

PROFESSIONAL APPOINTMENT:

June 2025 – Present

Assistant Professor, Department of Pharmaceutical Control, Faculty of Pharmacy, Urmia University of Medical Sciences, West Azerbaijan, Iran

Research Focus

- Development and validation of analytical methods (HPLC-UV, LC-MS, qPCR) in compliance with ICH guidelines for detection and quantification of impurities in pharmaceuticals and biopharmaceuticals
- Dry powder inhaler (DPI) formulation and evaluation
- Biological matrix sample preparation
- Protein separation and purification techniques

Teaching Experience

Course Instructor: Pharmaceutical Microbiology & Quality Control (BSc/MSc)

- **Designed and delivered high-impact laboratory-focused course modules, integrating theory with hands-on training, including:**
 - **Implemented USP-compliant microbial limit testing training**, enabling students to accurately assess contamination in solid and liquid dosage forms
 - **Trained students in GMP-compliant sterile manufacturing practices**, aligning instruction with ISO 14644 cleanroom standards and real-world regulatory expectations
 - **Led practical training in sterilization validation and aseptic processing**, ensuring understanding of WHO/ICH cGMP requirements and inspection readiness principles
 - **Directed physicochemical quality evaluation workflows** (e.g., content uniformity, dissolution), strengthening students' competency in USP-based testing
 - **Delivered applied training in advanced analytical techniques** (HPLC, LC-MS, capillary electrophoresis), bridging academic concepts with industry-standard instrumentation
 - **Instructed and supervised analytical method validation and QA principles**, emphasizing ICH-aligned parameters (accuracy, precision, specificity, robustness) and data integrity practices
- Designed examination questions using the **Key Feature Problem (KFP)** method for employment and competency-based assessments

Laboratory Instructor: Advanced Pharmaceutical Analysis

Practical Training

- Designed and conducted a practical course for pharmacy students on **extemporaneous compounding**, including preparation of semi-solid dosage forms and aqueous solutions

EDUCATION

Sep 2017 – Sep 2024

**Doctor of Philosophy in Quality Control
of Pharmaceutical & Cosmetic Products**

Tabriz University of Medical Sciences, East Azerbaijan

Thesis: Investigating the drug-excipient compatibility and physicochemical stability of powders produced by spray dry, freeze dry, and tubular mixer

Summary:

I conducted an in-depth study on drug-excipient interactions for salbutamol and formoterol in dry powder inhalation (DPI) formulations. Additionally, I developed and analyzed various celecoxib formulations to enhance solubility. This research enabled me to gain proficiency in particle production techniques, including tubular mixing, spray drying, and freeze drying. I also utilized advanced analytical tools such as LC-MS, HPLC, FTIR, DSC, SEM, NGI, and XRD.

Notably, I successfully developed and validated an HPLC method for salbutamol analysis. I identified and tracked adduct compounds resulting from the Maillard reaction in formoterol and salbutamol DPIs, and discovered the interaction of lactose and leucine as a co-carrier in DPIs. My research culminated in three ISI publications and a congressional presentation.

- **Cumulative Grade Point Average (GPA):** 18.05/20
- **Average:** 90%

Sep 2011 – Sep 2017

Doctor of Pharmacy

Tabriz University of Medical Sciences, East Azerbaijan

Thesis: Development of Human Serum Albumin removal kit using solvent mixtures

Summary:

First, I evaluated the impact of different solvent mixtures on plasma protein precipitation to develop a new method for the specific separation of albumin from plasma. Then, I developed a method for albumin removal to facilitate biomarker discovery, as albumin—the predominant protein in plasma—often masks other plasma components, including biomarkers, thereby complicating diagnostic applications.

This project provided me with the opportunity to gain skills in experimental design, drafting standard operating procedures (SOPs), SDS-PAGE, the Bradford Assay, Response Surface Methodology, size exclusion chromatography, troubleshooting, and problem-solving. I also had the chance to present this work at three different congresses as a poster.

- **Cumulative Grade Point Average (GPA):** 16.32/20
- **Average:** 81%

PROFESSIONAL EXPERIENCES

Oct 2024 – June 2025

Pharmacist (full time)

Tabriz University of Medical Sciences, East Azerbaijan

Role Description: As a pharmacist, I educate patients on how to take their medications as prescribed, communicate with physicians to ensure accurate dispensing, and guide patients to appropriate over-the-counter medications. I also inform patients about potential side effects, drug and food interactions, and contraindications, and provide information on associated risks for special conditions (e.g., pregnancy, kidney or liver issues).

Jul 2023 – June 2025

Pharmacist (part time)

Dr. Esmaeilpour, Tabriz, East Azerbaijan

Jan 2020 – Oct 2024

Pharmacist (part time)

Faculty of Pharmacy, Tabriz University of Medical Sciences, East Azerbaijan

Oct 2017 – Jul 2024

Teaching Associate

Faculty of Pharmacy, Tabriz University of Medical Sciences, East Azerbaijan

Role Description: I assisted professors in teaching both practical and theoretical courses on the physicochemical control of drugs and microbial control of drugs. The curriculum included various United States Pharmacopeia (USP) tests such as assays, content uniformity, dissolution, stability testing, and analytical method validation, microbial limit testing for non-sterile products, bacterial gram staining, and bioassay tests for antibiotics. Additionally, I supported students in conducting their research projects. Furthermore, I conducted internship courses, including extemporaneous preparation workshops, evaluation of anti-hyperpigmentation products workshops, chemotherapy drug prescription workshops, and served as a preceptor for undergraduate pharmacy students.

Oct 2017- Oct 2018

Lecturer

Faculty of Pharmacy, Ardabil University of Medical Sciences

Role Description: My responsibilities included teaching both practical and theoretical courses on the physicochemical control of drugs. The curriculum covered various United States Pharmacopeia (USP) tests, including assays, content uniformity, dissolution, stability testing, and analytical method validation.

Oct 2019 – Mar 2022

Main project collaborator in PharmD thesis

Faculty of pharmacy, Tabriz University of Medical Sciences, East Azerbaijan

Role Description: I supervised two PharmD students through their thesis projects, guiding them from study design and experimental execution to thesis writing and manuscript preparation. The projects were as follows:

1. Investigation of the possibility of presence and the correlation between endotoxin test results and residual DNA in sterile water for injection based on Real-Time PCR assay
2. Evaluation of bacterial DNA contamination in recombinant GCSF by Real-Time PCR

Reviewer in scientific journals and a congress

- ✓ Journal of Pharmaceutical Sciences
- ✓ Journal of pharmaceutical bulletin
- ✓ BioImpact journal
- ✓ 25th National Annual Congress & 11th International Annual Research and Technology Congress of Medical Sciences Students, 5-7 September 2024 Urmia, West Azerbaijan

RESEARCH EXPERIENCE

Nov 2022 – May 2024	Compatibility study of formoterol fumarate-lactose dry powder inhalation formulations: Spray drying, physical mixture and commercial DPIs; Drug Applied Research Center, <i>Tabriz University of Medical Sciences</i> . Student Research Committee, <i>Tabriz University of Medical Sciences</i> .
Nov 2022– Jan 2024	Excipient–Excipient Interaction in Dry Powder Inhaler Formulation Prepared by Spray Drying; Drug Applied Research Center, <i>Tabriz University of Medical Sciences</i> . Student Research Committee, <i>Tabriz University of Medical Sciences</i> .
Apr 2021 – Jun 2022	Problem-solving approach for salbutamol analysis by HPLC during pharmaceutical assay Drug Applied Research Center, <i>Tabriz University of Medical Sciences</i> . Student Research Committee, <i>Tabriz University of Medical Sciences</i> .
Nov 2021 – Mar 2022	Investigation of the possibility of presence and the correlation between endotoxin test results and residual DNA in sterile water for injection based on real-time PCR assay Faculty of pharmacy, <i>Tabriz University of Medical Sciences</i> . Student Research Committee, <i>Tabriz University of Medical Sciences</i> .
Jul 2019 – May 2021	Direct quantitative detection of host cell residual DNA in recombinant Filgrastim by qPCR; Faculty of pharmacy, <i>Tabriz University of Medical Sciences</i> . Student Research Committee, <i>Tabriz University of Medical Sciences</i> .

Aug 2018 – Mar 2019

Evaluation of Pharmaceutical Compatibility between Acarbose and Common Excipients Used in the Development of Controlled Release Formulations;

Faculty of pharmacy, *Tabriz University of Medical Sciences*.

Student Research Committee, *Tabriz University of Medical Sciences*.

SKILLS AND COMPETENCIES

- DNA and protein Extractions
- Electrophoresis (SDS-PAGE & agarose gel)
- PCR and q-PCR
- Spectroscopy (UV, FTIR, MS)
- Some experience in doing DSC, SEM, XRD
- Statistical quality control (SQL)
- Liquid and solid culture of bacteria
- Microbial limit test
- Experience in a PC2 facility, with proficiency in BSC operation, aseptic technique, and handling of RG2 materials
- Primer designing
- Endotoxin test (LAL test)
- Chromatographic methods (thin layer, size exclusion, HPLC)
- Dry powder production technique such as spray dry, freeze dry and tubular mixer
- Study designing
- Troubleshooting
- Manuscript writing (Original and review)
- Some statistical analysis
- Refractometry
- Polarimetry
- Titrations

- **IT:** Minitab, Quantity one, Endnote, Chems sketch, Grams AI, Photoshop, Microsoft office (word, excel, PowerPoint)

- **Languages:**
 - Azerbaijani Turkish (Mother tongue)
 - Persian (native)
 - English: proficient
 - French: beginner
 - Arabic: beginner

PUBLICATIONS

Gholizadeh-Hashjin A, Monajjemzadeh F, Ghafourian T, Hamishehkar H, Nokhodchi A. Compatibility study of formoterol fumarate-lactose dry powder inhalation formulations: Spray drying, physical mixture and commercial DPIs. *Journal of Drug Delivery Science and Technology*. 2024;95:105538.

Gholizadeh-Hashjin A, Hamishehkar H, Monajjemzadeh F. Detection of Excipient–Excipient Interaction in Dry Powder Inhaler Formulation Prepared by Spray Drying. *Pharmaceutical Sciences*. 2024;3(2).

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Sajjadi S, **Gholizadeh-Hashjin A**, Shafizadeh F, Marefat S, Hamidi S, Farjami A. Advancing biomedicine with gel-based materials and composites: A comprehensive review. *Journal of Applied Polymer Science*. 2023: e54641

Gholizadeh-Hashjin A, Hamishehkar H, Monajjemzadeh F. Problem-solving approach for salbutamol analysis by HPLC during pharmaceutical assay. *Analytical Science and Technology*. 2022;35(5):189-96.

Gholizadeh-Hashjin A, Abedi N, Heidari HR, Lotfipour F. Direct quantitative detection of host cell residual DNA in recombinant Filgrastim by qPCR. *Analytical Biochemistry*. 2021;629:114296.

Gholizadeh-Hashjin A, Shabani M, Monajjemzadeh F. Evaluation of Pharmaceutical Compatibility between Acarbose and Common Excipients Used in the Development of Controlled Release Formulations. 2020;27(3):399- 406.

Gholizadeh-Hashjin A, Hallaj-Nezhadi S, Lotfipour F. Quality Control of Non-Sterile Drug Product According to United States' Pharmacopeia Instruction. 2019;13(5):321-45.

Fanak Fahimi, Reza Mosaed, Bita Shahrami, **Aiesheh Gholizadeh-Hashjin**, Hamidreza Masooduan, Zoleikha Remazani, **six-volume series EBT – Evidence Based Therapy, 2020, Etminan publisher (Book)**.

Fanak Fahimi, Mohammad Sistanizad, Reza Mosaed, Bita Shahrami, **Aiesheh Gholizadeh-Hashjin**, Golnaz Afzal, Ladan Ayazkhoo, Saghar barati, Elham poorheidar, Rezvan Hassanpoor, Effat Davoodi, Soheil Roshanzamiri, Mehrdad Shavandi, Ayda Forough, Neda Kazemian, Parisa Kianpoor, Farnoosh Masboogh, **Handbook of nonprescription drugs quick reference, 2024, Etminan publisher (Book (translation))**.

Conferences and workshops

- 25th National Annual Congress & 11th International Annual Research and Technology Congress of Medical Sciences Students, 5-7 September 2024 Urmia, West Azerbaijan **(as reviewer)**
- 25th National Annual Congress & 11th International Annual Research and Technology Congress of Medical Sciences Students, 5-7 September 2024 Urmia, West Azerbaijan **(as participant)**
- Scientific article reviewer training workshop 25-26 April 2024
- 24th National Annual Congress & 10th International Annual Research and Technology Congress of Medical Sciences Students, 4-6 October 2023 Tehran **(oral presentation)**
- Analytical method validation workshop, student research committee, Tabriz University of Medical sciences, February 2022
- MBTI held by Dr. Alireza Shiri in february 2021 (CPP approved practitioner)
- Common technical document, quality assessment of biopharmaceutical products workshop held by PersisgenPar Co, 1 January 2020

Aiesheh Gholizadeh-Hashjin, Pharm D, PhD.

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- Real-time PCR workshop held by student research committee, Tabriz university of medical sciences April 2019
- Primer design workshop held by student research committee, Tabriz university of medical sciences 6 March 2019
- 41th workshop of Sources and methods of providing information about drugs and poisons workshop held by Tehran university of medical sciences 8-9 december 2019
- GMP and clean room regulations workshop held by Tabriz Pharmaceutical Technology Incubator 18 July 2018
- Preparation of a drug file according to CTD workshop held by Tabriz Pharmaceutical Technology Incubator 8 February 2018
- 2nd international and 10th national biotechnology congress, held on 29 August – 1 september 2017, Karaj (**poster**)
- 14th pharmaceutical science congress held on 21-24 December 2015, Tehran, (**poster**)
- 18th pharmacy students seminar, held on 15-17 October 2014, Tabriz (**poster**)

Achievements

- Chosen as a distinguished researcher by National Student Research Committee in 2024.
 - Awardee of Ministry of Health and Medical Education's tuition-waiver scholarship for Doctor of Philosophy in quality control of Pharmaceutical & Cosmetic products (2017).
 - Awardee of Ministry of Health and Medical Education's tuition-waiver scholarship for Doctor of Pharmacy (2011).
 - Ranked 1100 in university entrance exam out of 442000 participants, 2011.
 - Ranked first in chemistry Olympiad in Ardabil province.
 - Got admission into the National Organization for Development of Exceptional Talents school for high school (Highly competitive), 2010.
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