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Education:

- 2009-2014** Doctor of Philosophy in Pharmaceutical Sciences,
College of Pharmacy, South Dakota State University,
Brookings, SD, USA
- 2003-2008** Bachelor degree in Pharmaceutical Sciences,
College of Pharmacy, King Saud University,
Riyadh, Saudi Arabia

Professional Experience:

- 2023-present** *Visiting Professor*, College of Pharmacy, Oregon State University/
Oregon Health & Science University, Portland, OR, USA
- 2021-present** *Associate professor*, Department of Pharmaceutics, College
of Pharmacy, King Saud University, Riyadh, Saudi Arabia
- 2015-2020** *Assistant Professor*, Department of Pharmaceutics, College
of Pharmacy, King Saud University, Riyadh, Saudi Arabia
- 2009-2014** *Research Scientist*, Department of Pharmaceutical Sciences,
College of Pharmacy, South Dakota State University,
Brookings, SD, USA
- 2009-2010** *Teaching Assistant*, Department of Pharmaceutics, College of
Pharmacy, King Saud University, Riyadh, Saudi Arabia
- 2007-2008** *Pharmaceutical Training*, Kingdom Hospital, Riyadh, Saudi Arabia

Research experiences:

Pharmaceutics Techniques: Conventional and advanced drug formulation and nano drug delivery, Micro/nano fabrication, optimization and cleanroom practice, use of tracer radiolabeled molecules and dyes, In-vitro cell culturing and viability assays, Vertical Franz diffusion cells, iontophoresis, spray dryer (Mini spray drier B-290 and Nano spray drier B90, Buchi), release kinetics across artificial/biological membranes, microneedles for transdermal drug delivery, lyophilization, probe sonication, Gel-electrophoresis, PCR, Western blot, protein and gene purification, ligand conjugation, PEGylation, immunohistochemistry, ELISA and anti-microbial testing.

Analytical Techniques: Liquid Scintillation Counter, High performance liquid chromatography (HPLC), gas chromatography mass spectrometry (GC-MS), UV-visible and fluorescence spectroscopy, size-exclusion chromatography, flow cytometry (FACS), particle size-zeta potential analysis, Fourier transform infrared spectroscopy (FTIR), focused beam reflectance measurement (FBRM), X-ray diffraction, PCS, DSC.

Imaging Techniques: Confocal laser scanning microscopy (CLSM), fluorescence microscopy, scanning electron microscope (SEM), transmission electron microscopy (TEM), in-vivo imaging.

In Vivo Studies: Pharmacokinetics, biodistribution and efficacy studies of novel formulations, experience in handling rats and mice for pharmacodynamic and pharmacokinetic studies, in situ perfusion system, data analysis using Sigmaplot, Graphpad Prism and Microsoft Excel software.

Teaching Experience:

PHT 221 Pharmaceutics I.
PHT 427 Sterile & parenteral preparations for PharmD students.
PHT 433 Nuclear pharmacy.
PHT 434 Sterile dosage forms.
PHT 495 Research project course.
PHT 630 Drug transport across biological membranes for PhD students.
PHT 632 Research lab rotations for graduate students.

Professional Affiliations:

- American Association of Pharmaceutical Scientists (AAPS).
- Saudi Pharmaceutical Society (SPS).
- Controlled Release Society Inc. (USA).
- American Chemical Society (ACS).
- The Society for Biomaterials (SFB).

Workshops and Symposia:

1. Alshammari abdullah, Alqahtani M.S., and Syed R.; Fabrication of lignin Based Novel Nanoparticles for Wound-Healing Applications. Proceedings of 9th College of Pharmacy Research Day, held at College of Pharmacy, King Saud University, Apr 11, 2019.
2. Vaccines Bioprocess Development & Commercialization Workshop, Cambridge, MA, June 11-13, 2019.
3. Management of Innovation and Intellectual Property, King Saud University, Riyadh, Dec 10, 2018.
4. SFDA-Annual Scientific Conference and Exhibition, Saudi Food & Drug Authority, Riyadh, Nov 7-9, 2017.
5. Alasmary Saad, Alqahtani M.S., and Syed R.; Application of Box-Behnken Design to Optimize the Preparation of Protein based Nanoparticles by Phase Separation Method. Proceedings of 7th College of Pharmacy Research Day, held at College of Pharmacy, King Saud University, May 25, 2017.
6. Alqahtani M.S.; Sustained release nanoparticles of curcumin: A novel concept for chemoprevention. Dubai International Pharmaceuticals & Technologies Conference & Exhibition, Dubai, UAE, March 8, 2017.
7. Care and Handling of Laboratory Animals, Institutional Animal Care and Use Committee (IACUC), Tempe, AZ, April 19, 2017.
8. Alqahtani M.S., and Islam Md.; Influence of concentration and ionic strength on transdermal delivery of ovalbumin. Poster presented at the AAPS Annual Conference at Denver, CO, Nov 13-16, 2016.
9. Management and assessment of course learning outcomes, King Saud University, Riyadh, May 2, 2016.
10. Certificate of completion New Faculty Orientation and Preparation Program (accredited by UK, SEDA), King Saud University, Riyadh, Sept. 2015.
11. Alqahtani M. and Perumal O. Novel Core-Shell Protein Nanoparticles for Oral Drug Delivery. 41st Annual Meeting of Controlled Release Society, July 2014, Chicago, IL.
12. AAPS Workshop "Development of Pediatric Formulations: Challenges and Opportunities". 49th. AAPS Arden Conference February 2014, Rockville, Md.
13. South Dakota State University-Avera Research Symposium September 2013, Brookings, SD.
14. South Dakota State University - Sanford Research Symposium; November 2013, Sioux Falls, SD.
15. Second Place Award for oral presentation on 'Novel Core-shell Nanoparticles for Oral Pediatric Drug Delivery'. Sigma Xi, South Dakota State University Chapter, April 2012
16. Poster presentation on 'Preparation and optimization of Zein Nanoparticles by Nanospray Drying' in graduate students' category, Rho Chi Award Recipients for Annual Pharmacy Research Day Poster Presentations, November 2012
17. Alqahtani M. and Perumal O. Casein based Nanoparticulate Drug Delivery System. 2012 AAPS Annual Meeting, Nov' 2012, Chicago, IL.

Peer-reviewed publications:

1. Alangari, A., Aldakheel, F.M., Mateen, A., Alqhatani, M.S., Alaofi, A.L., Shahid, M., Ali, R., Syed, R., Adil, S.F., Khan, M. and Kuniyil, M., 2022. Assessment of Physicochemical, Anticancer, Antimicrobial, and Biofilm Activities of N-Doped Graphene. *Crystals*, 12(8), p.1035.
2. Rajendran, S., Yadav, V.K., Gacem, A., Algethami, J.S., Alqhatani, M.S., Aldakheel, F.M., Binshaya, A.S., Alharthi, N.S., Khan, I.A., Islam, S. and Ahn, Y., 2022. Functionalized microbial consortia with silver-doped hydroxyapatite (Ag HAp) nanostructures for removal of RO84 from industrial effluent. *Crystals*, 12(7), p.970.
3. Modi, S., Inwati, G.K., Gacem, A., Saquib Abullais, S., Prajapati, R., Yadav, V.K., Syed, R., Alqhatani, M.S., Yadav, K.K., Islam, S. and Ahn, Y., 2022. Nanostructured Antibiotics and Their Emerging Medicinal Applications: An Overview of Nanoantibiotics. *Antibiotics*, 11(6), p.708.
4. Aslam, M., Barkat, K., Malik, N.S., Alqhatani, M.S., Anjum, I., Khalid, I., Tulain, U.R., Gohar, N., Zafar, H., Paiva-Santos, A.C. and Raza, F., 2022. pH Sensitive Pluronic Acid/Agarose-Hydrogels as Controlled Drug Delivery Carriers: Design, Characterization and Toxicity Evaluation. *Pharmaceutics*, 14(6), p.1218.
5. Mahmood, A., Erum, A., Mumtaz, S., Tulain, U.R., Malik, N.S. and Alqhatani, M.S., 2022. Preliminary Investigation of Linum usitatissimum Mucilage-Based Hydrogel as Possible Substitute to Synthetic Polymer-Based Hydrogels for Sustained Release Oral Drug Delivery. *Gels*, 8(3), p.170.
6. Alangari, A., Alqhatani, M.S., Mateen, A., Kalam, M.A., Alshememry, A., Ali, R., Kazi, M., AlGhamdi, K.M. and Syed, R., 2022. Iron oxide nanoparticles: preparation, characterization, and assessment of antimicrobial and anticancer activity. *Adsorption Science & Technology*, 2022.
7. Tripathi, M., Asatkar, A.K., Antony, S., Dash, M.K., Roymahapatra, G., Pande, R., Sarkar, A., Aldakheel, F.M., Binshaya, A.S., Alharthi, N.S., Alaofi, A.L., Alqhatani, M.S. and Syed, R., 2022. Copper (ii) complexes supported by modified azo-based ligands: Nucleic acid binding and molecular docking studies. *Open Chemistry*, 20(1), pp.505-516.
8. Aldakheel, F.M., Alduraywish, S.A., Mateen, A., Alqhatani, M.S. and Syed, R., 2021. Molecular and docking studies of tetramethoxy hydroxyflavone compound from *Artemisia absinthium* against carcinogens found in cigarette smoke. *Open Chemistry*, 19(1), pp.1148-1154.
9. Alqhatani, M.S., Al-Yousef, H.M., Alqhatani, A.S., Rehman, M.T., AlAjmi, M.F., Almarfidi, O., Amina, M., Alshememry, A. and Syed, R., 2021. Preparation, characterization, and in vitro-in silico biological activities of *Jatropha pelargonifolia* extract loaded chitosan nanoparticles. *International Journal of Pharmaceutics*, 606, p.120867.
10. Tulain, U.R., Mahmood, A., Aslam, S., Erum, A., Malik, N.S., Rashid, A., Kausar, R. and Alqhatani, M.S., 2021. Formulation and Evaluation of Linum usitatissimum Mucilage-Based Nanoparticles for Effective Delivery of Ezetimibe. *International Journal of Nanomedicine*, 16, p.4579.
11. Malik, N.S., Ahmad, M., Alqhatani, M.S., Mahmood, A., Barkat, K., Khan, M.T., Tulain, U.R. and Rashid, A., 2021. β -cyclodextrin chitosan-based hydrogels with tunable pH-responsive properties for controlled release of acyclovir: design, characterization, safety, and pharmacokinetic evaluation. *Drug Delivery*, 28(1), pp.1093-1108.

12. Rouabah, N., Boudine, B., Nazir, R., Zaabat, M., Alqahtani, A.S., Alqahtani, M.S. and Syed, R., 2021. Nanocomposite synthesis of silver doped magnesium oxide incorporated in PVC matrix for photocatalytic applications. *Journal of Polymer Research*, 28(5), pp.1-10.
13. Aldakheel, F.M., Abuderman, A.A., Alali, B.H., Mateen, A., Alduraywish, S.A., Alqahtani, M.S. and Syed, R., 2021. Smoking and P53 polymorphism association with chromosomal aberration in lung cancer. *Journal of King Saud University-Science*, 33(6), p.101533.
14. Bhat, E.A., Sajjad, N., Ali, A., Aldakeel, F.M., Mateen, A., Alqahtani, M.S. and Syed, R., 2021. SARS-CoV-2: insight in genome structure, pathogenesis and viral receptor binding analysis—an updated review. *International immunopharmacology*, 95, p.107493.
15. Alqahtani, M.S., 2021. Advances in oral drug delivery. *Frontiers in Pharmacology*, 12, p.62.
16. Nazir, R., Prasad, A., Parihar, A., Alqahtani, M.S. and Syed, R., 2021. Colloidal Nanocrystal-Based Electrocatalysts for Combating Environmental Problems and Energy Crisis. In *Colloids-Types, Preparation and Applications*. IntechOpen.
17. Verma, D.K., Kazi, M., Alqahtani, M.S., Syed, R., Berdimurodov, E., Kaya, S., Salim, R., Asatkar, A. and Haldhar, R., 2021. N-hydroxybenzothioamide derivatives as green and efficient corrosion inhibitors for mild steel: Experimental, DFT and MC simulation approach. *Journal of Molecular Structure*, 1241, p.130648.
18. Waware, U.S., Nazir, R., Prasad, A., Hamouda, A.M.S., Pradhan, A.K., Alshehri, M., Syed, R., Malik, A. and Alqahtan, M.S., 2021. Preparation and properties of electrodeposited Ni-B-V2O5 composite coatings. *Surface and Coatings Technology*, 409, p.126888.
19. Rabbani Syed, Fahad M. Al Dakeel; Shatha A. A.Alduraywish; Arif Khan; Shahanavaj Khan; Mohd Abul Kalam; Mohammed S. Alqahtani; Ayesha Mateen; Abdul Malik; Bader Homoud Alali. Association and impact of Chlamydia trachomatis proteins to their host target proteins during cervical cancer progression. 2021, *Microbial Pathogenesis*.
20. Shaik, M.R., Syed, R., Adil, S.F., Kuniyil, M., Khan, M., Alqahtani, M.S., Shaik, J.P., Siddiqui, M.R.H., Al-Warthan, A., Sharaf, M.A. and Abdelgawad, A., 2021. Mn3O4 nanoparticles: Synthesis, characterization and their antimicrobial and anticancer activity against A549 and MCF-7 cell lines. *Saudi Journal of Biological Sciences*, 28(2), pp.1196-1202.
21. Hoque, M., Rahman, M., Mahub, S., Hossain, M., Khan, M.A., Amin, M., Alqahtani, A.S., Ahmed, M.Z., Alqahtani, M.S. and Almarfadi, O.M., 2021. Spectroscopic and cloud point studies of the interaction and thermodynamics of ciprofloxacin hydrochloride+ surfactants mixture in different solvents: Effect of temperature and composition. *Korean Journal of Chemical Engineering*, 38(7), pp.1487-1498.
22. Alqahtani, Mohammed S.; Syed, Rabbani; Alshehri, Meshal. 2020. Size-Dependent Phagocytic Uptake and Immunogenicity of Gliadin Nanoparticles. *Polymers* 12(11), p.2576.
23. Alqahtani, M.S., Alqahtani, A., Kazi, M., Ahmad, M.Z., Alahmari, A., Alsenaidy, M.A. and Syed, R., 2020. Wound-healing potential of curcumin loaded lignin nanoparticles. *Journal of Drug Delivery Science and Technology*, 60, p.102020.
24. Prasad, K., Khatoon, F., Rashid, S., Ali, N., AlAsmari, A.F., Ahmed, M.Z., Alqahtani, A.S., Alqahtani, M.S. and Kumar, V., 2020. Targeting hub genes and pathways of innate immune response in COVID-19: A network biology perspective. *International Journal of Biological Macromolecules*, 15(163), pp.1-8.
25. Kazi, M., A. Nasr, F., Noman, O., Alharbi, A., Alqahtani, M.S. and Alanazi, F.K., 2020. Development, characterization optimization, and assessment of curcumin-loaded bioactive self-nanoemulsifying formulations and their inhibitory effects on human breast cancer MCF-7 cells. *Pharmaceutics*, 12(11), p.1107.

26. Ahmed, M.Z., Zia, Q., Haque, A., Alqahtani, A.S., Almarfadi, O.M., Banawas, S., Alqahtani, M.S., Ameta, K.L. and Haque, S., 2021. Aminoglycosides as potential inhibitors of SARS-CoV-2 main protease: an in silico drug repurposing study on FDA-approved antiviral and anti-infection agents. *Journal of Infection and Public Health*, 14(5), pp.611-619.
27. Bhat, M.A., Kumar, V., Ahmed, M.Z., Alqahtani, A.S., Alqahtani, M.S., Jan, A.T., Rahman, S. and Tiwari, A., 2021. Screening of natural compounds for identification of novel inhibitors against β -lactamase CTX-M-152 reported among *Kluyvera georgiana* isolates: An in vitro and in silico study. *Microbial Pathogenesis*, 150, p.104688.
28. Alqahtani, M.S., Kazi, M., Ahmad, M.Z., Syed, R., Alsenaidy, M.A. and Albraiki, S.A., 2020. Lignin nanoparticles as a promising vaccine adjuvant and delivery system for ovalbumin. *International Journal of Biological Macromolecules*, 15(136), pp.1314-1322.
29. Jamil, K., Asimuddin, M., Alqahtani, M.S., Alshehri, M., Mateen, A., Aduderman, A.W.A., Ola, M.S. and Malik, A., 2020. Molecular & biochemical analysis of Pro12Ala variant of PPAR- γ 2 gene in type 2 diabetes mellitus. *Saudi Journal of Biological Sciences*, 9(27), pp. 2439-2443.
30. Ahmad, M.Z., Muteeb, G., Khan, S., Alqahtani, A.S., Somvanshi, P., Alqahtani, M.S., Ameta, K.L. and Haque, S., 2020. Identifying Novel Inhibitor of Quorum Sensing Transcriptional Regulator (SdiA) of *Klebsiella pneumoniae* through Modelling, Docking and Molecular Dynamics Simulation. *Journal of Biomolecular Structure and Dynamics*, pp.1-16.
31. Al-Yousef, H.M., Amina, M., Alqahtani, A.S., Alqahtani, M.S., Malik, A., Hatshan, M.R., Siddiqui, M.R.H., Khan, M., Shaik, M.R., Ola, M.S. and Syed, R., 2020. Pollen Bee Aqueous Extract-Based Synthesis of Silver Nanoparticles and Evaluation of Their Anti-Cancer and Anti-Bacterial Activities. *Processes*, 8(5), p.524.
32. Syed, R., Alqahtani, M.S., Mateen, A., Alasmari, F. and Sari, Y., 2020. Understanding Biofilm Dynamics: In Vitro and In Vivo Models. In *Model Organisms for Microbial Pathogenesis, Biofilm Formation and Antimicrobial Drug Discovery* (pp. 509-526). Springer, Singapore.
33. Alqahtani, A.S., Hidayathulla, S., Rehman, M.T., ElGamal, A.A., Al-Massarani, S., Razmovski-Naumovski, V., Alqahtani, M.S., El Dib, R.A. and AlAjmi, M.F., 2020. Alpha-amylase and alpha-glucosidase enzyme inhibition and antioxidant potential of 3-oxolupenal and katononic acid isolated from *Nuxia oppositifolia*. *Biomolecules*, 10(1), p.61.
34. Ali Abuderman, A., Syed, R., A Alyousef, A., S Alqahtani, M., Shamsul Ola, M. and Malik, A., 2019. Green Synthesized Silver Nanoparticles of *Myrtus communis* L (AgMC) Extract Inhibits Cancer Hallmarks via Targeting Aldose Reductase (AR) and Associated Signaling Network. *Processes*, 7(11), p.860.
35. Alqahtani, M.S., Alqahtani, A., Al-Thabit, A., Roni, M. and Syed, R., 2019. Novel lignin nanoparticles for oral drug delivery. *Journal of Materials Chemistry B*, 7(28), pp.4461-4473.
36. Islam, M.S., Reineke, J., Kaushik, R., Woyengo, T., Baride, A., Alqahtani, M.S. and Perumal, O., 2019. Bioadhesive Food Protein Nanoparticles as Pediatric Oral Drug Delivery System. *ACS applied materials & interfaces*, 11(20), pp.18062-18073.
37. Alyousef, A.A., Mateen, A., Al-Akeel, R., Alqasim, A., Al-Sheikh, Y., Alqahtani, M.S. and Syed, R., 2019. Screening & analysis of anionic peptides from *Foeniculum vulgare* Mill by mass spectroscopy. *Saudi journal of biological sciences*, 26(4), pp.660-664.
38. Al Akeel, R., Mateen, A., Syed, R., Alqahtani, M.S. and Alqahtani, A.S., 2018. Alanine rich peptide from *Populus trichocarpa* inhibit growth of *Staphylococcus aureus* via targetting its extracellular domain of Sensor Histidine Kinase YycGex protein. *Microbial pathogenesis*, 121, pp.115-122.

39. Alqahtani, M.S., Islam, M.S., Podaralla, S., Kaushik, R.S., Reineke, J., Woyengo, T. and Perumal, O., 2017. Food protein based core-shell nanocarriers for oral drug delivery: Effect of shell composition on in vitro and in vivo functional performance of zein nanocarriers. *Molecular pharmaceutics*, 14(3), pp.757-769.
40. Podaralla, S., Averineni, R., Alqahtani, M. and Perumal, O., 2012. Synthesis of novel biodegradable methoxy poly (ethylene glycol)-zein micelles for effective delivery of curcumin. *Molecular pharmaceutics*, 9(9), pp.2778-2786.

Patent/Invention Disclosures/Licensing

1. Alqahtani, M.S.A., Alqahtani, A.S.A. and Baji, R.S.S., King Saud University, 2019. Method of synthesizing lignin-based nanocompositions. U.S. Patent 10,420,731.
2. Perumal, O. and Alqahtani, M.S.A., South Dakota State University, 2015. Novel core-shell nanoparticles for oral drug delivery. U.S. Patent Application 14/296,438.
3. Perumal, O.P., Averineni, R.K., Podaralla, S.K. and Alqahtani, M., South Dakota State University, 2016. Protein nanocarriers for topical delivery. U.S. Patent 9,233,110.

Peer reviews

Manuscript Reviewer

- 1) Journal of Nano-pharmaceutics and Drug Delivery.
- 2) Journal of Biomedical Nanotechnology.
- 3) The Saudi Pharmaceutical Journal (SPJ).
- 4) ACS Biomaterials Science & Engineering.
- 5) RSC Journal of Materials Chemistry

Abstract Reviewer

- 1) AAPS Annual Meetings (2013-15).
- 2) AAPS National Biotechnology Conference (2014-15).
- 3) Controlled Release Society Annual Meeting (2015-18).