

Dr. Samar Salim

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Education

PhD in Chemistry and Biochemistry, Faculty of Science, Mansoura University, **February 2022** Thesis title: "Effect of Oxygen releasing Nano fiber and/or oxygen nanobubbles on breast cancer in mice"

Pre-doctoral in Chemistry & Biochemistry, Mansoura University, **2019 (Very Good)**

Master's degree in chemistry and Biochemistry, Faculty of Science, Mansoura University, **January 2017** Thesis title: "Biochemical Effects of some Medicinal Plants against Carbon Tetrachloride Induced Liver Cell Damage in Rats"

Premaster in Chemistry & Biochemistry, Mansoura University, **2012 (Very Good)**

Diploma in Chemistry & Biochemistry, Mansoura University, **2011 (Very Good)**

B.Sc. of Science, Chemistry & Biochemistry, Mansoura University, **2010 (Very Good)**

Research and Work Experience

International Centre of Genetic Engineering and Biotechnology (ICGEB), Trieste, Italy

Postdoctoral Researcher, (6 months, 2022-2023)

- The fabrication of a biosensor for Trastuzumab (mAb) detection, contributing to innovative medical research projects.
- Training on utilizing Blitz system for measuring macromolecular interactions and binding affinity.
- Developed a monoclonal antibody (mAb) delivery system, enhancing the effectiveness of clinical investigations.
- Executed planned experiments using solid-phase peptide synthesis (SPPS) and various HPLC techniques (RP-HPLC, SEC-HPLC) for analytical and semi-preparative purposes.
- Utilized mass spectrometry (LC-MS) techniques to support research findings and ensure quality control.

The British University in Egypt (BUE), Nanotechnology Research Center (NTRC), Cairo, Egypt

Member of the Nanotechnology Research Centre Executive Committee (2025- Present)

- Advise on the Centre's strategic direction, ensuring alignment with the university's Research and Enterprise Strategy and global best practices.
- Evaluate and recommend strategic priorities for research, innovation, and development.
- Review, approve, and prioritise research proposals and projects submitted to the Director.
- Makes decisions, where required, on matters tending to enhance the Centre's efficiency and effectiveness.
- Approval of matters raised by the Centre's Director related to the centre's operations and functional units.
- Assess the scientific merit, feasibility, and potential impact of research initiatives.
- Evaluate the Centre's performance against established goals and metrics.

- Advice on resource allocation and financial planning.
- Ensure responsible and ethical use of resources.
- Promote responsible innovation and address potential societal concerns.

The British University in Egypt (BUE), Nanotechnology Research Center (NTRC), Cairo, Egypt

Researcher (2022- Present)

- Fabrication of Polymeric and Biomaterials for Medical and Pharmaceutical Applications, managing research projects and leading administrative tasks.
- Supervising undergraduate and postgraduate students.
- Preparing and submitting scientific research proposals for national and international funding.
- Supervise the Chemical and Physical Characterization Lab, ensuring compliance with safety guidelines and lab standards for ISO accreditation.
- Train junior researchers and technologists on advanced experimental techniques and equipment usage, fostering a collaborative research environment.
- Prepare and execute sustainable development strategies for NTRC research projects, promoting growth and innovation.
- Organize and moderate scientific conferences and workshops, facilitating communication and information sharing among researchers.
- Serving as a reviewer for numerous prestigious scientific journals.

The British University in Egypt (BUE), Nanotechnology Research Center (NTRC), Cairo, Egypt

Assistant Researcher (2019-2022)

- Participated in numerous training programs and workshops as an instructor in biochemistry, nanotechnology, and materials science, contributing to the education and training of future researchers.
- Executed projects focused on biomaterials, drug delivery, and tissue engineering, aligning with the long-term strategic planning of research activities.
- Fabricated nanofibrous scaffolds using electrospinning techniques, emphasizing safety and quality in laboratory practices.
- Developed expertise in utilizing various preparation and analytical instruments, including: Electrospinner, Zeta Sizer, FTIR (Fourier Transform Infrared Spectroscopy), FT-Raman Spectroscopy, UV-Visible Spectroscopy, Spectrophotometer, prob-sonicator, freeze-dryer(lyophilizer), Plasma Cleaner.

Mansoura University (MU), Nanotechnology Center, Mansoura, Egypt

Research Assistant (2013-2017)

- Specialized in Atomic Force Microscopy (AFM), applying techniques for various applications, including the measurement of roughness and stiffness.
- Developed skills in organic and inorganic synthesis techniques for nanomaterials, contributing to the advancement of laboratory research.
- Ensured safety measures and proper sample preparation in chemistry labs, safeguarding laboratory standards.
- Instructor in biomaterials and nanotechnology, sharing expertise and promoting teamwork among peers.

Publications

1. Elbadry, M. M., Gomaa, E., Faisal, M. M., Kamoun, E. A., **Salim, S.A., 2025.** Smart dressings accelerating wound healing with tranexamic acid-infused aligned electrospun nanofibers: In vitro and In vivo assessments. *Journal of Drug Delivery Science and Technology*, 114, 107542. <https://doi.org/10.1016/j.jddst.2025.107542>
2. Mohsen, A.A., El-Mahdy, T.S., Emara, M., **Salim, S. A., 2025.** Enhanced meropenem activity and stability following load in Polyvinyl alcohol nanofiber scaffolds with sitagliptin as quorum sensing inhibitor on *Pseudomonas aeruginosa*. *J Biol Eng* 19, 76 <https://doi.org/10.1186/s13036-025-00549-1>
3. Kamoun, E. A., Elsabahy, M., Mohamed Elbadry, A. M., Abdelazim, E. B., Mohsen, A. A., A. Aleem, M., Gao, H., Eissa, N. G., Elghamry, I., & **Salim, S. A., 2025.** Recent Progress of Polymer-Based Biosensors for Cancer Diagnostic Applications: Natural versus Synthetic Polymers. *ACS Omega*. <https://doi.org/10.1021/acsomega.4c10652>
4. Abed, T., Aly, S. H., **Salim, S. A.**, Haikal, R. R., Shams-Eldin, R., EL-Moslamy, S. H., Abdelazim, E. B., Helmy, M. S., Ali, A. A., Eissa, N. G., Elnakady, Y. A., Elsabahy, M., & Kamoun, E. A., 2025. Optimizing hydrogel performance composed of Japanese pagoda tree extract loaded-gelatin-sodium alginate-polyethylene oxide for biomedical applications: Influence incorporated calcium-based metal organic frameworks and zinc oxide NPs. *International Journal of Biological Macromolecules*, 310, 143526. <https://doi.org/https://doi.org/10.1016/j.ijbiomac.2025.143526>
5. Abdelhamid, H.N., & **Salim, S. A., 2025.** Superhydrophobic Cerium-Based Metal–Organic Frameworks/Polymer Nanofibers for Water Treatment. *Catalysts*, 15, 9, 878. <https://doi.org/10.3390/catal15090878>
6. Abdelhamid, H.N., & **Salim, S. A., 2025.** Ferric metal-organic frameworks (MOFs)-based electrospinning fibers for supercapacitors. *Reactive and Functional Polymers*, 217, 106466. <https://doi.org/10.1016/j.reactfunctpolym.2025.106466>
7. **Salim, S.A.**, Abed, T., Abdelazim, E.B., Eissa, N. G., Elsabahy, M., & Kamoun, E. A., 2025. Exploring the Therapeutic Potential of Plant Extract-Loaded Polymeric Nanoparticles for Advanced Wound Healing: A Comprehensive Review. *Arab J Sci Eng*. <https://doi.org/10.1007/s13369-025-10247-1>
8. Elbadry, M. M., Kamoun, E. A., Elsabahy, M., Helmy, M. S., Mahmoud kh, EL-Moslamy, S. H., Eissa, N. G., **Salim, S. A., 2025.** Enhancing topical delivery of N-acetylcysteine and collagen via a novel electrospun collagen/PMMA nanofibrous mats as facial mask development: Nanofibers optimization and In vitro experiments. *Journal of Drug Delivery Science and Technology*, 104, 106566. <https://doi.org/https://doi.org/10.1016/j.jddst.2024.106566>
9. Kamoun, E.A., Imam, M.M., EL-Moslamy, S.H., El-Sawaf, A.K., Nassar,A.A., El-Deeb, N.M., **Salim, S.A., 2025.** Fabrication of Metallo-Pharmaceutical Composite Hydrogel Composed of Curcumin-Loaded CMC-Na/Sodium Alginate/PdCl₂: Optimization, Antimicrobial Activity, and Cancer Cell Mortality In Vitro Assessment. *Arab J Sci Eng*. <https://doi.org/10.1007/s13369-024-09233-w>
10. Ali, A., Abdel-Salam, A. I., **Salim, S. A.**, & Morsy, M., 2025. Tailoring porous structure composed of nano indium oxide and nano zinc ferrite to be act as an efficient humidity sensor. *Applied Physics A*, 131(6), 423. <https://doi.org/10.1007/s00339-025-08519-6>
11. Mubarak, M. F., Yousef, T. A., **Salim, S. A.**, Khairy, M., Kamoun, E. A., & Mahmoud, T., 2025. Meta-kaolinite metal oxide quaternary composite for layered double hydroxide applied to a new frontier in adsorption technology: Synthesis, adsorption performance and kinetics study. *Inorganic Chemistry Communications*, 178, 114647. <https://doi.org/https://doi.org/10.1016/j.inoche.2025.114647>

12. Shaimaa S. Goher, Esraa B. Abdelazim, Marwa A. Aleem, **Salim, S.A., 2025.** Development and Characterization of PMMA/PVP Nanofiber-loaded Bioactive Agents with Enhanced Breast Cancer activity. *Arab J Sci Eng.* <https://doi.org/10.1007/s13369-025-10288-6>
13. Marwa A. Aleem, Eman A. Bahgat, Soad S. Abd El-Hay, **Salim, S. A., 2025.** Sustainable electrospun blended tetramethylbenzidine - polyvinyl alcohol nanofibers for non-enzymatic naked-eye colorimetric sensor for hydrogen peroxide detection based on catalytic activity of Cu²⁺ ions, *Microchemical Journal.* **(Under review)**
14. Tasneem Abed, Shaza H. Aly, **Salim, S.A.,** Shahira H. EL-Moslamy, Esraa B. Abdelazim, Mohamed S. Helmy, Ahmed A. Ali, Noura G. Eissa, Mahmoud Elsabahy, Elbadawy A. Kamoun, **2025.** In situ forming gelatin-sodium alginate-PEO composite hydrogel for biomedical applications: Effect of incorporated Sophora japonica on hydrogel performance, *Journal of Drug Delivery Science and Technology.* **(Under review)**
15. Ibrahim, R. M., Kamoun, E. A., Badawi, N. M., EL-Moslamy, S. H., kh., M., **Salim, S. A., 2024.** Cutting-edge biomaterials for advanced biomedical uses: self-gelation of l-arginine-loaded chitosan/PVA/vanillin hydrogel for accelerating topical wound healing and skin regeneration. *RSC Advances*, 14(42), 31126–31142. <https://doi.org/10.1039/D4RA04430D>
16. Mosleh, A.T., Kamoun, E.A., EL-Moslamy, S.H., **Salim, S.A.,** Zahran, H.Y., Zyoud, S.H., Yahia, I.S., **2024.** Performance of Ag-doped CuO nanoparticles for photocatalytic activity applications: Synthesis, characterization, and antimicrobial activity. *Discover Nano.* <https://doi.org/10.21203/rs.3.rs-4516793/v1>
17. Ashraf, H., **Salim, S.A.,** EL-Moslamy, S.H., Samah, L., and Kamoun, E.A., **2024.** An Injectable In Situ Forming Collagen/Alginate/CaSO₄ Composite Hydrogel for Tissue Engineering Applications: Optimization, Characterization and In Vitro Assessments. *Arab J Sci Eng.* <https://doi.org/10.1007/s13369-024-08922-w>
18. **Salim, S.A.,** Badawi, N.M., El-Moslamy, S.H., Kamoun, E.A. and Daihom, B.A., **2023.** Novel long-acting brimonidine tartrate loaded-PCL/PVP nanofibers for versatile biomedical applications: fabrication, characterization and antimicrobial evaluation. *RSC advances*, 13(22), pp.14943-14957. <https://doi.org/10.1039/D3RA02244G>
19. **Salim, S.A.,** Salaheldin, T.A., Elmazar, M.M., Abdel-Aziz, A.F., and Kamoun, E.A. **2022.** Smart biomaterials for enhancing cancer therapy by overcoming tumor hypoxia: a review. *RSC Advances*. 33835–33851. <https://doi.org/10.1039/D2RA06036A>
20. **Salim, S. A.,** Taha, A. A., Khozemy, E. E., EL-Moslamy, S. H., Kamoun, E. A, **2022.** Electrospun Zinc-Based Metal Organic Framework Loaded-PVA/Chitosan/Hyaluronic Acid Interfaces in Antimicrobial Composite Nanofibers Scaffold for Bone Regeneration Applications. *J. Drug Deliv. Sci. Technol.* 76, 103823. <https://doi.org/10.1016/j.jddst.2022.103823>
21. Ali, A.I., **Salim, S.A.** and Kamoun, E.A., **2022.** Novel glass materials-based (PVA/PVP/Al₂O₃/SiO₂) hybrid composite hydrogel membranes for industrial applications: synthesis, characterization, and physical properties. *Journal of Materials Science-Materials in Electronics.* <https://doi.org/10.1007/s10854-022-08043-w>
22. **Salim, S.A.,** Kamoun, E.A., Evans, S., EL-Moslamy, S.H., El- Fakharany, E.M., Elmazar, M.M., Abdel-Aziz, A.F., Abou- Saleh, R.H. and Salaheldin, T.A., **2021.** Mercaptopurine- Loaded Sandwiched Tri-Layered Composed of Electrospun Polycaprolactone/Poly (Methyl Methacrylate) Nanofibrous Scaffolds as Anticancer Carrier with Antimicrobial and Antibiotic Features: Sandwich Configuration Nanofibers, Release Study and in vitro Bioevaluation Tests. *International Journal of Nanomedicine*, 16, pp.6937-6955. <https://doi.org/10.2147/IJN.S332920>
23. **Salim, S.A.,** Kamoun, E.A., Evans, S., Taha, T.H., El-Fakharany, E.M., Elmazar, M.M., Abdel-Aziz, A.F., Abou-Saleh, R.H. and Salaheldin, T.A., **2021.** Novel oxygen-generation from electrospun nanofibrous scaffolds with anticancer properties: Synthesis of PMMA-conjugate PVP-H₂O₂ nanofibers, characterization and In vitro bio-evaluation tests. *RSC Advances*, 11(33), 19978-19991. <https://doi.org/10.1039/D1RA02575A>

24. **Salim, S.A.**, Loutfy, S.A., El-Fakharany, E.M., Taha, T.H., Hussien, Y. and Kamoun, E.A., **2021**. Influence of chitosan and hydroxyapatite incorporation on properties of electrospun PVA/HA nanofibrous mats for bone tissue regeneration: Nanofibers optimization and in-vitro assessment. Journal of Drug Delivery Science and Technology, 62, p.102417. <https://doi.org/10.1016/j.jddst.2021.102417>
25. Nageeb El-Helaly, S., Abd-Elrasheed, E., **Salim, S.A.**, Fahmy, R.H., Salah, S. and El-Ashmoony, M.M., **2021**. Green Nanotechnology in the Formulation of a Novel Solid Dispersed Multilayered Core-Sheath Raloxifene-Loaded Nanofibrous Buccal Film; In Vitro and In Vivo Characterization. Pharmaceutics, 13(4), p.474. <https://doi.org/10.3390/pharmaceutics13040474>
26. Hussein, Y., El-Fakharany, E.M., Kamoun, E.A., Loutfy, S.A., Amin, R., Taha, T.H., **Salim, S.A.** and Amer, M., **2020**. Electrospun PVA/hyaluronic acid/L-arginine nanofibers for wound healing applications: Nanofibers optimization and in vitro bioevaluation. International journal of biological macromolecules, 164, pp.667-676. <https://doi.org/10.1016/j.ijbiomac.2020.07.126>
27. Eldemerdash, R., El-Gayar, H.A., **Salim, S.A.**, Salah, A.N. and Abdel-Aziz, A.F., **2016**. Hepato-Protective Effect of Aqueous Extract of Silybum Marianum against Carbon Tetrachloride Induced Liver Injury in Rats. International Journal of Research Studies in Biosciences, 4(2), pp.13-24. <http://dx.doi.org/10.20431/2349-0365.0402003>

Grant and Awards

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|---|------------------|
| • ICGEB Alumni Meeting, Trieste, Italy, supported by International Centre for Genetic Engineering and Biotechnology in Italy (ICGEB) | 2025 |
| • International Conference Grants (ICG), 60k EGP, supported by The British University in Egypt | 2024 |
| • Scopus author reward, supported by The British University in Egypt | 2023-2025 |
| • The scholarship for in-person attendance at the Green Chemistry Postgraduate summer school 2023, Venice, Italy, supported by Green Sciences for Sustainable Development Foundation, Italy | 2023 |
| • Awarded as PI for Young Investigator's Research Grant (YIRG), 130k EGP, supported by The British University in Egypt | 2022 |
| • WE-STAR Fellowship scheme 2022, a program to promote early-career women scientists from the African Continent at a postdoctoral level for 6 months at ICGEB, Trieste, Italy, supported by the Italian Ministry of Foreign Affairs and International Cooperation (MAECI) | 2022 |

Poster Presentations

- **Samar A. Salim**, Sara Nageeb El-Helaly, Eman Abd-Elrasheed, Rania H. Fahmy, Salwa Salah and Manal M. EL-Ashmoony, Green Nanotechnology in the Formulation of a Novel Solid Dispersed Multilayered Core-Sheath Raloxifene-Loaded Nanofibrous Buccal Film, 15th Edition of the Green Chemistry Postgraduate Summer School 2023, Italy, 2023.
- **Samar A. Salim**, Yasmein Hussein, Elbadawy A. Kamoun, Samah A. Loutfy, 3D-Scaffolds Nanofiber Mats Based on PVA-Hyaluronan-Hydroxyapatite for Bone and Tissue Regeneration: In-Vitro and In-Vivo Experiments, 34th Egyptian Materials Research Society Conference, 2020.

Conferences, Webinars, and Workshops

Speaker, Organizer and Session Chair

- Participate with Oral Presentation in Annual Conference of the German Society for Biomaterials, Dresden, Germany. **October 2025**
- Participation as a speaker with a talk entitled "Revolutionizing Biomedical Applications with Electrospun Nanofibers" in a workshop at NTRC **July 2025**

- Present the final presentation of my YIRG project entitled "Biocompatible and Biodegradable Electrospun Nanofibers-Loaded Novel Bioactive Heterocyclics for Cancer Treatment" at NTRC **July 2025**
- The 2nd International Conference on "Pure and Applied Physics" (ICPAP) **Sept 2024**
- "New Trends in Physics and Nanotechnology with Related Applications" seminar with the National Committee of Physics. **May 2023**
- The Future of Catalysis: Challenges and Prospective Symposium, BUE **Dec 2021**
- "joint mini-conference" between NTRC, BUE and Nanoscience Laboratory for Environmental and Bio-medical Applications (NLEBA), ASU. **June 2021**

Attendee

- The event "Women. Science. Developing Countries." Trieste, Italy. **Nov 2022**
- A training program on "Nano Club Activity: Molecular Modeling". **Aug 2021**
- 2020-21 Environmental Health & Safety Laboratory and Research Safety Training. **Aug 2020**
- Health & Risk Assessment for Employee Safety in the Care & Use of Animals. **Jan 2020**
- The 6th Euro- Mediterranean Conference and Expo in Egypt. **April 2019**

Laboratory Technical Skills

❖ Fabrication Expertise:

- Proficient in the fabrication of advanced materials, including nanofibrous scaffolds, hydrogels, membranes, nanobubbles, micelles, liposomes and nanoparticles, to support innovative research projects.
- Skilled in the development and functionalization of biosensors, enhancing detection capabilities in clinical and research settings.
- Experienced in manual peptide synthesis using solid-phase peptide synthesis (SPPS) techniques.

❖ Analytical Techniques:

- Expertise in electrospinning techniques for producing nanofibers, crucial for different applications.
- Proficient in utilizing Atomic Force Microscopy (AFM) for surface characterization and analysis.
- Skilled in Fourier Transform Infrared Spectroscopy (FTIR) for material characterization and quality control.
- Experienced with Zeta-Sizer for particle size analysis and stability assessment.
- Knowledgeable in Bio-Layer Interferometry (BLI) using the Blitz system for real-time biomolecular interaction analysis.
- Proficient in UV-Vis spectrophotometry for quantitative analysis of samples.
- Experienced in freeze-drying processes for sample preservation and stability.
- I am skilled in probe sonication and plasma cleaning techniques to prepare samples for analysis.

❖ Data Interpretation and Analysis:

- Expertise in interpreting data from Scanning Electron Microscopy (SEM) and Transmission Electron Microscopy (TEM) for material characterization
- X-ray diffraction (XRD) for crystallographic analysis of materials.
- Skilled in Nuclear Magnetic Resonance (NMR) spectroscopy for structural analysis of compounds.
- Experienced in Thermogravimetric Analysis (TGA), High-Performance Liquid Chromatography (HPLC) (including RP-HPLC and SEC-HPLC), and LC-MS for comprehensive material analysis.
- Proficient in interpreting results of antimicrobial assays, MTT cell viability assays, cell migration assays, and wound healing assays to evaluate biological interactions and efficacy.

Referees

Prof. Corrado Guarnaccia, (My postdoctoral supervisor)

Staff Research Scientist, Biotechnology
Development Unit (BDU), International
Centre of Genetic Engineering and
Biotechnology (ICGEB), Trieste, Italy.

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Prof. Stephen Evans, (My Ph.D. supervisor)

Director of Research and Innovation & Head
of Molecular and Nanoscale Physics Group,
Leeds University.

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Prof. Amal Kasry, (My former director)

Chief of Section for Innovation and Capacity
Building in Science and Engineering at
UNESCO,

amal.kasry@mpg-alumni.de

Prof. Elbadawy Kamoun, (My group leader and my former director)

Professor at Imam Mohammad Ibn Saud Islamic University, Riyadh, Saudi Arabia,

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