

Dr. Amneh Shtaiwi, PhD Drug Design
Assistant Professor of Physical Medicinal Chemistry



Personal Information

Date of birth: July 18, 1986

Nationality: Jordanian

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Academic Record

Visiting Researcher. University of Eastern Finland, Finland, **2022.**

PROGRAMME: EC-FUNDED by the European Commission under grant agreement No. 730897. Working in collaboration with Prof. Antti Poso from the School of Pharmacy, research project entitled "Design, Kinetic and ADMET studies of novel quinazolinone derivatives as potential AChE inhibitors for Alzheimer's disease".

Ph.D. fellowship Physical Chemistry. Universiti Sains Malaysia, USM, Malaysia. **2018.**

Dissertation: Computational Design and Investigation of New Benzophenones and Benzophenone Imines Inhibitors for Breast Cancer.

Supervisor: Prof. Rohana Adnan.

Four publications resulted from this work in international journals with impact factor.

M.Sc. Chemistry. The Hashemite University, Jordan. **2011.** Rating: Excellent with the first rank.

Thesis: Complexes of lithium with different binary ligands systems and their applications in synergistic extraction of lithium.

Two publications resulted from this work in international journals with impact factor.

B.Sc. Chemistry. Al al-Bayt University, Jordan. **2008.** Rating: Excellent with the first rank.

Employment

(1). September 2019 - Now: College of Pharmacy, Middle East University, Jordan. During this period of time, Dr. Shtaiwi was assigned as assistant professor and she will apply for promotion to the rank of associate professor within the next 3 months.

Dr. Shtaiwi is actively participated and has high achievements in the following missions:

- Active participation in the preparation of self study report (Standard 12) of the pharmacy program for the application of American Accreditation Council for Pharmacy Education (ACPE). Middle East University, 2019-2022.
- Active participation in the preparation of self study report (Standard 5) of the pharmacy program for the application of Accreditation and Quality Assurance Commission for Higher Education Institutions (AQACHEI). Middle East University, 2019-2022.
- Active participation in the development of Curriculum Plan for the pharmacy (Bachelor) program and Formulation of Cosmetics and Chemical Products (Bachelor) program. College of Pharmacy, Middle East University, 2021-2023.
- Active participation in the development of E-learning courses for the Pharmacy Bachelor Program. College of Pharmacy. Middle East University, 2019-2023.
- Head of Academic advisor committee, College of Pharmacy. Middle East University, 2019-2023.

Dr. Shtaiwi has wide teaching experience covered a spectrum of subjects and teaching modalities either wet or dry topics.

※ The following courses have been taught at Pharmacy Department, Middle East University:

# No.	Course name	# No.	Course name
1213101	Medicinal Chemistry 1	1213107	Medicinal Chemistry Lab
1213106	Medicinal Chemistry 2	1213105	Pharmaceutics 2 Lab
1201418	Medicinal Chemistry 3	1212105	Biochemistry Lab
1201114	Organic Chemistry	1201213	Organic Chemistry Lab
1201330	Instrumental Analysis	120101227	Instrumental Analysis Lab
120102593	Clinical pharmacology	1201219	Analytical Chemistry Lab

(2). 2015-2018: Lecturer. School of Chemistry, Universiti Sains Malaysia, Malaysia.

During this period of time, Dr. Shtaiwi was assigned as lecturer for undergraduate students under fellowship scheme.

※ Duties and Responsibilities:

- Teaching Physical Chemistry 1, Organic Chemistry 1, and General Chemistry.
- Training the new Ph.D students.
- Correct the lab reports.

(3). 2012-2015: Lecturer. College of Science, Chemistry Department, Majmaah University, Riyadh, Saudi Arabia.

During this period of time, Dr. Shtaiwi was assigned as lecturer for undergraduate students.

※ The following courses have been taught at Chemistry Department, Majmaah University:

# No.	Course name	# No.	Course name
CHEM322	Physical Chemistry 1	CHEM323	Physical Chemistry Lab
CHEM324	Physical Chemistry 2	CHEM222	Analytical Chemistry Lab
CHEM421	Colloids and Surfaces	CHEM221	Analytical Chemistry
CHEM423	Thermodynamics Chemistry	CHEM205	General Chemistry I
CHEM325	Instrumental Analysis	CHEM326	Instrumental Analysis Lab

(4). September 2011- 2012: Lecturer. College of Pharmacy, The Islamic Community College, Zarqa, Jordan.

During this period of time, Dr. Shtaiwi was assigned as lecturer for diploma students.

※ Duties and Responsibilities:

- Teaching Physical Pharmacy, Organic Chemistry 1, and Analytical Chemistry.

(5). 2008- 2011: Teaching Assistant. College of Science, Faculty of Chemistry, The Hashemite University, Zarqa, Jordan.

During this period of time, Dr. Shtaiwi was assigned as teaching assistant for undergraduate students.

✧ Duties and Responsibilities:

- Teaching Physical Chemistry Lab, General Chemistry Lab, and Organic Lab.
- Correct the lab reports and graded quizzes and assignments.

Scientific and Research Interests:

Dr. Shatiwi is mainly concerned with the general field of advanced materials. With a particular focus on four major areas:

1- Molecular modeling, design and synthesis of various inhibitors (Anti-cancer). In this projects, Mant inhibitors such as: benzophenone imines, schiff bases, nitroimidazoles, and chalcones are developed and designed as anticancer. In addition, spiroquinazoline derivatives as Acetylcholinesterase Inhibitors for Alzheimer Disease. (The projects are funded by Middle East University, MEU, through the MEU fund Scheme, Department of Pharmacy).

2- Protein kinetic-Thermodynamic studies for (Acetylcholinesterase enzyme-ligand) and (human estrogen receptor-ligand) interactions. The project includes, Determination of dissociation constant, mode of inhibition and interaction between two inhibitors at the drug-target binding site. (This Project is funded by European Commission under grant agreement No. 730897. Finland).

3-Physico-chemical studies and pharmacokinetics of the drugs and lead compounds. In this project, new spiroquinazoline compounds are designed and developing based on the pharmacokinetics studies, including chemical absorption, distribution, metabolism, excretion, and toxicity (ADMET) characterizations and Physico-chemical properties, Corrosion, polarity, stability, Henry's phase distribution and logP. (This Project is funded by European Commission under grant agreement No. 730897. Finland).

4- Virtual Screening and molecular modeling of anti-bacterial agents (Infections). In this project, new glycosyltransferase enzyme MurG inhibitors were discovered using a structure-based virtual screening (SBVS) approach from the natural products database, followed by the drug-likeness assessment (ADMET) and molecular dynamics simulation using in silico tools. (This Project is funded by Middle East University, MEU, through the MEU fund Scheme, Department of Pharmacy).

Dr. Shtaiwi entertains collaborations nationally and internationally with researchers from chemistry, physics, and pharmacy departments and greatly benefits from these interactions, both as a source of interesting problems and as a way to keep in touch with realistic applications.

✧ Potential topics include the following:

1. Synthesis using Friedel craft acylation and alkylation reactions.
2. UV-Visible spectrometer.
3. Infrared Spectrometer. Perkin Elmer FT-IR 1000 spectrometer.
4. Raman Spectrometer. ISA T64000.
5. NMR-Nuclear magnetic resonance. Bruker NMR 500 & 700 MHz
6. Molecular dynamics simulation of host-guest system complexes.
7. Homology Modeling of proteins with low resolution or with high missing amino acids residues and structure based virtual screening and molecular docking.
8. Development of programming scripts using Bash shell (Linux) to perform ligand-protein interaction.
9. NMR-Nuclear magnetic resonance. Bruker NMR 500 & 700 MHz
10. ChemOffice package, ChemDraw and modeling software packages such as, Chimera, Pymol, Discovery studio, Maestro... etc.
11. Searching engine and database: chemical abstract, scifinder, google scholar...etc.

Professional Training “Certified”:

1. Five days training under the program of “Faculty for factory” To connect the industries with academia. [30/10/2022 - 03/1/2022]. Organized by the national program for linking academic institutes with industrial sectors “ Faculty for Factory” and “Orange”.
2. Training-Accreditation Council for Pharmacy Education ACPE, Middle East University, [01/09/2021-10-09-2021], 2021, Amman-Jordan.
3. Mentor Training Program. Deanship of Academic Development. Middle East University. Sep 25, 2019 - Oct 10, 2019.
4. NMR Nuclear magnetic resonance, Analysis and Training workshop (School of chemical sciences, USM, 2016).

5. Molecular Dynamics Simulation Training (school of pharmacy,USM 2016).
 6. Computer aided drug design,CADD training, Organized by School of Pharmaceutical Sciences and Institute of Molecular Medicine, for two years. (INFORMM, USM 30ht-2nd Nov 2016) & (INFORMM, USM 8ht-10th Dec 2015) held at De Baron Resort Langkawi, Malaysia.
 7. Mentor Training Program. Deanship of Academic Development. Majmaah University, Riyadh, Saudi Arabia. Feb 02, 2015- Feb 09, 2015.
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Community Service:

1. Training for undergraduate students. Research Units, Faculty of Pharmacy, Middle East University. October 2020 - May 2022.
 2. Continuous visits and collaboration with industries and government schools in Jordan (students visits, and gives lectures). Amman Pharmaceutical Industries (API), Sahab, Amman and Jawa high school in Amman. September 2020 - June 2022.
 3. Training courses for Laboratory technicians. Majmaah University, Riyadh, Saudi Arabia. July 01, 2015- October 05, 2016.
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Committees:

※ Faculty of Pharmacy, Middle East University, Jordan

1. Self study committee, 2019-2023.
 2. Scientific research committee, 2019-2023.
 3. Academic advisor committee, 2019-2023.
 4. Quality and academic development committee, 2019-2023.
 5. Curriculum plan development committee, 2019-2023.
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Membership in Scientific and Professional Societies:

1. The Assosiation of Jordanian Women Academics in Jordan.
 2. Member of the Jordanian Chemical Society.
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International Awards

- Young Women Researcher in Drug Design " Award in the 8th Venus International Women Awards – VIWA 2023".

Conferences “Certified”:

1. **Speaker (15th-16th, Nov. 2022).** The 1st International Conference of the Faculty of Sciences & Faculty of Pharmacy at Isra University & The 17th Jordanian Chemical Conference (JCC17) "Prospects for Chemical and Pharmaceutical Industries (ICPCPI)". Amman, Jordan. Presentation title: Molecular modeling studies revealed new potential leads against Escherichia Coli glycosyltransferase and leishmaniasis diseases.
2. **Speaker (29-30, Nov. 2021).** The 4th International Conference on Chemical Sciences. Presentation title: Synthesis and Computational Insights of P-benzoyl- Phenylalanine as Potential Estrogen Receptor Inhibitor. Organized by Universitas Gadjah Mada (UGM), Indonesia in collaboration with the School of Chemical Sciences Universiti Sains Malaysia (USM).
3. **Speaker (12-13, Sep. 2021).** ASU-Pharmacy Fifth International Conference “Recent Trends in Research about COVID- 19 Pandemic”, Topic title “Molecular Insight on the formation structure and dynamics of coronavirus in the water and at an aqueous solution interface: A molecular dynamics study” Applied Science Private University, Amman, Jordan.
4. **Speaker (20-21, Jan. 2021).** The 1st International Conference “Women in Academia”, Why are there a leadership gender gap in academia: An overview of the current state in Jordan?. Jordan University. Amman-Jordan.
5. **Local Organizing Committee (3-5 December 2021).** Local Organizing Committee (LOC) of the 2021 Global Mosharaka Congress on Engineering and Architecture (GMC-EngArch 2021), Aqaba, Jordan. GMC-EngArch 2021 is technically co-sponsored by CRC Press/Balkema - Taylor & Francis Group (Balkema).
6. **Online Conference (14-16, May 2020).** Participant at 1st International Conference of the World future vision after Covid19.
7. **Speaker (17-20, Oct. 2017).** The 6th International Conference for Young Chemists, ICYC, organized by Universiti Sains Malaysia, St Giles Wembley Hotel, Georgetown, Pinang. Malaysia. Presentation title: Molecular dynamics

simulation of morpholine ether benzophenone inhibitor and apo conformation of human estrogen receptor. Oral presentation, presented at 6th International Conference for Young Chemists, ICYC, organized by Universiti Sains Malaysia, St Giles Wembley Hotel, Georgetown, Pinang. Malaysia.

8. **Participant (1-3, May, 2016).** The 4th International Conference on Computation for science and Technology (ICCST), organized by school of Pharmacy, Universiti Sains Malaysia, held at De Baron Resort Langkawi, Malaysia.
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Attended Workshops & Symposiums "Certified":

1. **Workshop (07 November, 2022).** FIP-UNITWIN regional workshops for the European and Eastern Mediterranean regions. Organized by International Pharmaceutical Federation (FIP). Netherlands.
2. **Workshop (16 October, 2022).** "Ethical Issues in the Dissmination of Genomic Science: Prespectives from GIM". Organized by BrightTALK. Dr. Kyle Brothers.
3. **Workshop (08 October, 2022).** Selection of journals to publish using Scopus, Presented by Mariam Boghdadi Conseillère de Solutions de Recherche Organized by ScienceDirect.
4. **Symposium (23-24 September, 2022).** "Whole Body Health Symposium", 23-24 September 2022. Organized by Royal College of Physicians UK, CAPP.
5. **Workshop (15 April, 2022).** "Out of Box Solution for Osteoarthritis Managment 'Inflammation Control'". Organized by Royal College of Physicians UK, CAPP.
6. **Workshop (06 March, 2022).** "Choose my research topic for better international visibility". Presented by Nadine Iskander RSM, Karim Aiche Elsevier Ambassador. Organized by Elsevier.
7. **Workshop (27-28 September, 2021).** Grant to attend workshop: Training at DAAD Office "Grant Proposal Writing Workshop for Fund" DAAD German Academic Exchange Service, Jordan University. Jordan.

8. **Symposium (28 August, 2021)**. Pharamcist Overview on Erosive Tooth Wear, Diagnosis and Risk Factors. Organised by CAPP.
 9. **Workshop (10 June, 2021)**. Webinar: Publishing Academic Book with Springer Nature.
 10. **Symposium (7-9 June, 2021)**. Virtual Higher Education Reform Week, Funded by Erasmus+ Programme of the European Union. National Erasmus+ office, 2021, Jordan.
 11. **Workshop (22 August, 2015)**. Introduction to LINUX Operating System in Research, IPPT, Organized by Institute of Bioinformatic, USM, Pinang, Malaysia.
 12. **Workshop (08 June, 2015)**. Occupational safety and health workshop, USM, Universiti Sains Malaysia, Malaysia.
 13. **Workshop (12 September, 2013)**. Teaching Methodology, Majmaah University, Saudi Arabia.
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Reviewing Arbitration & Thesis Examination:

1. Doctorate Thesis Examination (**2023**). Student: Muhammad Shoaib Ali Gill. Thesis entitled "Design and development of new anti-HIV agents based on quinolone Scaffolds". Faculty of Pharmacy. Monash University, Australia.
 2. Reviewer for many manuscripts, Jordan Journal of Chemistry JJC (2020-2023). Editor – in – Chief , Prof. Dr. Ayman Hammoudeh. Yarmouk University. Jordan.
 3. Conference Reviewer for two years (2016 and 2017). IEEE International Conference on Control System, Computing and Engineering (ICCSCE 2016 and 2017), organized by Universiti Teknologi Mara (UiTM), PARKROYAL Pinang Resort, Batu Ferringhi, Pinang. Malaysia.
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Publications:

1. A. Shtaiwi, S. A. Khan, M. Alaraj and A. Almaaytah. Comprehensive structure-based virtual screening studies revealed new potential leads against Escherichia coli glycosyltransferase (MurG) target. *Royal Society Open Science*. (2023) under review

2. A. Shtaiwi. Thiadiazine-thiones as a new potential leads of promising Leishmania pteridine reductase (PTR1) target: comprehensive in silico approach. *Journal of Biomolecular Structure and Dynamics* (2023) accepted
3. O. Sadeekah. Saber, R. A. Al-Qawasmeh, L. Abu-Qatouseh⁴, A. Shtaiwi, M. A. Khanfar and Y. A. Al-Soud. Novel Hybrid Motifs of 4-nitroimidazole-piperazinyl tagged 1,2,3-Triazoles: Synthesis, Crystal structure, Anticancer evaluations, and Molecular docking study. *Chemical Papers* (2023). under review
4. M. Shtaiwi, N. Aljaar, L. Al-Najjar, C. C. Malakar, A. Shtaiwi, M. Abu-Sini, M. Al-Refai. Design, Synthesis, Biological Activity, and Molecular Modeling of Novel Spiroquinazoline Derivatives as Acetylcholinesterase Inhibitors for Alzheimer Disease. *Polycyclic Aromatic Compounds*. (2022) 1-14. doi: 10.1080/10406638.2022.2144911. Article in Press
5. A. Shtaiwi, R. Adnan, M. Khairuddean. Synthesis and Computational Insights of p-Benzoyl-phenylalanine as Potential Estrogen Receptor Inhibitor. *Materials Science Forum*, 1061 (2022) 203–209.
6. M. Ouassaf, S. Belaidi, A. Shtaiwi, S. Chtita. Quantitative Structure Activity Relationship (QSAR) Investigations and Molecular Docking Analysis of Plasmodium Protein Farnesyltransferase Inhibitors as Potent Antimalarial Agents. *Jordan Journal of Pharmaceutical Sciences*, 3 (2022) 315–340.
7. Y. Al-Soud, Sadeekah O. W. Saber, A. Shtawi, S. O. Alsawakhneh, Kafa, Alhelal , Q. F. Salman , L. Abu-Qatouseh, M. A. Khanfar and R. A. Al-Qawasmeh. Nitroimidazoles Part 10a. Synthesis, crystal structure, molecular docking, and anticancer evaluation of 4-nitroimidazole derivatives combined with piperazine moiety, *Zeitschrift für Naturforschung C*, (2022). <https://doi.org/10.1515/znc-2022-0023>. Article in Press
8. Al-Soud, Yaseen A., Al-Ahmad, Ala'a H., Abu-Qatouseh, Luay, Shtaiwi Amneh, Alhelal, Kafa' A. S., Al-Suod, Hossam H., Alsawakhneh, Sondos O. and Al-Qawasmeh, Raed A.. "Nitroimidazoles Part 9. Synthesis, molecular docking, and anticancer evaluations of piperazine-tagged imidazole derivatives" *Zeitschrift für Naturforschung B*. 76 (2021) 293-302. <https://doi.org/10.1515/znb-2020-0200>

9. A. Shtaiwi, R. Adnan, M. Khairuddean and S. Khan, Computational Investigations, of the binding mechanism of novel benzophenone imines inhibitors for the treatment of breast cancer, RSC Advances. 9 (2019) 35401-35416.
10. A. Shtaiwi, R. Adnan, M. Khairuddean and M. Al-Qattan, Molecular dynamics simulation of human estrogen receptor free and bound to morpholine ether benzophenone inhibitor, Theoretical Chemistry Accounts. 137 (2018) 101-120.
11. A. Shtaiwi, R. Adnan, M. Khairuddean and FS. Shikin, Investigation of Newly Designed Human Estrogen Receptor Inhibitors from Benzophenones Derivatives (BPs) by Molecular Docking and Molecular Dynamic Simulation, Australian Journal of Basic and Applied Sciences. 10 (2016) 49-59.
12. Mahmoud Sunjuk, Bassam El-Eswed, Jamal N. Dawoud, Amneh Shtaiwi, Monther Khanfar & Mohammad El-Khateeb. Evidences for Chelating Complexes of Lithium with Phenylphosphinic and Phenylphosphonic Acids: A Spectroscopic and DFT Study, Phosphorus, Sulfur, and Silicon and the Related Elements, 189 (2013) 558-575.
13. Bassam El-Eswed, Mahmoud Sunjuk, Y. S. Al-Degs & Amneh Shtaiwi (2014) Solvent Extraction of Li⁺ using Organophosphorus Ligands in the Presence of Ammonia, Separation Science and Technology, 9 (2014) 1342-1348.