C. V.
Ahmed F. M. El-Mahdy

1. Address

Current Address:

Lecturer and Assistant Professor of Organic and Biofunctional Molecules Chemistry
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2. Personal Background

Date of Birth: September 24th, 1983
Place of Birth: Abou Teeg, Assiut, Egypt
Nationality: Egyptian
Marital Status: Married

3. Educational Background

9/2011 – 9/2014 Ph.D. Degree in Pharmaceutical sciences (Chemistry of Biofunctional Molecules) from Graduate School of Biomedical Sciences, Nagasaki University, Japan.
Title of the thesis: Study on Synthesis of Dendrimer-Like Polymeric DNA and Its Application for Chemiluminescence Detection of Telomere DNA and Delivery of siRNA.

6/2010 – 6/2011 Erasmus Mundus (FFEEBB) Research Program in Ph.D. level from Lund University, Sweden.

9/2007 – 9/2009 Master Degree in Organic Synthesis from Chemistry Department, Assiut University, Egypt.
Title of the thesis: Studies on Synthesis and Reactions of Some New Pyrimido-, Triazolo-thiadiazines and Some Related Compounds.

9/2006 – 9/2007 Preparatory Year (Diploma) in Organic Chemistry from Chemistry Department, Assiut University with General grade (very good, 83.57%).

6/2000 – 6/2004 Bachelor of Science in Chemistry from Chemistry Department, Assiut University, Egypt with distinction and the degree of honor (A+), General grade (85.29%).

6/1997 – 6/2000 High School Science Division, Abotig Secondary School, Assiut, Egypt with record of 91 %.

4. Honors and Awards

9/2011 – 9/2014	Japanese government (Monbukagakusho) scholarship for Ph. D. program in Graduate School of Biomedical Sciences, Nagasaki University, Japan.
6/2010 – 6/2011	Erasmus Mundus (FFEEBB) Award for the research project in PhD level from Lund University, Sweden.
July 2010	I had been accepted to enter the EPFL Doctoral program in chemistry and chemical engineering for fall 2010 in ÉCOLE POLYTECHNIQUE FÉDÉRALE DE LAUSANNE, Switzerland. (But I couldn't join because I hadn't fund).
July 2010	I had been the acceptance to National Tsing Hua University, Taiwan for fall 2010 and admission to the department of chemistry in Doctoral Degree. (But I couldn't join because I hadn't fund).
October 2008	Assiut University Award for best presentation in the second conference for young scientists which hold in Assiut University, Egypt. The research entitled: Intramolecular Cyclization of Mannich Reaction for Synthesis of Pyrimido[2,1-b]-1,3,5-thiadiazines.
2000 - 2004	Assiut university Award for excellent academic record (2nd among my colleague).

5. Employment Record and Research Experience

2005 – 2009	Demonstrator at the chemistry department, Assiut University, Egypt.
2009 - 2014	Teaching Assistant at the chemistry department, Assiut University, Egypt.
2014 – present	Assistant professor at the chemistry department, Assiut University, Egypt.

- Since I was appointed as demonstrator and teaching assistant at the chemistry department, Assiut University, Egypt. I have been participating in teaching programs organized by the department for undergraduate students of Sciences, Pharmacy, Veterinary Medicine and Agriculture faculties.

- The work presented in the M.Sc. thesis focused on synthesis and studies of Pyrimido-, Triazolo-thiadiazines and their related compounds as follows:

  1- Application of the double Mannich reaction for the synthesis of pyrimido[2,1-b]-1,3,5-thiadiazinesand the products were confirmed by using spectral analysis, molecular mechanical calculations and X-Ray single crystal analysis.
  2- Study on behavior and mechanism of the reactions of aldehydes or ketones with triazoles in acidified acetic acid, in order to yield the corresponding s-triazolo[3,4-b][1,3,4]thiadiazines.
  3- Study on mechanism of the reaction of cyano compounds containing active methylene group with triazoles in acidified acetic acid, in order to produce the new triazolothiadiazines and thiazolotriazoles.

Additionally, I gained a good experience in operating instrument like IR, Mass and NMR.

- The work performed in the Erasmus Mundus (FFEEBB) Research Program focused on synthesis of both 6,12-exo,exo and 6,12-endo,endo isomers of Tröger's base, 3,9-diamino-4,10-dimethyl-6H,12H-5,11-methanodibenzo[*b*,*f*][1,5]diazocine. The two isomers have been isolated by using chromatography separation techniques.

Additionally, I gained a good experience in operating instrument like:

1. 500 MHz NMR
2. Mass spectrometry
3. IR spectroscopy
4. Flash chromatography column
5. Gravity chromatography column
6. Reactions under N_2 and inert gases

- The work presented in the Ph.D. thesis focused on synthesis of dendrimer-like polymeric DNA and its application for chemiluminescence detection of telomere DNA and delivery of siRNA:

1- The synthesis of a novel dendrimer-like polymeric DNAs containing a large number of guanine moieties based on the maleimide-thiol coupling and hybridization.
2- The application of the synthesized dendrimer-like polymeric DNA as a chemiluminescence (CL) probe for a facile and sensitive CL detection of the telomere DNA spotted on a nylon membrane.
3- The preparation of streptavidin-coated sephadex beads and their application with dendrimer-like polymeric DNA for the CL detection of telomere DNA in solution.
4- A safe and efficient siRNA delivery system depended on the electrostatic encapsulated of siRNA/cationic vector nanoparticles with dendrimer-like polymeric DNA.

Additionally, I gained a good experience in operating instruments and techniques like:

1. Column chromatography
2. 400 MHz NMR
3. ESI-Mass
4. Polyacrylamide gel electrophoresis (PAGE)
5. Agrose gel electrophoresis
6. SDS-PAGE
7. HPLC-UV
8. NAP-10 Purification column
9. Bright-field optical microscopy
10. Dynamic light scattering
12. UV-Vis spectroscopy
13. V-630 Bio spectroscopy
14. Fluorescence microscopy
15. FP-8200 spectroscopy
16. Charge-coupled device (CCD) camera for chemiluminescence detection
17. BLR-201 CL luminescence reader
18. Hela cell Culture
19. Cytotoxicity assays
20. Cellular uptake assays
21. Aggradation assays with erythrocytes
22. Bio Clean Bench (SANYO)
23. Cell Culture Incubator (Water Jacket CO_2)
24. EYELA Freeze Dryer FDU-2100
25. EYELA Centrifuge evaporator (CVE-3100)
26. Eppendorf centrifuge 5415 R
27. Vacuum drying Ovens
28. Autoclaving
29. ASTEC Program TEMP Control System for PCR.

6. Puplications:

1- Hassan A. H. El-Sherief, Zeinab A. Hozien, **Ahmed F. M. El-Mahdy** and Abdelwarth A. O. Sarhan, "**Novel Method for the Synthesis of *s*-Triazolo[3,4-*b*][1,3,4]thiadiazines**", Synthesis (2010) 15, 2636-2642.

2. Hassan A. H. El-Sherief, Zeinab A. Hozien, **Ahmed F. M. El-Mahdy** and Abdelwareth A. O. Sarhan, "**Intramolecular Cyclization of Mannich Reaction for Synthesis of Pyrimido[2,1- b]-1,3,5-thiadiazines**", J. Heterocyclic Chem. (2010) 47(6), 1294-1302.

3. Hassan A. H. El-Sherief, Zeinab A. Hozien, **Ahmed F. M. El-Mahdy** and Abdelwareth A. O. Sarhan, "**One Pot Synthesis and Studies of Novel Thiazolo[3,2-b][1,2,4]Triazoles**", Arkivoc (2011) 10, 71-84.

4. **Ahmed. F. M. EL-Mahdy**, T. Shibata, T. Kabashima, M. Kai, "**Dendrimer-like polymeric DNAs as chemiluminescence probes for amplified detection of telomere DNA on a solid-phase membrane**", Chemical Communications (2014) 50(7), 859-861.

5. **Ahmed F. M. El-Mahdy**, V. Ejupi, T. Shibata, T. Kabashima, J. Lu, M. Kai, "**Facile preparation of streptavidin-coated sephadex bead and its application for the chemiluminescence detection of a target DNA**". Microchimica Acta (2015) 182 (3-4), 495-503.

6. **Ahmed F. M. El-Mahdy**, T. Shibata, T. Kabashima, Q Zhu, M. Kai, "**Delivery of siRNA using siRNA/cationic vector complexes encapsulated in dendrimer-like polymeric DNAs**", RSC Advances (2015) 5 (41), 32775-32785.

7. V. Ejupi, S. Dragusha, T. Kabashima, Q. Zhu, **Ahmed F. M. El-Mahdy**, S. Yin, T. Shibata, M. Kai, "**Spectrofluorometric Assays of Human Collagenase Activity Using Native Collagen and Acetyl-Peptide Substrates**", Advances in Enzyme Research (2015) 3 (01), 19.

8. Q. Zhu, Z. Yu, T. Kabashima, S. Yin, S. Dragusha, **Ahmed F. M. El-Mahdy**, V. Ejupi, T. Shibata, M. Kai, **"Fluorometric assay for phenotypic differentiation of drug-resistant HIV mutants"**, Scientific Reports (2015) May 19;5:10323.doi:10.1038/srep10323.

9. **Ahmed F. M. EL-Mahdy**, Omima S. Mohamed, Hassan A. H. El-Sherief and Zeinab A. Hozien, **"An efficient one-pot synthesis of benzo[1,4]thiazines, benzo[1,3]thiazoles and benzo[1,5]thiazepines"** Current Organic Synthesis, (2016) vol. 13. DOI: 10.2174/1570179413666160624082057.

10. **Ahmed F. M. El-Mahdy** and Hassan A. H. El-Sherief, "**An efficient and rapid intramolecular cyclization of a quadruple Mannich reaction for one-pot synthesis of pentaazaphenalenes and their antimicrobial activities**" RSC advances (2016) **6**, 92134-92143. DOI: 10.1039/c6ra20689a.

11. **Ahmed F. M. EL-Mahdy** and Hassan A. H. El-Sherief **"A convenient one-pot and rapid microwave-assisted synthesis of s-triazolo[3,4-b][1,3,4]thiadiazines and s-triazolo[3,4-b][1,3,4]thiadiazoles"** under submit.

7. Conferences:

1. International Conference on Chemical Sciences and Applications (Aug 6-9, 2016, Alex. Egypt).
   - **Poster presentation**: Eco-friendly and rapid synthesis of s-triazolo[3,4-b]-1,3,4- thiadiazines and s-triazolo[3,4-b]-1,3,4-thiadiazoles under microwave irradiation.

2. The 30th Conference of Pharmaceutical Society of Japan Kyushu Branch (December 7-8, 2013, Sasebo, Japan).
   - **Oral presentation**: Dendrimer–Like Polymeric DNAs as Chemiluminescence Probe.

3. The 26th Symposium on Biomedical-Analytical Sciences (BMAS) (August 2-3, 2013, Tokyo, Japan).
   - **Oral presentation**: Chemiluminescence Detection of Telomere DNA by Using Dendrimer–Like Polymeric DNAs.

4. The 2nd Egyptian Scientists in Japan (July 28, 2012, Fukuoka, Japan).
   - **Oral presentation**: Novel Method for the Synthesis of s-Triazolo[3,4-b][1,3,4]thiadiazines.

5. The 1st Taibah International Chemical Conference (TICC-2009) (March 23-25, 2009, Taibah University, Al- Madinah Al-Munawwarah, Saudi Arabia).
   - **Poster presentation**: An Efficient New Route For Synthesis of s-Triazolo-1,3,4-Thiadiazines With Expected Biological Activity.

6. The 2nd Conference for Young Scientists (October 10-12, 2008, Assiut University, Assiut, Egypt).
   - **Oral presentation**: Intramolecular Cyclization of Mannich Reaction for Synthesis of Pyrimido [2,1-b]-1,3,5-thiadiazine.

8. Courses Studied (selected):

Ph.D. (2011 - 2012)

1. Bioorganic Chemistry of Environmental Science
2. Synthesis of Drugs for Infectious Diseases
3. Pharmaceutical Organic Chemistry for Infectious Diseases
4. Chemistry of Biofunctional Molecules for Infectious Diseases
5. Natural Product Chemistry for Infectious Diseases
6. Analytical Chemistry in Health and Environmental Science
7. Exercise Biomedical Sciences
8. Experiment Biomedical Sciences

Master (2006 – 2007)

1. Advanced Stereochemistry
2. Photochemistry
3. Advanced Organic Synthetic Chemistry
4. Mechanism Organic Reactions
5. Analytical Organic Chemistry

Bachelor (2000 – 2004)

1. Organic Chemistry
2. Molecular Spectroscopy
3. Molecular Symmetry and Group Theory
4. Stereochemistry
5. Biochemistry
6. Photochemistry
7. Statistical Thermodynamics
8. Thermodynamics
9. Quantum Chemistry
10. Inorganic Chemistry
11. Analytical Chemistry
12. Quantum Physics
13. Physics of Vibrations and Waves
14. Calculus (Differential and Integral)
15. Differential equations
16. Algebra and Linear Algebra
17. Geometry
18. Statistics
19. Programming languages (FORTRAN and Basic)
20. Crystallography

9. Language Proficiency

English: Very Good

Arabic: Native language

10. Divers

Poetry and Soccer

11. References

1. Prof. Dr. **Masaaki Kai,** Professor of Chemistry of Biofunctional Molecules, Faculty of Pharmaceutical Sciences, Graduate School of Biomedical Sciences, Nagasaki University, Bunkyo-Machi, Nagasaki 852-8521, Japan. TEL & FAX: +81-95-819-2438. E-mail: ms-kai@nagasaki-u.ac.jp

2. Prof. Dr. **Hassan A. El-Sherief** Professor of Organic Chemistry, Department of Chemistry, Faculty of Science, Assiut University, Asyut 71516, Egypt . **Email**: dr_hassanahmed@yahoo.com

3. Prof. Dr. **Zeinab A. Hozien** Professor of Organic Chemistry, Department of Chemistry, Faculty of Science, Assiut University, Asyut 71516, Egypt. **Email**: Z_hozien@yahoo.com

4. Prof. Dr. **Abduelsayed** professor of Organic Chemistry, Chemistry Department, Faculty of Science, Assiut University, Assiut 71516, Egypt. **Email**: Abduelsayed1@yahoo.com.