engineering Dept. | 2011- present |
| Al Khawarzmi College, Jordan
Manger at the training center. | 2010 - 2011 |
| German Jordanian University, Middle East Academy, Falcons Academy, and Erth Academy
Part time instructor. | 2008 - 2009 |
| University of La Coruna, Spain
Researcher | 2005 - 2007 |
| Plymouth Marine Laboratory
Visiting scientist | 2004 - 2005 |

Heriot Watt University, UK
Teaching and Lab assistant

2000 - 2002

Star for advanced technology, Jordan
Sales engineer

1999 - 2000

FELLOWSHIPS AND AWARDS

DFG – Initiation of international collaboration research fellowship, Germany.
Distinguished teaching award, German Jordanian University.
Research fellowship from Spanish Ministry of Science and Technology, Spain.
Heriot Watt doctoral scholarship, UK

DEPARTMENTAL AND UNIVERSITY POSITIONS

- ❖ Vice dean at the scientific research and graduate studies deanship.
- ❖ Vice dean at the Pharmaceutical Chemical Engineering Department.
- ❖ Industrial officer of the Pharmaceutical and Chemical Engineering students.
- ❖ Member of the university council.
- ❖ Member of University Graduate Studies Council.
- ❖ Member of University Scientific Research Committee.
- ❖ Accreditation committee of the Pharmaceutical and Chemical Engineering Department.

TEACHING EXPERIENCE

German Jordanian University, Jordan Sep 2011 to present
Associate Professor, Pharmaceutical and Chemical Engineering Department.

- ❖ Taught the following undergraduate courses:

Introduction to Pharmaceutical and Chemical Engineering.
Transport Phenomena.
Separation Processes.
Separation Processes II
Chemical Process Safety.
Biochemical Engineering.
Special Topics in Chemical Engineering.
Fluid, heat and reaction Laboratory.
Separation Processes Laboratory.
Analytical Chemistry Laboratory.
General Chemistry Laboratory.

- ❖ Established teaching methodologies and plans.

- ❖ Developed quizzes, exams, and homework
- ❖ Revised the curriculum and syllabus to meet accreditation standards,
- ❖ Coordinated grading and labs with teaching assistants.

Al Khawarzmi College, Jordan

2010 - 2011

Manager and instructor at the training center.

- ❖ Conducting language courses for seniors and housewives,
- ❖ Coordinating the language courses at the center, supervision, working on development of the education methodologies.

RESEARCH EXPERIENCES

TUHH – Hamburg University of Technology, Jordan

Jun 2018–Sep 2018

Researcher, initiating a research with GJU and TUHH.

- ❖ Isolation of new thermophilic bacteria from Jordanian hot springs.
- ❖ Characterization and identification of these strains still in progress.
- ❖ Investigate the potential application of isolates enzymes and possible collaboration with interested industry.
- ❖ Studies carried on to assess the abilities of two strains of bacteria have been isolated at GJU previously, their ability to tolerate and absorb heavy metals for future environmental applications.

German Jordanian University, Jordan

Mar 2015-Mar 2017

Principal investigator, seed grant research project involves also scientific collaboration with Al Balqa university.

- ❖ Research concerned with isolation of extremophiles from ecological sites in Jordan and the possibility to expand it into future grants, for other ecological sites across the world.
- ❖ The beginning of establishing a new research line at GJU that integrate many multidisciplinary areas of science.
- ❖ Investigating the biotechnological potential of such isolates, involving their antimicrobial and anticancer abilities.
- ❖ Promising results were obtained so far, and manuscript under preparation.
- ❖ Possibility of involving undergraduate students into research.

Plymouth Marine Laboratory, UK

2008-2009

Visiting scientist, screening for bioactive compounds from marine bacteria.

- ❖ This was a project with collaboration with many European institutes,
- ❖ Isolation and identification of hundreds of marine bacteria for their bioactive compounds.
- ❖ New techniques have been learned.

University of La Coruna, Spain

2005 - 2007

Principal investigator, research fellowship from the Spanish ministry of science and technology.

- ❖ Project investigated the biofiltration of BTEX compounds (Benzene, Toluene, Ethylbenzene, and Xylene), under mesophilic and thermophilic conditions.
- ❖ Investigating the effect of changing different parameters such as concentration, temperature, flow rate...etc.

Heriot Watt University, UK

2000 - 2003

PhD Student, research project funded from industry.

- ❖ Isolation of solvent tolerant bacteria and investigated their abilities to tolerate high concentration of volatile organic compound – 2 propanol.
- ❖ Effect of cells immobilization have been investigated with changing different parameters.
- ❖ Comparison between biodegradation rate by using free cells, immobilized cells and crude enzyme.

RESEARCH SKILLS

- ❖ **Microbiological method**; Characterization of bacterial strains, Culture techniques, Growth media selection.
- ❖ **Biochemistry**; Chromatography techniques- Gas Chromatography (GC), Mass Spectrometry (MS). Spectroscopic techniques- UV-Vis Spectrometry, Direct Spectrometry. Scanning Electron Microscopy (SEM), Cell fractionation, Enzyme Assay, SDS-PAGE Electrophoresis, PAGE Electrophoresis, Agarose Gel Electrophoresis.
- ❖ **Molecular Biology**; DNA Extraction, PCR Amplification, Cloning, DNA sequencing and analysis.
- ❖ **Engineering techniques**; Small-scale bioreactors set up, Cell immobilization, Reaction kinetics analysis, fermentation.

PUBLICATIONS

Journal Publications

Hala I Al-Daghistani, **Balsam Talal Mohammad**, Tonni Agustiono Kurniawan, Deepak Singh. (2021). "Characterization and applications of *Thermomonas hydrothermalis* isolated from Jordan's hot springs for biotechnological and medical purposes". *Process Biochemistry*. 104:171-181

Ibrahim Altarawneh, Mohammad Alnaief, **Balsam Mohammad**, Muafag Tarawneh. (2021). "Comparative study on the effect of the absorber geometry, rim angle and

operational modes on the distribution of the heat flux over the absorber's surface". *Solar Energy*. 225: 905-917.

L Yanyan, TA Kurniawan, M Zhu, T Ouyang, R Avtar, MHD Othman, **Balsam T Mohammad**, Ahmad B Albadarin. (2018). "Removal of acetaminophen from synthetic wastewater in a fixed-bed column adsorption using low-cost coconut shell waste pretreated with NaOH, HNO₃, ozone, and/or chitosan". *Journal of Environmental Management*. 226: 365-376.

Balsam T Mohammad, Mohammad Al-Shannag, Mohammad Alnaief, Lakhveer Singh, Eric Singasaas, Malek Alkasrawi. (2018). "Production of Multiple Biofuels from Whole Camelina Material: A Renewable Energy Crop ". *BioResources*. 13(3): 4870-4883.

Balsam T Mohammad, Hala I Al Daghistani, Atef Jaouani, Saleh Abdel-Latif, Christian Kennes. (2017). "Isolation and Characterization of Thermophilic Bacteria from Jordanian Hot Springs: *Bacillus licheniformis* and *Thermomonas hydrothermalis* Isolates as Potential Producers of Thermostable Enzymes". *International Journal of Microbiology*. Volume 2017, Article ID 6943952, 12 pages

Balsam T Mohammad, Eldon R Rene, Maria C Veiga, Christian Kennes. (2017). "Performance of a thermophilic gas-phase biofilter treating high BTEX loads under steady- and transient-state operation". *International Biodeterioration & Biodegradation*. 119: 289-298.

Eldon R Rene, **Balsam T Mohammad**, María C Veiga, Christian Kennes. (2012). "Biodegradation of BTEX in a fungal biofilter: influence of operational parameters, effect of shock-loads and substrate stratification." *Bioresource technology*. 116: 204-213.

Balsam T Mohammad, Mark T Bustard. (2008). "Fed batch bioconversion of 2-propanol by a solvent tolerant strain of *Alcaligenes faecalis* entrapped in Ca-alginate gel". *Journal of industrial microbiology & biotechnology*. 35(7);677-684.

Balsam T Mohammad, María C Veiga, Christian Kennes. (2007). "Mesophilic and thermophilic biotreatment of BTEX-polluted air in reactors". *Biotechnology and Bioengineering*. 97(6):1423-1438.

Punyasloke Bhadury, **Balsam T Mohammad**, Phillip C Wright. (2006). "The current status of natural products from marine fungi and their potential as anti-infective agents." *Journal of Industrial Microbiology and Biotechnology*. 33(5):225.

Balsam T Mohammad, Phillip C Wright, Mark T Bustard. (2006). "Bioconversion of isopropanol by a solvent tolerant *Sphingobacterium mizutae* strain". *Journal of Industrial Microbiology and Biotechnology*. 33(12):975-983.

Book's Chapter in Review

Balsam T Mohammad, Punyasloke Bhadury. "Thermophilic bacteria- application in industry and environment". In: *Frontiers in soil and Environmental Microbiology*. CRC Press, a Taylor and Francis Group.

Conference Papers in Review

Mohammad Alnaief, **Balsam Mohammad**, Rana M Obaidat, "Hybrid nanoporous biomaterial based on polysaccharide as a potential carrier for pharmaceutical application" *Proceedings of International Conference on Current Nanotechnology and its Applications*, April, 2018, Jordan

CONFERENCES

Balsam T. Mohammad, Phillip .C. Wright. 'Biological Treatment of Volatile Organic Compounds by Solvent Tolerant Bacteria'. *Second International Conference: Microbes and Ecosystem: The Universal Hidden Force*, 8-10 May, 2015, Tunisia.

Christian. Kennes, Y. Jin, **Balsam.T. Mohammad**, Marie.C. Veiga. 'Overview of parameters affecting fungal biofiltration of waste gases'. *2006 USC-TRG Conference on Biofiltration for Air Pollution Control*, October 18-October 20, 2006, Long Beach, California, USA.

Christian. Kennes, Y. Jin, **Balsam.T. Mohammad**, Marie.C. Veiga. 'Fungal biodegradation of volatile aromatic pollutants and their use in bioreactors for air pollution control'. *International Symposium on Environmental Biotechnology*, June 9-June 13, 2006, Leipzig, Germany.

Balsam T. Mohammad, Christian Kennes, Marie Veiga. 'Thermophilic and mesophilic biofiltration of BTEX vapors'. *International Symposium on Environmental Biotechnology*, June 9-June 13, 2006, Leipzig, Germany.

Phillip C. Wright, P. Leethochawalit, **Balsam T. Mohammad**, Mark .T. Bustard, Heriot Watt University, Edinburgh, UK and V. Meeyoo, Mahanakorn University of Technology, Bangkok, Thailand. 'High pollutant load gas-phase biofiltration for odour and VOC treatment' *Society of Industrial Microbiology 2002 Annual Meeting*, August 11-August 15, 2002, Philadelphia, USA

Phillip C. Wright, Mark T. Bustard, **Balsam T Mohammad**, 'Solvent tolerant bacteria and algae: The potential for pollution abatement of volatile organic compounds', *Society of Industrial Microbiology 2001 Annual Meeting*, July 29-August 2, 2001, St. Louis, US.

PROFESSIONAL SERVICE

Editorial Board Member

Jordan Journal of Engineering and Chemical Industries, Jordan

Member

Representative of the school of graduate studies at the first meeting for graduate studies deans at Jordanian Universities, Jordan

Invited speaker

Work shop – Scientific research at governmental universities, Al Balqa University, Jordan

Invited Lecturer

Lectures in Separation processes for postgraduate program, Anhalt University, Germany.

COMMUNITY SERVICE

German Jordanian University

Participating in organizing fund raising, event for less fortunate kids and university service workers.

National Organizations and Orphans Centers

Participating in organizing events during holy month of Ramadan, accompany kids during their trips, fund raising and participating in campaign for people with disabilities.

INTERESTS

- ❖ Travelling- sightseeing – walking.
- ❖ Social communications – social work, charity, voluntary activities.
- ❖ Taking care of animals.
- ❖ Reading.
- ❖ Cooking.

REFERENCES

Prof. Christian Kennes

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University of La Coruna, La Coruna,
Spain.
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Prof. Garabed Antranikian,

Head of Institute of Technical Microbiology,
TUHH, Hamburg University of Technology
Germany
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Dr Punyasloke Bhadury

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