

# Fatma Al-Zahraa Moustafa Abdel-aal

## Personal Data

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**Name:** Fatma Al-zahraa Moustafa Abdel-aal Ahmed

**Date of birth:** 20/ 7/ 1985

**Nationality:** Egyptian

**Place of Birth:** Assiut

**Social status:** Married

**Address:** Department of Pharmaceutical Analytical Chemistry, Faculty of Pharmacy, Assiut University, 71526 Assiut, Egypt.

**Occupation:** Associate professor in pharmaceutical analytical chemistry department.

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## Education

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**Bachelor**     Pharmaceutical Sciences - Faculty of Pharmacy-Assiut University-  
Egypt: June 2007 with the general Grade: (**Excellent with Honor**).

**Master**     In Pharmaceutical Sciences (Pharmaceutical Analytical chemistry), Assiut  
University Egypt, June. 2012.

**PhD**     In Pharmaceutical Sciences (Pharmaceutical Analytical chemistry), Assiut  
University, Egypt, Jan. 2016.

## Research Profiles

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**Scopus:** <https://www.scopus.com/authid/detail.uri?authorId=55556213200>

**Google scholar:** <https://scholar.google.com.eg/citations?user=3HpXSYUAAA&hl=en>

**Researchgate account:** <https://www.researchgate.net/profile/Fatma-Abdel-Aal>

## **Scientific meetings and activities**

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- International Computer Driving License (ICDL).
- Assiut Univ. 6<sup>th</sup> International Pharm. Sci. Conference, Faculty of Pharmacy, Assiut, Egypt, 12<sup>th</sup> & 13<sup>th</sup> March 2008.
- Assiut Univ. 7<sup>th</sup> International Pharm. Sci. Conference, Faculty of Pharmacy, Assiut, Egypt, 17<sup>th</sup> & 18<sup>th</sup> March 2010.
- Assiut Univ. 8<sup>th</sup> International Pharm. Sci. Conference, Faculty of Pharmacy, Assiut, Egypt, 14<sup>th</sup> & 15<sup>th</sup> March 2012 and presenting a poster entitled “**A Validated Thin-layer Chromatographic Method for Selective Determination of Some Fluoroquinolones**”.
- Assiut Univ. 10<sup>th</sup> International Pharm. Sci. Conference, Faculty of Pharmacy, Assiut, Egypt, 13<sup>th</sup> & 14<sup>th</sup> April 2016.
- 3<sup>rd</sup> International conference on Applied Chemistry – ICAC 2019, Hurghada, Egypt (One research article as a poster presentation entitled “**Pencil graphite electrode decorated with xylenol orange flakes for studying possible pharmacokinetic interaction between vardenafil and daclatasvir**”.
- Assiut Univ. 12<sup>th</sup> Pharm. Sci. Conference, Faculty of Pharmacy, Assiut, Egypt, Nov. 2020 with poster presentation with the title “**Optimization of A Sensitive and Robust Strategy for MEKC Analysis of Sofosbuvir in Combination with its Co-Formulated Hepatitis C Antiviral drugs**”.
- Assiut Univ. 13<sup>th</sup> IPSC international pharmaceutical Science Conference, Faculty of Pharmacy, Luxor, Egypt, Nov. 2022 with poster presentation with the title “**Determination of Tryptophan content in serum of Diabetic rats as a Biomarker using High Performance Thin Layer Chromatographic method**”.

## **Languages**

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**English:** Fluent written and spoken.

**German:** To some extent written and spoken.

**Spanish:** Level 1 just for normal dealing.

## **RESEARCH INTERESTS**

- Synthesis of nanomaterials with different functionalities and their application in biological and environmental monitoring
- Electrochemical methods including: cyclic voltammetry, square wave voltammetry and stripping voltammetry.
- Chromatographic techniques including: High performance liquid chromatography, HPLC (using UV or fluorescence detection), and Thin layer chromatography (TLC).
- Spectroscopic techniques (UV/visible, fluorescence, phosphorescence, chemiluminescence, flame emission, atomic absorption and atomic fluorescence.

## **TECHNICAL EXPERIENCES**

- Different electrochemical techniques and fabrication of new electrochemical sensors.
- Basic skills in volumetric analysis including acid-base, precipitometry, complexometry, gravimetry and redox titrations.

- Chromatographic techniques (HPLC, qualitative and quantitative TLC)
- Spectroscopic techniques (UV/visible, fluorescence, flame emission and atomic absorption spectroscopy)
- Analytical methods development and validation including stability-indicating assay methods.
- Impurity testing and photo-stability testing of drug substances and products.
- Different synthetic approaches for nanomaterials synthesis and characterization.
- Excellent general computer skills (International Computer Driving License [ICDL]).
- Professional skills in several scientific software such as OriginLab, Minitab and EndNote.

## **PREVIOUS AND CURRENT POSITIONS**

- **12/2007 - 8/2012:** Demonstrator of Pharmaceutical Analytical Chemistry, Faculty of Pharmacy, Assiut University, Assiut, Egypt and teaching assistant for undergraduate students.
- **8/2012 - 2/2016:** Assistant lecturer at the Department of Pharmaceutical Analytical Chemistry, Faculty of Pharmacy, Assiut University, Assiut, Egypt and teaching & Evaluation of the practical part of the pharmaceutical analytical Chemistry courses.
- **2/2016 – 2/2021:** Lecturer at the Department of Pharmaceutical Analytical Chemistry, Faculty of Pharmacy, Assiut University, Assiut, Egypt.
- **2/2021 - to date:** Associate professor at the Department of Pharmaceutical Analytical Chemistry, Faculty of Pharmacy, Assiut University, Assiut, Egypt.

## **TEACHING EXPERIENCES**

- Teaching the theoretical and practical courses of Pharmaceutical Analytical Chemistry, first and second and fourth year-Pharmacy students and clinical pharmacy students, Assiut University.
- Teaching of the general and special courses of Instrumental, Chemical Analysis and Advanced Pharmaceutical Analytical Chemistry for Post-graduate Students, Assiut University.

## **International cooperation and activity**

Has international collaborations with the following international research groups:

**1- Prof Dr. Ute Pyell, Professor of Analytical Chemistry, Department of Chemistry, Marburg University, Germany.**

They have successfully finished the research project related to the use of capillary electromigration separation techniques in the analysis of newly FDA-approved hepatitis C antiviral drugs. The research project was funded via DAAD-reinvitation program in the period of July 2018-October 2018. The results of the implemented project were published in Journal of Chromatography A.

**2- Another research project** supported via DAAD was accepted in May 2021 which related to **Magnetic Metal-organic Frameworks** for potential remediation of environmental waters.

## Attendance of workshops in the following areas

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- **October 2008**, Faculty and leadership development center (FLDC) - Assiut University, Attendance of the training program “**Effective presentation**”.
- **December 2008**, Faculty and leadership development center (FLDC) - Assiut University, Attendance of the training program “**Using technology in teaching**”.
- **February 2009**, Faculty and leadership development center (FLDC) - Assiut University, Attendance of the training program “**Ethics of scientific research**”.
- **May 2009**, Faculty and leadership development center (FLDC) - Assiut University, Attendance of the training program “**Credit hour system**”.
- **October 2009**, Faculty and leadership development center (FLDC) - Assiut University, Attendance of the training program “**Communication skills in various modes of education**”.
- **January 2010**, Faculty and leadership development center (FLDC) - Assiut University, Attendance of the training program “**Behaviors of profession**”.
- **December 2012**, Faculty and leadership development center (FLDC) - Assiut University, Attendance of the training program “**Legal and Financial aspects in University environment**”.
- **December 2012**, Faculty and leadership development center (FLDC) - Assiut University, Attendance of the training program “**Legal and Financial aspects in University environment**”.
- **October 2014**, Faculty and leadership development center (FLDC) - Assiut University, Attendance of the training program “**Strategic planning**”.
- **November 2014**, Faculty and leadership development center (FLDC) - Assiut University, Attendance of the training program “**Quality standards in the teaching 1**”.
- **January 2015**, Faculty and leadership development center (FLDC) - Assiut University, Attendance of the training program “**Student evaluation**”.
- **May 2015**, Faculty and leadership development center (FLDC) - Assiut University, Attendance of the training program “**E-learning**”.
- **May 2015**, Faculty and leadership development center (FLDC) - Assiut University, Attendance of the training program “**How to compete for a research fund**”.
- **November 2017** Faculty of Pharmacy, Assiut University Attendance of a workshop with the title “**Services provided by Egyptian Knowledge Bank and its use to get information from international scientific publishers**”.
- **January 2018**, Faculty, and leadership development center (FLDC) - Assiut University, Attendance of the training program “**Statistical analysis in Scientific Research**”.
- **January 2018**, Faculty, and leadership development center (FLDC) - Assiut University, Attendance of the training program “**Publication of research in scientific journals**”.
- **March 2018**, Faculty of Pharmacy, Assiut University, Attendance of a workshop with the title “**How to register with the Egyptian Knowledge Bank and use it to obtain information sources from various international publishers**”.
- **May 2018**, Faculty, and leadership development center (FLDC) - Assiut University, Attendance of the training program “**E-learning (Advanced)**”.
- **November 2018** Faculty of Pharmacy, Assiut University, Attendance of a workshop with the title “**Management and tabulation of citations and scientific literature using Mendeley**”.
- **November 2018** Faculty of Pharmacy, Assiut University, Attendance of a workshop with the title “**Prezi presentation program**”.
- **December 2018** Faculty of Pharmacy, Assiut University, Attendance of a scientific workshop with the title “**Electroanalytical Chemistry and its applications in pharmaceutical fields and drug pharmacokinetics**”.

- **December 2018**, Faculty, and leadership development center (FLDC) - Assiut University, Attendance of the training program “**Scientific research funding and grants**”.
- **March 2019**, Drug research center, Assiut University, Organization, and attendance of the scientific workshop “**Thin-layer and high-performance thin layer chromatography (TLC and HPTLC): Theory and applications**”.
- **March 2019**, Faculty of Pharmacy, Assiut University, Attendance of a workshop with the title “**Using Endnote to insert Citations and Create a Bibliography**”.
- **April 2019**, Drug research center, Assiut University, Organization, and attendance of the scientific workshop “**High Performance Liquid Chromatography (HPLC) as a research Tool for Versatile Applications**”.
- **June 2019**, Faculty, and leadership development center (FLDC) - Assiut University, Attendance of the training program “**How to activate the E-Course**”.
- **October 2019**, Drug research center, Assiut University, Attendance of the scientific workshop “**Recent advanced techniques for Green Analysis and Green Technology**”.
- **May 2020**, Faculty and leadership development center (FLDC) - Assiut University, Attendance of the training program “**Technicalities of design and Conduct Scientific Research**”.
- **November 2022**, Faculty and leadership development center (FLDC) - Assiut University, Attendance of the training program “**Preparing a research project**”.
- **January 2023**, Faculty and leadership development center (FLDC) - Assiut University, Attendance of the training program “**Preparing a self-study for the educational institution**”.

## List of Publications

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- Zirconium-based Hydrophobic-MOFs as Innovative Electrode Modifiers for Flibanserin Determination: Exploring the Electrooxidation Mechanism Using A Comprehensive Spectroelectrochemical Study. **Under review in Microchimica Acta.**
- Copper @ Eggshell Nanocomposite/Chitosan gelified Carbon Paste Electrode as an Electrochemical Biosensor for Tyrosine Analysis as Biomarkers in the Serum of Normal and Liver Diseased Patients. **Under review in Microchemical Journal.**
- A surfactant-based quasi-hydrophobic deep eutectic solvent for dispersive liquid-liquid microextraction of gliflozins from environmental water samples using UHPLC/fluorescence detection. **Talanta, 266, 2024, 124950.**
- Polypyrrole/carbon dot nanocomposite as an electrochemical biosensor for liquid biopsy analysis of tryptophan in the human serum of normal and breast cancer women. *Analytical Bioanalytical Chemistry*, **415, 2023, 4985–5001.**
- A sensing platform based on anatase titanium oxide nanoparticles/multiwalled carbon nanotubes-modified carbon paste electrode for simultaneous electrochemical determination of avanafil as a sexual stimulant and the anticancer drug doxorubicin in plasma samples. **Microchemical Journal 2023, 108261.**
- A Comprehensive Review on Analytical Techniques for Determination of Sex Stimulants, PDE5 Inhibitors in Different Matrices with Special Focus on the Electroanalytical Methods, **Critical Reviews in Analytical Chemistry, 2022.**
- Cytochrome P450 3A4-mediated pharmacokinetic interaction study between tadalafil and canagliflozin using high-performance thin-layer chromatography. **Separation Science Journal 2022.**

- Hybrid NiO nanostructured/sulfanilamide polymeric film for studying possible pharmacokinetic interaction between avanafil and nimodipine in real human serum by their simultaneous determination using square-wave voltammetry. **Microchemical Journal 2022.**
- Novel sponge-like Mn<sub>5</sub>O<sub>8</sub> nanoparticles deposited on graphite electrode for electrochemical study hepatitis C antiviral drug, elbasvir. **Microchemical Journal 2020.**
- Utility of factorial design for optimization of forced degradation conditions and development of validated stability study of the contraceptive suspension for injection Depo-Provera, **Spectrochimica Acta Part A: Molecular and Biomolecular Spectroscopy 2020.**
- Optimization of A Sensitive and Robust Strategy for Micellar Electrokinetic Chromatographic Analysis of Sofosbuvir in Combination with its Co-Formulated Hepatitis C Antiviral Drugs. **J. Chromatography A 2020.**
- Pencil Graphite Electrode Decorated with Xylenol Orange Flakes for Studying Possible Pharmacokinetic Interaction Between Vardenafil and Daclatasvir. **Electroanalysis 2020.**
- In-Situ polymerization and FT-IR characterization of poly-glycine on pencil graphite electrode for sensitive determination of anti-emetic drug, granisetron in injections and human plasma **RSC Adv. 2019.**
- Simultaneous TLC–densitometric determination of tamoxifen citrate and medroxyprogesterone acetate and UV-degradation kinetic study of medroxyprogesterone acetate. **Biomedical Chromatography 2018...**
- ε-MnO<sub>2</sub>-modified graphite electrode as a novel electrochemical sensor for the ultrasensitive detection of the newly FDA approved Hepatitis C antiviral drug ledipasvir. **Analytica Chimica Acta 2018.**
- Fabrication of novel electrochemical sensors based on modification with different polymorphs of MnO<sub>2</sub> nanoparticles. Application to furosemide in pharmaceutical and urine samples. **RSC Adv. 2018.**
- Eco-friendly fabricated electrochemical sensor using Red Cabbage extract for voltammetric determination of Dacarbazine with the aid of Factorial design approach. **J. Electrochemical Society 2017.**
- Study of the effect of paracetamol on the excretion rate of acyclovir using HPLC-UV method. **Madridge J. Analytical Science Instrum. 2017.**
- Chromatographic and Spectrometric Analysis of Some Fluoroquinolones (Book). **Lambert Academic Publishing, 2017**, pp. 1-273.
- A new electrochemical method for simultaneous determination of acyclovir and methotrexate in pharmaceutical and human plasma samples. **Analytical and Bioanalytical Electrochemistry J. 2016.**
- Adsorptive square wave voltammetric determination of the antiviral drug valacyclovir on a novel sensor of copper microparticles - modified pencil graphite electrode. **Arabian Journal of Chemistry 2016.**
- Adsorptive square wave Voltammetric Determination of Acyclovir and Its Application in a Pharmacokinetic Study Using a Novel Sensor of β-Cyclodextrine Modified Pencil Graphite Electrode. **J. of Bulletin of the Chemical Society of Japan 2015.**
- Chemiluminescence Determination of Some Fluoroquinolones Using NBS-Luminol System. **Asian J. of Biomed. and Pharm. Sci. 2014.**
- Review on Recent Separation Methods for Determination of Some Fluoroquinolones. **J. of Liquid Chromatography & Related Technologies 2013.**
- Stability Indicating Assay and Kinetic Study for Norfloxacin using TLC-Densitometric Method. **J. of Liquid Chromatography & Related Technologies 2013.**
- A Validated Thin-layer Chromatographic Method for Selective Determination of Some Fluoroquinolones. *poster at the Assiut University 8th International Pharmaceutical Science Conference, Faculty of Pharmacy, Assiut, Egypt, 12<sup>th</sup> & 13<sup>th</sup> March, 2012*, page 101.