Mahsa Hakimpour Abyaneh

SUMMARY

About me

As a nanotechnology engineer with a background in applied chemistry, I possess a robust understanding of both fields. My work experience within the pharmaceutical industry, specializing in quality control at Pars Daru, and my role as a researcher in the Research and Development Department of Hinza Chemical have provided me with invaluable hands-on knowledge. Proficient in conducting research, synthesizing materials, and analyzing data to contribute to innovative solutions, I have a proven ability to collaborate effectively in multidisciplinary teams and adapt to dynamic work environments. With a blend of academic knowledge and practical skills, I am eager to contribute to projects requiring expertise in chemistry and engineering.

WORK EXPERIENCE

Researcher at research and development department of Hinza Chemical

Hinza Chemical Co. [21/06/2018 – 20/12/2018]

City: Eshtehard | **Country:** Iran

- Evaluated raw materials and sourced new ingredients to improve product quality and cost-effectiveness
- Formulated and optimized chemical compositions to enhance product performance, meeting industry standards and customer requirements
- Collaborated with cross-functional teams to troubleshoot and resolve technical issues in the production processes
- Implemented testing protocols to ensure the stability and compatibility of formulated products with various textile materials

Pharmaceutical quality control of Pars Daru

Pars Daru Co. [20/06/2017 – 20/09/2017]

City: Tehran | **Country:** Iran

- Conducted thorough inspection and analysis of raw materials throughout production and semi-finished products, including those destined for biological and clinical trials or sale to pharmacies
- Performed testing on non-sterile products to ensure they were free of pathogenic microbial contamination, and conducted testing on sterile products to guarantee their sterilization
- Tested and certified the packaging of products within the pharmaceutical field, ensuring compliance with industry standards
- Controlled and guaranteed the quality of products, actively developing and implementing control methods to align with the production process and uphold regulatory standards

EDUCATION AND TRAINING

Nanotechnology Engineering

Sapienza University of Rome [03/2024]

City: Rome | **Country:** Italy | **Final grade:** 97 out of 110 | **Thesis:** Antibacterial effect enhancement of propolis-based mixtures through the use of Zinc Oxide nanorods

Applied Chemistry

Azad University of Medical Sciences Branch [01/2018]

City: Tehran | **Country:** Iran | **Final grade:** 16.24 out of 20

RESEARCH ACTIVITIES

Antibacterial effect enhancement of propolis-based mixtures through the use of Zinc Oxide nanorods in vitro and in situ

Conducted a study exploring the efficacy of propolis, pollen, and zinc oxide nanorods (ZnO NRs) in combating Staphylococcus aureus (S. a) and Pseudomonas aeruginosa (P. a), common bacteria in pediatric dental infections. By combining these natural substances, the aim was to enhance antibacterial properties while minimizing risks associated with traditional materials. Results suggest propolis-based mixtures, fortified with ZnO NRs, hold promise as safe and effective alternatives in pediatric endodontics, contributing to the pursuit of safer dental materials.

Biocompatibility Assessment of Biopolymer-based Materials

Researched biopolymer biocompatibility for biomedical applications, focusing on tissue engineering and drug delivery. Evaluated cytocompatibility through in vitro cell culture experiments and analyzed immunological responses in animal studies. Developed improved biopolymer formulations with interdisciplinary teams using advanced techniques like FTIR and SEM.

Conducting Polymers (ICPs)

Investigated the synthesis and characterization of Intrinsically Conducting Polymers (ICPs) for potential applications in electronic devices and sensors. Utilized various spectroscopic and microscopic techniques to analyze the structure and properties of the synthesized polymers. Collaborated with a multidisciplinary team to explore the optimization of polymerization processes and the enhancement of material conductivity. This research contributes to the advancement of ICP technology and its potential integration into next-generation electronic and sensing devices.

NETWORKS AND MEMBERSHIPS

[2019 – Current]

European Nanoscience and Nanotechnology Association(ENNA)

Link: www.europenanoscience.org

[2017 – Current]

Iranian Chemical society

Link: www.ics.ir

[2017 – Current]

Iranian Chemical science and technologies association

Link: www.irancsta.com

[2017 – Current]

Electrochemical Society of Iran

Link: www.iranecs.ir

CERTIFICATIONS

[09/2021]

Nanoinnovation conference and exhibition

The premier international event in Italy dedicated to nanotechnologies and their integration with other enabling technologies. The workshop provided insights into the latest advancements and applications in the field, fostering collaboration and innovation.

[01/2019]

Ucaplast reach international workshop

A workshop hosted by an independent organization dedicated to supporting small and medium-sized enterprises in the rubber and plastics industries held at the Research Institute of Petroleum Industry in Tehran, Iran .

[11/2018]

High performance liquid chromatography (HPLC)

Advanced-level HPLC workshop at Shahid Beheshti University, the workshop covered advanced techniques and applications of High-Performance Liquid Chromatography (HPLC), focusing on practical skills and theoretical knowledge to enhance proficiency in this analytical method.

[09/2018]

Application of supercritical condition in the synthesis of nanomaterials

A session at the 7th International Congress on Nanoscience and Nanotechnology, held at the Research Institute of Petroleum Industry in Tehran, Iran. The session focused on innovative techniques and applications in the synthesis of nanomaterials.

TECHNICAL SKILLS

Polymer synthesis

Nanomaterial synthesis

Graphene synthesis

Antibacterial testing

Antimicrobial testing

High Performance Liquid Chromatography (HPLC)

Gas chromatography–mass spectrometry (GC–MS)

Gas chromatography

NMR spectroscopy

UV-Vis spectroscopy

IR spectroscopy

Sterility testing

Titrations

DIGITAL SKILLS

Basic knowledge of C and Matlab / Adobe Photoshop (basic elements) / Microsoft Office package: Microsoft Word, Excel, PowerPoint, Access

LANGUAGE SKILLS

Mother tongue(s): Persian

Other language(s):

English	Italian
LISTENING C1 **READING** C1 **WRITING** C1	**LISTENING** B1 **READING** B1 **WRITING** A2
SPOKEN PRODUCTION C1 **SPOKEN INTERACTION** C1	**SPOKEN PRODUCTION** A2 **SPOKEN INTERACTION** A2

Levels: A1 and A2: Basic user; B1 and B2: Independent user; C1 and C2: Proficient user