

CURRICULUM VITAE

Mahmoud Hussien Ibrahim Al-Refa'i

**Associate Professor
Al al-Bayt University
Faculty of Science
Department of Chemistry**

Personal details

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| Family name | Al-Refa'i |
| First name | Mahmoud Hussien Ibrahim |
| Date of birth | 01-10-1969 |
| Place of birth | Al Ramtha – Jordan |
| Nationality | Jordanian |
| Civil Status | Married |
| Professional Status | Associate Professor of Organic chemistry |

Academic Record

- 2005-2008 Ph. D. in Organic chemistry, Institute of Organic and Biomolecular Chemistry, Georg-August-University of Göttingen, Germany.
Ph. D. thesis title: New and Bioactive Secondary Metabolites from Marine and Terrestrial Bacteria: Ramthacin A, B, C, and Polyene Macrolides from Genetically Modified Bacteria.
- 2007-2009 Teaching Assistant (Organic lab for the biology students) at Georg-August-University of Göttingen, Germany.
- 1994-1999 M. Sc. in Organic chemistry, Al al-Bayt University.
M. Sc. thesis title: Synthesis and Properties of Some New Thieno-[2,3-*e*]-1,4,2-dithiazine-1,1-dioxide.
- 1993-1994 Diploma, in General Education, Mutah University, Jordan.
- 1987-1991 B. Sc. in chemistry, Yarmouk University, Jordan
- 1986-1987 High School Certificate

Positions and Experience

- 2015- Now Associate Professor of Organic Chemistry, Department of Chemistry, Al al-Bayt University, Mafraq 25113, Jordan
- 2009- 2015 Assistant Professor of Organic chemistry, Department of Chemistry, Al al-Bayt University.
- 2011- 2013 Head of Department of Chemistry, Al al-Bayt University.

- 2003-2005 Lecturer of Organic chemistry, Department of Chemistry, Al al-Bayt University.
- 2001- 2003 Teaching assistant of Organic chemistry, Department of Chemistry, Al al-Bayt University.
- 1991- 2001 Secondary School Teacher, Jordan.

Fellowships

- 1987 – 1991 Ministry of Higher Education, scholarship for B. Sc. degree in chemistry, Department of Chemistry, Yarmouk University, Jordan.
- 2005 – 2007 Deutsche Forschungsgemeinschaft "DFG" scholarship for PhD study in organic chemistry, Prof. Dr. Hartmut Laatsch. Institute of Organic and Biomolecular Chemistry. Georg-August-University of Göttingen, Germany.
- 6/2012–9/2012 DFG scholarship for Post. Doc. research work, Prof. Dr. Armin Geyer. Department of Chemistry. Philipps-Universität Marburg, Germany.
- 6/2015 – 9/2015 DFG scholarship for Post. Doc. research work, Prof. Dr. Armin Geyer. Department of Chemistry. Philipps-Universität Marburg, Germany.

Current Research Interests

- Isolation, characterization and biological evaluation of secondary metabolites from Terrestrial Streptomyces, marine-derived Streptomyces, Cyanobacteria and Plants.
- Chemical compositions and antibacterial activities of the essential oils from plants.
- Synthesis, characterization and biological evaluation of new heterocyclic compounds.
- Synthesis and characterization of metal complexes with N-donor ligands.
- X-ray structural analysis of molecular compounds.

TEACHING EXPERIENCE

I) Courses taught for undergraduate students

- General Chemistry I and II
- Practical General Chemistry I and II
- Organic chemistry I, II and III
- Practical Organic Chemistry I and II

- Systematic Identification of Organic compounds
- Organic Spectroscopy

II) Courses taught for graduate students

- Advanced Organic Chemistry II

Graduate Students (MSc) Supervision

- Helmi Al Maqtari, Synthesis of Some New 4,6-(diheteroaromatic)-3-carbonitrile-2-oxo-1,2-didyropyridine Derivatives, MSc Thesis (2011), Department of Chemistry, Al al-Bayt University, Jordan.
- Zubida Sahauneh, Synthesis of Some New 6-(2,5-dichlorothiophene-3-yl)-4-aromatic-3-carbonitrile-2-oxo-1,2-didyropyridine Derivatives, MSc Thesis (2011), Department of Chemistry, Al al-Bayt University, Jordan.
- Ali Abu Awitah, Synthesis of Some New 4-(3-Aryl)-6-(2,5-dichlorothiophene-3-yl)pyrimidine-2-amine Derivatives, MSc Thesis (2014), Department of Chemistry, Al al-Bayt University, Jordan.
- Ala'a B. Said, Synthesis Characterization and Biological Assessment of New 6-Chlorothiophenyl-4-heteroaryl-furo[2,3-*b*]pyridine Derivatives, MSc Thesis (2019), Department of Chemistry, Al al-Bayt University, Jordan.

Conferences

- [1] Mahmoud Al-Refai, Muna A. Abdalla, Muhammad Bahi, Hafizur Rahman, E. Helmke, Hartmut Laatsch. The marine derived streptomyces sp. B8041, a source of new butanolides, Chemie Forum, Institute of Organic and Biomolecular Chemistry, Georg-August University Göttingen, Germany, (2008).
- [2] Muhammad Bahi, Muna A. Abdalla, Mahmoud Al-Refai, Heidrun Anke, and Hartmut Laatsch, A Bioactive oxadiaziridine or N-oxydiazanyl derivative together with other new phenolic compounds isolated from a terrestrial *Streptomyces* sp. Chemie Forum, Institute of Organic and Biomolecular Chemistry, Georg-August University Göttingen, Germany, (2008).
- [3] Muna A. Abdalla, Muhammad Bahi, Mahmoud Al-Refai, Petrea Facey and Hartmut Laatsch, Flavonoids from sudanese *Albizia zygia* (Mimosaceae), A plant used as

antimalarial remedy. *Chemie Forum*, Institute of Organic and Biomolecular Chemistry, Georg-August University Göttingen, Germany, (2008).

- [4] Hnin Yu Win, Khalid Shaaban, Mahmoud Al-Refai, Hafizur Rahman, E. Helmke and Hartmut Laatsch, Bioactive Mandalapyrone C, its derivatives and chloroanthranilic acid produced by two marine *Streptomyces* spp. *Chemie Forum*, Institute of Organic and Biomolecular Chemistry, Georg-August University Göttingen, Germany, (2008).
- [5] Sayed A. Ahmed, Mahmoud Al-Refai, Andrea Thorn. Synthesis of new cytotoxic [1,2,4]triazolo[1,5-a]pyrimidine. *Chemie Forum*, Institute of Organic and Biomolecular Chemistry, Georg-August University Göttingen, Germany, (2008).

Publications

- [1] Rajab Abu-El-halawah, Basem Fares Ali, Safa'a Fares Kayed, Hutaf Baker, Musa Qandil, Mahmoud Al-Refai, Mohammed Ibrahim, Zaher Juddeh, Kadhim Hashim Al-Obaidi, Synthesis and characterization of metal 2-pyridine carboxaldehyde-N-methyl-N-2-pyridyl hydrazone complexes and their microbiological activity, *Journal of Coordination Chemistry*, (2004), 57, 1139-1149.
- [2] Basem F. Ali, Khaldoun Al-Sou'od, Nayef Al-Ja'ar, Ahmad Nassar, Mukarram H. Zaghaf, Zaher Judeh, Rawhi Al-Far, Mahmoud Al-Refai, Mohamad Ibrahim, Kamal Mansi, Kadhim H. Al-Obaidi, Interconversion of copper(II) to copper(I): synthesis, characterization of copper(II) and copper(I) 2,2'-biquinoline complexes and their microbiological activity, *Journal of Coordination Chemistry*, (2006), 59, 229-241.
- [3] Basem F. Ali, Ahmad Nassar, Mahmoud Al-Refai, Mukarram H. Zaghaf, Kadhim H. Al-Obaidi, Synthesis of 2,2'-bipyrimidine platinum(II) complexes. *Journal of Coordination Chemistry*, (2006), 59, 873-882.
- [4] Volk, R. B., Girreser, U., Mahmoud, Al-Refai, Hartmut Laatsch, Bromoanindolone, a novel antimicrobial exometabolite from the cyanobacterium *Anabaena constricta*, *Natural Product Research*, (2009), 23, 607-612.
- [5] Khaldoun, Al-Sou'od, Basem, F. Ali, Mohmoud, Al-Refai, Kinetic and thermal studies of Zn(II) and Cd(II) diallyldithiocarbamate complexes with 2,2'-bipyridine and 1,10-phenanthroline, *Asian Journal of Chemistry*, (2009), 21(2), 885-892.
- [6] Rajab, Abu-El-Halawa, Mahmoud, H. Al-Refai, Mustafa, M. El-Abadelah, Hani, D. Tabb, Synthesis of novel N-substituted 6-chlorothieno[2,3-e]-1,4,2-dithiazine-3-amine 1,1-dioxides, *Heterocycles*, (2008), 75, 1749-1755.
- [7] Mahmoud, Al-Refai, Mohanad H. Masad, Rajab Abu-El-Halawa, Jamal N. Dawoud,

- Mohammad M. Ibrahim, Zaher Judeh, Basem F. Ali, 6-Chlorothieno[2,3-*e*]-1,4,2-dithiazine-3(2*H*)-thione-1,1-ioxide, Ammonium Salt Sesquihydrate: Synthesis, Crystal Structure and Density Functional Calculations, *Journal of Chemical Crystallography*, (2011), 41, 1335-1341.
- [8] Rajab Abu-El-Halawa, Mohanad Masad, Yaser Bathich, Mahmoud Al-Refai, Mohammad M. Ibrahim, Mustafa M. El-Abadelah, and Wolfgang Voelter, Concise Synthesis and Displacement Reactions of Model 3-(Alkylthio)-6-chloro- and 2,6-dichlorothieno[2,3-*e*]-1,4,2-dithiazine 1,1-Dioxides, *Zeitschrift für Naturforschung*, (2011), 66b, 715-720.
- [9] Mohammad, M. Ibrahim, Mahmoud, Al-Refai, Rajab, Abu-El-Halawa, Hasan, Tashtoush, Sohail, Alsohaili, Mohanad, Masad, Synthesis of Some New Chalcone and 4,5-Dihydro-1*H*-Pyrazole Derivatives as Potential Antimicrobial Agents, *Jordan Journal of Chemistry*, (2012), 7 (2), 115-123.
- [10] Sayed, Abdelkader Ahmed, Mahmoud, Al Refai, Microwave Assisted Synthesis and Antimicrobial Activity of New Pyrazolo[5,1-*c*][1,2,4]triazines and Thieno[2,3-*b*]pyridine Derivatives, *Jordan Journal of Chemistry*, (2012), 7(4), 365-381.
- [11] Mohammad M. Ibrahim, Mahmoud, Al-Refai, Jamal, N. Dawoud, Rajab, Abu-El-Halawa, Mohannad, H. Massad, Zaher, Judeh, Basem, F. Ali, Crystal Structure and Density Functional Calculation of (*E*)-4-Hydroxy-3-methyl-*N'*-(thiophen-2-ylmethylene)-1,4-dihydroquinoxaline-2-carbohydrazide Radical, *Asian Journal of Chemistry*, (2012), 24(7), 2926-2930.
- [12] Anwar, Abo-Amer, Mahmoud, Al-Refai, Richard, J. Puddephattb, Basem, F. Ali, 3-Bromo-*N*-(3,5-di-*tert*-butylphenyl)-propanamide, *Acta Crystallographica Section E*, (2014). E70, o770.
- [13] Sayed, Abdel Kader Ahmed, Mahmoud, Al-Refai, Chemical constituents and cytotoxic activities of the extracts of *Melilotus indicus*, *European Journal of Chemistry*, (2014), 5 (3), 503-06.
- [14] Mahmoud, Al-Refai, Armin, Geyer, Michael, Marsch, Basem, F. Ali, Synthesis, spectroscopic characterization and X-ray structure analysis of 6-(2,5-dichlorothiophen-3-yl)-3,4-dihydro-4-(4-methoxyphenyl)pyrimidine-2(1*H*)-thione, *Journal of Chemical Crystallography*, (2014), 44, 407-414.
- [15] Rajab Abu-El-Halawa, Sami A. Zabin, Mahmoud Al-Refai, Mohammad Ibrahim, The Reaction of Cyanamidium Salts with Ylidenecyanamide Derivatives, *Zeitschrift für Naturforschung*, (2014), 69b, 829 – 834.
- [16] Rajab, Abu-El-Halawa, Imad Eddin Haj Elhussin, Mahmoud Al-Refai, Mohamad

- Ibrahim, One-Pot Synthesis of 2-Alkyl/arylamino-6-chlorothieno[3,2-*e*]-1,3-thiazin-4-one, *Jordan Journal of Chemistry*, (2014), 9 (2), 127-133.
- [17] Mahmoud, Al-Refai, Synthesis, Characterization and Biological Evaluation of New 4-Aryl-6-(2,5-dichlorothiophen-3-yl)-1,2-dihydro-2-oxopyridine-3-carbonitrile, *Asian Journal of Chemistry*, (2015), 27(2), 725-728.
- [18] Mohammad M. Ibrahim, Mahmoud Al-Refai, Khurshid Ayub, Basem F. Ali, Synthesis, Spectral Characterization and Fluorescent Assessment of 1,3,5-Triaryl-2-pyrazoline Derivatives: Experimental and Theoretical Studies, *Journal of Fluorescence*, (2016), 26, 1447–1455.
- [19] Mahmoud Al-Refai, Mohammad M. Ibrahim, Armin Geyer, Michael Marsch, Basem F. Ali, Synthesis Spectroscopic Characterization and X-ray Structure Analysis of 6-(2,5-Dichlorothiophen-3-yl)-2-methoxy-4-(4-methoxyphenyl)pyridine-3-carbonitrile, *Journal of Chemical Crystallography*, (2016) 46, 331–340.
- [20] Mahmoud Al-Refai, Mohammad M. Ibrahim, Sohail Alsohaili, Armin Geyer, Synthesis, characterization and antimicrobial activity of new chalcones and their 6-aryl-4-(2,5-dichlorothiophen-3-yl)-6*H*-1,3-thiazin-2-amine derivatives, *Phosphorus, Sulfur, and Silicon and the Related Elements*, (2017), 192 (5), 560-564.
- [21] Mahmoud Al-Refai, Mohammad Ibrahim, Abdullah Al-Fawwaz, Armin Geyer, One-pot synthesis and antimicrobial activity of new 4,6-disubstituted-3,4-dihydropyrimidine -2-(1*H*)-thiones, *European Journal of Chemistry*, (2017), 8 (1), 96-100.
- [22] Mohammad M. Ibrahim, Mahmoud Al-Refai, Abdullah Al-Fawwaz, Basem F. Ali, Armin Geyer, Klaus Harms, Michael Marsch, Michelle Krüger, Hasnah Osman, Mohamad N. Azmi, Synthesis of Fluorescent 1-(3-Amino-4-(4-(*tert*-butyl)phenyl)-6-(*p*-tolyl) furo[2,3-*b*]pyridin-2-yl)ethan-1-one: Crystal Structure, Fluorescence Behavior, Antimicrobial and Antioxidant Studies, *Journal of Fluorescence*, (2018), 28, 655–662.
- [23] Mahmoud Al-Refai, Mohammad Ibrahim, Abdullah Al-Fawwaz, Armin Geyer, Synthesis and characterization of new 4-aryl-2-(2-oxopropoxy)-6-(2,5-dichlorothiophene)nicotinonitrile and their furo[2,3-*b*]pyridine derivatives: Assessment of antioxidant and biological activity, *European Journal of Chemistry*, (2018), 9 (4), 375-381
- [24] Mohammad M. Ibrahim, Mahmoud Al-Refai, Mohamad Nurul Azmi, Hasnah Osman, Mohamad Hafizi Abu Bakar, Armin Geyer, Synthesis, characterization and cytotoxicity of new nicotinonitriles, and their furo[2,3-*b*]pyridine derivatives, *Journal of the Iranian Chemical Society*, (2019), 16, 715–722.

- [25] Nayyef Aljaar, Raghuram Gujjarappa, Mahmoud Al-Refai, Majed Shtaiwi, Chandi C. Malakar, Overview on Recent Approaches towards Synthesis of 2-Keto-annulated Oxazole Derivatives, *Journal of Heterocyclic Chemistry*, (2019), 56, 2730.
- [26] Mohammad M. Ibrahim, Mahmoud Al-Refai, Basem F. Ali, Armin Geyer, Klaus Harms, Michael Marsch, 3-(2,5-Dichlorothiophen-3-yl)-5-(2,4-dimethoxyphenyl)-1-methyl-4,5-dihydro-1*H*-pyrazole, *IUCrData*, (2019), 4, x191046.
- [27] Mahmoud Al-Refai, Basem F. Ali, Ala'a B. Said, Armin Geyer, Michael Marsch, Klaus Harms, Synthesis, characterization, crystal structure and supramolecularity of ethyl (*E*)-2-cyano-3-(3-methylthiophen-2-yl)acrylate and a new polymorph of ethyl (*E*)-2-cyano-3-(thiophen-2-yl)acrylate. *Acta Crystallographica Section E: Crystallographic Communications*, (2019). E75, 1357–1361.
- [28] Mahmoud Al-Refai, Mohammad M. Ibrahim, Mohamad Nurul Azmi, Hasnah Osman, Mohamad Hafizi Abu Bakar, Armin Geyer, The Synthesis, Characterization, Cytotoxic Activity Assessment and Structure–Activity Relationship of 4-Aryl-6-(2,5-dichlorothiophen-3-yl)-2-methoxypyridine-3-carbonitriles, *Molecules*, (2019), 24, 4072.