

Raed M. Al-Zoubi

Campus

Raed M. Al-Zoubi, Assistant Professor of Chemistry
 Department of Chemistry - N₄-L0
 Jordan University of Science and Technology
 P.O.Box 3030 - Irbid - 22110 - Jordan
 Tel: +962-2-7201000-Ext 23651
 Fax: +962-2-7201071
 E-mail: rmzoubi@just.edu.jo

Permanent

Raed M. Al-Zoubi
 P.O.Box 1367-Irbid-21110
 Jordan
 Tel: +962-786414087
 Fax: +962-2-7201071
 E-mail: rayedco@yahoo.com

Personal

Birthplace and date:	Jordan, Irbid, July 05, 1979
Marital status:	Married; wife Khadiga, kids: Sally and Yosef
Citizenship:	Canada

Education

2005 - 2011	Ph.D., Organic Chemistry (3.7/4.0 GPA) Department of Chemistry, Organic Division, University of Alberta, Canada, Thesis supervisor: Professor Dennis G. Hall Thesis Title: Mild, Green and Catalytic: <i>Ortho</i> -Iodoarylboronic Acids for Direct Amide Bond Formation at Room Temperature
2001 - 2003	M.Sc., Organic Chemistry (84.6% GPA) Department of Chemistry, Jordan University of Science and Technology Thesis supervisor: Professor Khaled Q. Shawaqfeh Thesis Title: Synthesis and Characterization of New-Bis-Steroidal Pyrazine Dimers
1997 - 2001	B.Sc., Chemistry (75.7% GPA) Department of Chemistry, Jordan University of Science and Technology
1996 - 1997	General Secondary Education Certificate (86%.GPA) Irbid Secondary School, Irbid, Jordan.
November 2003	GRE-Subject (Chemistry): 81%

Employment History

September 2014 - September 2015	Assistant Dean of the College of Arts and Sciences, Jordan University of Science and Technology , Irbid, Jordan Medical building, PH ₂ L-2
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- September 2013 - September 2014** Assistant Dean of the College of Arts and Sciences,
Jordan University of Science and Technology, Irbid, Jordan
Medical building, PH₂L-2
- September 2012 - September 2013** Assistant Dean of the College of Arts and Sciences,
Jordan University of Science and Technology, Irbid, Jordan
Medical building, PH₂L-2
- June 2011 - Date** Assistant professor of Organic Chemistry, Department of Chemistry
Jordan University of Science and Technology, Irbid, Jordan
Medical building, N₄L₀
- March 2011 - June 2011** Full-time Lecturer, PhD, Department of Chemistry
Jordan University of Science and Technology, Irbid, Jordan
Medical building, N₄L₀
- Feb 2011 - March 2011** Part-time Lecturer, PhD, Department of Chemistry
Jordan University of Science and Technology, Irbid, Jordan
Medical building, N₄L₀
- Jan 2011 - Feb 2011** Research Assistant, Department of Chemistry
University of Alberta, Gunning-Lemieux Chemistry Centre, Alberta, Canada.
- 2008 - 2010** Teaching Assistant, **Chem 36X**, Department of Chemistry
University of Alberta, Gunning-Lemieux Chemistry Centre, Alberta, Canada.
- 2005 - 2008** Teaching Assistant, **Chem 10X**, **Chem 26X**, Department of Chemistry
University of Alberta, Gunning-Lemieux Chemistry Centre, Alberta, Canada
- 2005 - 2010** Research Assistant, Department of Chemistry
University of Alberta, Gunning-Lemieux Chemistry Centre, Alberta, Canada.
- Jan 2005 - June 2005** Researcher, bioequivalence Centre
Arab Drug Industries and Medical appliances (ACDIMA), Amman, Jordan.
- 2004** Part-time Lecturer, MSc, Department of Chemistry
Jordan University of Science and Technology, Irbid, Jordan
Medical building, N₄L₀
- 2001 - 2003** Teaching Assistant, **Chem 107**, **Chem 213**, **Chem 214**, Department of Chemistry, **Jordan University of Science and Technology**, Irbid, Jordan.

Research Interest and Experience

Technical Skills

- 5+ years experience as a professor of organic chemistry in teaching different graduate and undergraduate courses, leading and supervising chemistry graduate students, grants applications, publishing reviewing several papers in prestigious chemistry journals and dissertation committee members.
- 14+ years experience in chemical research and technology developments addressing critical challenges in health, catalysis, environmental and chemical industries
- Extensive experience in the design and synthesis of organoboron compounds such as boronic acids and boroxoles derivatives and their applications as catalysts, drugs and as binding agents in biology and medicine.
- Unique blend of expertise combining synthetic organic chemistry, green chemistry, organocatalysis, boron chemistry, air-sensitive reactions, methodology development, combinatorial chemistry, polymer chemistry, multi-step synthesis of target molecules, oligosaccharide chemistry, natural product-like library synthesis and nanotechnology
- Advanced experience in the design of boronic acid organocatalysts from for environmentally green and cost-efficient chemical transformations like direct amidation process
- Hands-on experience in establishing organic/synthesis laboratories

Soft Skills

- Advanced industrial and academic projects management experience.
- Excellent multitasking skills and problem solving under pressure abilities.
- Broad scientific interests and willingness to learn and grow in new/multidisciplinary areas.
- Strong scientific reporting, team working and interpersonal communications skills.
- Maintaining a safe and clean work environment.
- Design and development of new procedures and adaption methods to achieve technical objectives.
- Strong leadership abilities evident by working as a scientific lead and supervising graduate and undergraduate students.
- Demonstrated ability to adapt and work in various cultural settings and multi-cultural environments.

Projects

- Mild and convenient synthesis of 1,2,3-triiodoarenes and their applications in one-pot transformation reactions
- Synthesis study of *ortho*-diiodobenzyl alcohol derivatives: applications toward functionalized benzoxaboroles
- Synthesis of diiodinated biphenyls and iodinated *meta*-terphenyls via regioselective Suzuki Miyaura cross-coupling reactions of 5-substituted-1,2,3-Triiodobenzenes
- Mechanical Properties of Functionalized Carbon Nanotube/Acrylonitrile-Butadiene-Styrene Nanocomposite
- Synthesis of diiodinated biphenyls and iodinated *meta*-terphenyls via regioselective Suzuki-Miyaura cross-coupling reactions of 5-substituted-1,2,3-Triiodobenzenes
- A Facile, Convenient and Gram-Scale One-Pot Synthesis of 3,4,5-triiodoanisole via *C-H* Iodinations/*Ips*o-iododecarboxylation of *para*-anisic Acid

Grants

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| 2015 | Faculty of Research, Jordan University of Science and Technology
Irbid, Jordan
Small Grant # F20150098. 5275 JD = 7536 USD |
| 2015 | Faculty of Research, Jordan University of Science and Technology
Irbid, Jordan
Small Grant # F 20150040. 6500 JD = 9286 USD |
| 2015 | Faculty of Research, Jordan University of Science and Technology
Irbid, Jordan
Small Grant # F20150044. 6500 JD = 9286 USD |
| 2014 | Scientific Research Support Fund of Jordan (SRSF)
Amman, Jordan
Grant # F20140197. 81062 JD = 115803 USD |
| 2014 | Faculty of Research, Jordan University of Science and Technology
Irbid, Jordan
Small Grant # F2014066. 7700 JD = 11000 USD |

- 2014** Faculty of Research, **Jordan University of Science and Technology**
Irbid, Jordan
Small Grant # F20140239. **9500 JD = 13571 USD**
- 2014** Faculty of Research, **Jordan University of Science and Technology**
Irbid, Jordan
Small Grant # F20120192. **8300 JD = 11857 USD**
- 2012** Applied Scientific Research Fund of Jordan (ASRF)
Amman, Jordan
Small Grant # F20110241-PII. **6100 JD = 8714 USD**
- 2011** Faculty of Research, **Jordan University of Science and Technology**
Irbid, Jordan
Small Grant # F20120192-PI. **15600 JD = 22286 USD**

Honors and Awards

- 2009-2010** Queen Elizabeth II Graduate Scholarships (Doctoral level), Edmonton, Alberta, **Canada**
- 2008** Honorable Mention Award, oral presentation, **91st** Canadian Chemistry Conference and Exhibition (May 24–28, **2008**, Edmonton, Alberta, **Canada**).
- 2007** Best Poster Award, poster presentation, **3rd** Banff Symposium on Organic Chemistry (November 9–12, **2007**, Banff, Alberta, **Canada**).

List of Patents

1. Hall, D. G.; Gernigon, N., **Al-Zoubi, R. M.**, Thornton, pd; Boronic Acid Catalysts And Methods Of Use Thereof For Activation And Transformation Of Carboxylic Acids. International Patent. Serial No. PCT/CA2012/050083 (WO Patent 2,012,109,749) **2012**.
2. Hall, D. G.; Marion, O. **Al-Zoubi, R. M.**; Method for the Organocatalytic Activation of Carboxylic Acids for Chemical Reactions Using *ortho*-Substituted Arylboronic Acids. International Patent, Serial No. PCT/CA2008/001554, **2008**.

*******MIBA catalyst is NOW commercialized by Sigma-Aldrich*******

List of Publications and highlights

1. **Al-Zoubi R. M.**; Al-Mughaid H.; Al-Zoubi M. A.; Jaradat K. A; McDonald R. "Facile, One-Pot, and Gram-Scale Synthesis of 3,4,5-Triiodoanisole through a C-H Iodination/ipso-Iododecarboxylation Strategy: Potential Application towards 3,4,5-Trisubstituted Anisoles" *Eur. J. Org. Chem.* **2015**, *accepted*. DOI: 10.1002/ejoc.201500887
2. Al-Mughaid, H.; **Al-Zoubi, R. M.**; Paul, N. K. ; Grindley, T. B. " Unique Tetrameric and Hexameric Mannoside Clusters Prepared by Click Chemistry". *Carbohydr. Res.*, **2015**, *accepted*.
3. **Al-Zoubi R. M.**; Al-Jammal, W. K, El-Kateeb, M. Y., McDonald, R. "Synthesis of Diiodinated Biphenyls and Iodinated meta-Terphenyls via Regioselective Suzuki-Miyaura Cross-Coupling Reactions of 5-Substituted-1,2,3-Triiodobenzene" *Eur. J. Org. Chem.* **2015**, 3374-3384. (*Assigned as HOT paper by Wiley*)
4. **Al-Zoubi R. M.**; Al-Zoubi, M. S., Abazid, A. H., McDonald, R. "Terminal versus Internal Diiodobenzyl Alcohol Derivatives via Regioselective Metal-Iodine Exchange of 1,2,3-Triiodoarenes: Synthesis and Antibacterial Activity" *Asian J. Org. Chem.* **2015**, 4, 359-367.
5. **Al-Zoubi R. M.**; Al-Mughaid, H., McDonald, R., "A Simple and Efficient Two-Step Synthesis of 1, 2, 3-Triiodoarenes via Consecutive C-H Iodination/ipso-Iododecarboxylation Strategy: A Potential Application towards ortho-Diiodoarenes by Regioselective Metal-Iodine Exchange Reaction" *Aust. J. Chem.* **2015**, 68, 912-918.
6. **Al-Zoubi R. M.**; Hall, D. G., "Catalytic enantioselective diversity-oriented synthesis of a small library of polyhydroxylated pyrans inspired from thiomarinol antibiotics" *Mol. Divers.* **2014**, 18 (4), 701-719.
7. **Al-Zoubi R. M.**; Abul Futouh, H., McDonald, R., *ChemInform* **2014**, 45, Issue 18, page 90, DOI: DOI: 10.1002/chin.201418064.
8. **Al-Zoubi R. M.**; Abul Futouh, H., McDonald, R. "A Mild and Convenient Synthesis of 1,2,3-Triiodoarenes via Consecutive Iodination/Diazotization/Iodination Strategy" *Aust. J. Chem.* **2013**, 66, 1570-1575.
9. Gernigon N.; **Al-Zoubi R. M.**; Hall D. G. "Direct Amidation of Carboxylic Acids Catalyzed by ortho-Iodo Arylboronic Acids: Catalyst Optimization Scope and Preliminary Mechanistic Study Supporting a Peculiar Halogen Acceleration Effect" *J. Org. Chem.* **2012**, 77 (19), 8386-8400. (*Prize-winning paper in 2013 in Journal of Organic Chemistry published by the American Chemical Society*)
10. **Al-Zoubi, R. M.**; Hall, D. G., *Synfacts*. **2010**, 9, 1049, doi: 10.1055/s-0030-1257892.
11. **Al-Zoubi, R. M.**; Hall, D. G. *ChemInform* **2010**, 41, Issue 43, page 176, DOI: 10.1002/chin.201043176.

12. **Al-Zoubi, R. M.**; Hall, D. G., Mild Silver(I)-Mediated Regioselective Iodination and Bromination of Arylboronic Acids. *Org. Lett.* **2010**, 12, (11), 2480-2483.
13. **Al-Zoubi, R. M.**; Marion, O.; Hall, D. G., Direct and Waste-Free Amidations and Cycloadditions by Organocatalytic Activation of Carboxylic Acids at Room Temperature, *Angew. Chem. Int. Ed.* **2008**, 47, 2876–2879. (*Assigned as HOT paper*)
14. **Al-Zoubi, R. M.**; Marion, O.; Hall, D. G. *ChemInform* **2008**, 39, Issue 30, page 24, DOI: 10.1002/chin.200830024
15. Shawakfeh, K. Q.; Al-Said, N. H.; **Al-Zoubi, R. M.**, Synthesis of Bis-Diosgenin Pyrazine Dimers: New Cephalostatin Analogs, *Steroids*, **2008**, 73, 579–584.

Conference Presentations

1. **Al-Zoubi R. M.**; Al-Zoubi, M. S., Abazid, A. H., McDonald, R. "Terminal versus Internal Diiodobenzyl Alcohol Derivatives *via* Regioselective Metal–Iodine Exchange of 1,2,3-Triiodoarenes: Synthesis and Antibacterial Activity". **Oral presentation**, 98th Canadian Chemistry Conference and Exhibition, CSC **2015** (June 13–17, 2015, Ottawa, ON, Canada).
2. **Al-Zoubi, R. M.**, Al-Mughaid, H., McDonald, R. 1,2,3-Triiodoarenes: Synthesis, Reactivity, and Application. 5th EuCheMS Chemistry Congress – EuCheMS **2014**, (August 31-04, **2014** Istanbul-Turkey).
3. **Al-Zoubi, R. M.**, Abulfutouh, H., McDonald, R. 1,2,3-Triiodoarenes: Synthesis, Reactivity, and Application. 14th European Symposium on Organic Reactivity, ESOR **2013** (Sept. 1-6, 2013, Prague, Czech Republic).
4. Abulfutouh, H.; **Al-Zoubi, R. M.**, Mild And Convenient Synthesis Of 1,2,3-Triiodoarenes and Their Applications In One-Pot Tandem Reactions. **Poster presentation**, 95th Canadian Chemistry Conference and Exhibition, CSC **2012** (May 26–30, 2012, Calgary, Alberta, Canada).
5. **Al-Zoubi, R. M.**; Hall, D. G., Mild, Green and Catalytic: *ortho*-Iodoarylboronic Acid for Direct Amide Bond Formation. **Oral presentation**, Abstract SYN3-00017, 3rd International IUPAC Conference on Green Chemistry (Aug 15-18, **2010**, Ottawa, Ontario, Canada).
6. **Al-Zoubi, R. M.**; Marion, O.; Hall, D. G., Direct and Waste-Free Amidations and Cycloadditions by Organocatalytic Activation of Carboxylic Acids at Room Temperature. **Oral presentation**, Abstract 1358, 91st Canadian Chemistry Conference and Exhibition (May 24–28, **2008**, Edmonton, Alberta, Canada).
7. **Al-Zoubi, R. M.**; Marion, O.; Hall, D. G., Direct and Waste-Free Amidations and Cycloadditions by Organocatalytic Activation of Carboxylic Acids at Room Temperature. **Poster**, Abstract 1, 3rd Banff Symposium on Organic Chemistry (November 9–12, **2007**, Banff, Alberta, Canada).

Supervision of Thesis and Dissertations

Advisor

1. **Ahlam M. Abu-Bsharah (2011).**
Faculty of Research, **Jordan University of Science and Technology**
Irbid, Jordan. Small Grant # F20110218. **6000 JD = 8572 USD**
2. **Ahmad A. Almasalma (2014).**
Faculty of Research, **Jordan University of Science and Technology**
Irbid, Jordan. Small Grant # F20120192. **8300 JD = 11857 USD**
3. **Ayham Abaziz (2014).**
Faculty of Research, **Jordan University of Science and Technology**
Irbid, Jordan. Small Grant # F2014066. **7700 JD = 11000 USD**
4. **Bader A. Al-Saidi (2015).**
Faculty of Research, **Jordan University of Science and Technology**
Irbid, Jordan. Small Grant # F20150098. **5275 JD = 7536 USD**
5. **Walid Al-Jammal (till now).**
Faculty of Research, **Jordan University of Science and Technology**
Irbid, Jordan. Small Grant # F 20150040. **6500 JD = 9286 USD**
6. **Mariam A. Al-Zoubi (till now).**
Faculty of Research, **Jordan University of Science and Technology**
Irbid, Jordan. Small Grant # F20150044. **6500 JD = 9286 USD**

Co-Advisor

1. **Maha A. Khazaaleh (2015).** "Design And Synthesis of Monovalent Mannosides as Inhibitors of Bacterial Adherence"
Faculty of Research, **Jordan University of Science and Technology**
Irbid, Jordan.
2. **Fatima A. Banat (2015).** "Preparation of liquid & graphite-Coated selective electrodes for the determination of dopamine hydrochloride based on molecularly imprinted membrane using boronic acid in polyvinylchloride) matrix"
Faculty of Research, **Jordan University of Science and Technology**
Irbid, Jordan.
3. **Shorooq Nawasrah (till now)**

Activities

1. **Organizing committee**, 3rd Banff Symposium on Organic Chemistry (November 9–12, **2009**, Banff, Alberta, Canada).
2. **Volunteer** for 91st Canadian Chemical Society Conference (CSC91), (**2008**, Edmonton, Alberta, Canada).
3. **Member** of the Canadian Chemical Society (since **2007**).
4. **Member** of the Jordanian Chemical Society (since **2003**).

Workshops

1. Orientation Workshop, Jordan University of Science and Technology, Irbid-Jordan, Feb. **2011**.
2. Modern University Instructional Methods Workshop, Jordan University of Science and Technology, Irbid-Jordan, 12-13 Sep **2011**.
3. Teaching and Evaluation Workshop, Jordan University of Science and Technology, Irbid-Jordan, 6-7 JUNE. **2011**.
4. Self-Evaluation of Academic Programs Workshop, Jordan University of Science and Technology, Irbid-Jordan, 20 JUNE. **2013**.
5. Chemical Safety and Security Officer & Trainer Workshop, Jordan University of Science and Technology, Irbid-Jordan, CSP "Sponsored by the United States" 2-6 JUNE **2013**.