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PERSONAL INFORMATION

Sex: Female

Date of Birth: 23 Aug 1985

Nationality: Iranian

EDUCATION

- **Ph.D. (Sep 2011- June 2017-Two semesters for pregnancy leave)-Materials Engineering (Nanomaterials)**
Isfahan University of Technology(IUT), Iran.
Supervisors: Prof. Mohammadhossein Fathi, Prof. Morteza Shamanian
Thesis title: Fabrication and characterization of Poly(hydroxybutyrate-co-hydroxyvalerate) /Hydroxyapatite /Bredigite Nanofibrous Scaffolds for Bone Tissue Engineering (Thesis score: A)

PROFESIONAL EXPERIENCES

- August 2021- Present: **Research Assistant Professor**, Dental Materials Research Center, School of Dentistry, Isfahan University of Medical Sciences, Isfahan, Iran.
- Jan 2020-Present: **Adjunct professor**
Mahallat Institute of Higher Education- Iran
Courses: 1- Materials Science, 2- General Chemistry
- Aug 2018 –Aug 2020: **Postdoctoral researcher**
Department of Pharmaceutics-Isfahan University of Medical Sciences- Isfahan-Iran-
Project: Hydrogel/ceramic constructs and 3D printed scaffolds for bone/cartilage tissue engineering.
- July 2014-April 2015: **Visiting researcher**
National University of Singapore, Center for Nanofibers and Nanotechnology.
Supervisor: Prof. Seeram Ramakrishna
- 2018 –Present: **MS dissertation advisor**, Isfahan University of Technology
- Fall 2010: **Teaching Assistant-** Isfahan University of Technology, Department of Textile Engineering.
- 2011-2013: **Adjunct professor**
Payam Noor University, Delijan branch-Iran
Courses: 1- Industrial Chemistry, 2- Principle of Industrial Chemistry Calculation

RESEARCH INTERESTS

- Biofabrication (3D bioprinting and electrospinning) for tissue regeneration and drug delivery
- Hydrogel materials for biomedical applications

- Surface modification of nanoparticles, scaffolds, and implants (physical and chemical methods)
- Nanomedicine in tissue engineering (Bone, Skin, Cartilage, Cardiac, & Neural)
- Cell-laden constructs for tissue regeneration
- Nanoparticles for biorecognition and medical diagnostics
- Nano thin layer coating for biomedical applications
- Medical textiles, Nanobiodevices, Nanobioreactors, Nanobiosensors

RESEARCH SKILLS

- Electrospinning for fabrication of nanofibrous scaffolds for drug delivery and tissue engineering.
- Different methods of nanoparticle preparation, Sol-gel, precipitation, mechanochemical, electrospray.
- Characterization of materials(nanoparticles, scaffolds,...) through porosimetry, mechanical strength, water contact angle analysis, SEM, TEM, AFM, FT-IR, XRD, EDX, DSC analysis,.....
- Drug release study, biodegradation, bioactivity and biocompatibility assay of scaffolds for tissue engineering
- 2D/3D Cell culture: Osteoblast, chondrocytes, and fibroblast on the nanofibrous scaffolds and hydrogels in tissue engineering application. MTS/MTT assay, ARS staining, ALP activity, and osteocalcin expression assay, RT-PCR, Histochemical assay, GAG assay.
- Screening of fluorescent proteins by confocal microscopy and study of cell morphology by SEM.
- Rheological characterization of hydrogels
- Surface modification of nanoparticles and scaffolds through different methods, chemical, physical, and plasma treatment
- 3D printing (extrusion based systems)
- Generic IT skills, including statistical analysis software, Microsoft Office, image processing software

HIGH-END EQUIPMENT HANDLED

Electrospinning and spraying apparatus, Scanning electron microscope, Differential scanning calorimeter, Transmission electron microscope, Capillary flow porosimeter, Atomic force microscope, Fourier transform infrared spectrometer, Confocal microscope, Mechanical testing machine, Dynamic light scattering, X-ray diffraction instrument, UV spectrophotometer

HONORS

- Ranked 1st among the Ph.D. students, Discipline of nanomaterials, IUT.
- Ranked 4th among M.S. graduates, Discipline of Textile Chemistry and Fiber Science, IUT, 2011.
- Ranked 17th among more than 300 participants in the Nation-Wide University Entrance Exam for a graduate degree, 2008

AWARDS

- Sabbatical leave scholarship from Ministry of Science, Research and Technology of Iran
- Tuition fee exemption for bachelor's, master's, and Ph.D. program from Ministry of Science, Research and Technology of Iran

REVIEWER IN INTERNATIONAL PEER-REVIEWED JOURNALS

- Material Science and Engineering C
- ACS Applied Materials & Interfaces
- Acta Biomaterialia
- Advanced Healthcare Materials

PUBLICATIONS

▪ Journal Publications

- **Monireh Kouhi**, Mohammad Morshed, Jaleh Varshosaz, Mohammad Hossein Fathi: Poly (ϵ -caprolactone) incorporated bioactive glass nanoparticles and simvastatin nanocomposite nanofibers: Preparation, Characterization and In vitro drug release for bone regeneration applications. **Chemical Engineering Journal**; 228:1057-1065 (2013). **IF=16.744**
- **Monireh Kouhi**, Molamma P. Prabhakaran, Morteza Shamanian, Mohammadhossein Fathi, Mohammad Morshed, Seeram Ramakrishna: Electrospun PHBV Nanofibers Containing HA and Bredigite Nanoparticles: Fabrication, Characterization and Evaluation of Mechanical Properties and Bioactivity. **Composites Science and Technology**; 121, 115-122, (2015). **IF=9.879**
- **Monireh Kouhi**, Morteza Shamanian, Mohammadhossein Fathi, Ali Samadikuchaksaraei, Ahmad Mehdipour: Synthesis, Characterization, In Vitro Bioactivity and Biocompatibility Evaluation of Hydroxyapatite/Bredigite ($\text{Ca}_7\text{MgSi}_4\text{O}_{16}$) Composite Nanoparticles. **JOM: the journal of the Minerals, Metals & Materials & Materials Society** 68(4) 1061-1070 (2016). **IF=2.471**
- **Monireh Kouhi**, Morteza Shamanian, Mohammadhossein Fathi, Molamma P. Prabhakaran, Seeram Ramakrishna, "Poly (hydroxybutyrate co hydroxyvalerate) Nanofibrous Scaffold Containing Hydroxyapatite/Bredigite Nanoparticles: Characterization and Biological Evaluation", **Journal of Advanced Materials in Engineering**, 36 (3):87-99, (2017).
- **Monireh Kouhi**, Mohammadhossein Fathi, Molamma P. Prabhakaran, Morteza Shamanian, Seeram Ramakrishna, "Poly L Lysine-modified PHBV based nanofibrous scaffolds for bone cell mineralization and osteogenic differentiation", **Applied Surface Science**, 457, 616-625 (2018). **IF=7.392**
- Neda Salek, Mohsen Hadizadeh, Seyed Abdolkarim Hosseini, Alireza Daneshkazemi, **Monireh Kouhi**, "An Investigation into the three-point bending properties and the Vickers microhardness of dental composites reinforced with nylon 66 nanofibers", **Materials Research Express**, 5 105401,(2018). **IF=2.025**
- **Monireh Kouhi**, Mohammadhossein Fathi, Jayarama Reddy Venugopal, Morteza Shamanian, Seeram Ramakrishna, "Preparation and characterization of biohybrid poly (3-hydroxybutyrate-co-3-hydroxyvalerate) based nanofibrous scaffolds", **AIP Conference Proceedings** 1920, 020014, (2018)
- **Monireh Kouhi**, Mohammadhossein Fathi, Morteza Shamanian, Molamma P. Prabhakaran, Seeram Ramakrishna "Enhanced proliferation and mineralization of human fetal osteoblast cells on PHBV-bredigite nanofibrous scaffolds", **Materials Today: Proceeding**, 5, 15702-15709, (2018). **IF=1.2**
- **Monireh Kouhi**, Jayarama Reddy Venugopal, Seeram Ramakrishna, "GPTMS-modified bredigite/PHBV nanofibrous bone scaffolds with enhanced mechanical and biological properties", **Applied Biochemistry and Biotechnology**, 188 (2), 357-368 (2019). **IF=3.094**
- **Monireh Kouhi**, Jayarama Reddy Venugopal, Mohammadhossein Fathi, Afsaneh Valipouri, Seeram Ramakrishna, "Development of electrospun poly (hydroxybutyrate co hydroxyvalerate) /fibrinogen/bredigite membranes for guided bone regeneration", **Journal of Biomedical Materials Research-Part A**, 107 (6), 1154-1165 (2019). **IF=4.854**
- Sanaz Rezaei, Afsaneh Valipouri, Seyed Abdolkarim Hosseini, **Monireh Kouhi**, Laleh Ghasemi Mobarakeh, "Fabrication, characterization and drug release study of vitamin C-loaded alginate/poly ethylene oxide nanofibers for the treatment of a skin disorder", **Polymers for Advanced Technologies**, 30 (9), 2447-2457 (2019). **IF=3.665**
- **Monireh Kouhi**, Mohammadhossein Fathi, Venugopal Jayarama Reddy, Seeram Ramakrishna, "Bredigite Reinforced Electrospun Nanofibers for Bone Tissue Engineering", **Materials Today: Proceedings**, 7, 449-454, (2019). **IF=1.2**

- Jaleh Varshosaz, Khaterreh Arabloo, Nasim Sarrami, Erfaneh Ghassami, Emadeddin Yazdani Kachouei, **Monireh Kouhi**, Ali Jahanian-Najafabadi, “RGD peptide immobilized Ecoflex / gelatin electrospun nanofibers loaded with a matrix metalloproteinase inhibitor drug for alleviating of wounds: An in vitro/ in vivo study”, **Drug Development and Industrial Pharmacy**, 46(3):484-497 (2020). **IF=3.727**
- **Monireh Kouhi**, Molamma P Prabhakaran, Seeram Ramakrishna, “Edible polymers and their application in food, biomedicine and cosmetics” **Trends in Food Science and Technology** (2020), DOI: 10.1016/j.tifs.2020.05.025. **IF=16.002**
- **Monireh Kouhi**, Jaleh Varshosaz, Batoul Hashemibeni, Akram Sarmadi, “Injectable gellan gum/lignocellulose nanofibril hydrogels enriched with melatonin loaded forsterite nanoparticles for cartilage tissue engineering: fabrication, characterization, and cell culture study” **Materials Science and Engineering C**, (2020). DOI: 10.1016/j.msec.2020.111114. **IF=8.457**
- Mohsen Askari, Moghaddaseh Afzali, **Monireh Kouhi**, Azadeh Saberi, Ali Zolfagharian, Mahdi Bodaghi, “Recent progress in extrusion 3D bioprinting of hydrogel biomaterials for tissue regeneration: a comprehensive review with a focus on advanced fabrication techniques” **Biomaterials Science**, (2021), DOI: 10.1039/D0BM00973C. **IF=7.59**
- Jaleh Varshosaz, Zahra Sajjadi, **Monireh Kouhi**, Mina Mirian “Effect of bassorin and halloysite on physicochemical properties and osteoconductivity of injectable methylcellulose based hydrogels”, **International Journal of Biological Macromolecules**, (2021). <https://doi.org/10.1016/j.ijbiomac.2021.10.009> . **IF=8.025**
- Pouya Dehghani, Aliakbar Akbari, Milad Saadatkish, Jaleh Varshosaz, **Monireh Kouhi**, Mahdi Bodaghi “Acceleration of wound healing in rats by modified lignocellulose based sponge containing pentoxifylline loaded lecithin/chitosan nanoparticles” **Gels**, 8, 658, (2022). <https://doi.org/10.3390/gels8100658>. **IF=4.432**
- Shiva Nasr, Athar Nakisa, Setareh Jandaghian, Monireh Kouhi, Erfan Sadeghi, Jaleh Varshosaz, “A Systematic Review and Meta-analysis on the Effect of Flavonoids on Insulin-like Growth Factor and Insulin-like Growth Factor Binding Protein and Incidence of Breast Cancer”, **Current Medicinal Chemistry**, (2023) <https://doi.org/10.2174/0929867329666220801164740>. **IF=4.184**
- Niloufar Abedi, Zahra Sadat Sajadi-Javan, **Monireh Kouhi**, Legha Ansari, Abbasali Khademi, Seeram Ramakrishna, “Antioxidant Materials in Oral and Maxillofacial Tissue Regeneration: A Narrative Review of the Literature”, **Antioxidants**, 2023. <https://doi.org/10.3390/antiox12030594>. **IF=7.675**

Book Chapter

- **Monireh Kouhi**, Mina Mobasheri, Afsaneh Valipouri “Needleless Electrospinning”, *Electrospun and Nanofibrous Membranes*, Elsevier, ISBN: 978-0-12-823032-9.
- **Monireh Kouhi**, Zahra Sajjadi, Niloufar abedi, “3d printing of bionanocomposites and their broad spectrum of applications”, *Advances in Bionanocomposites: Materials, Applications, and Life Cycle*, Elsevier- ISBN: 9780323917643.

Conference Publications

- **Monireh Kouhi**, Jaleh Varshosaz, Batoul Hashemibeni, “Gellan gum based hydrogels for drug delivery in cartilage tissue regeneration”, 3rd Nanomedicine and Nanosafety Conference, Tehran, Jan 2020.
- **Monireh Kouhi**, “Diagnostic and therapeutic applications of nanofibers in cancer research” First International Conference on Tissue Engineering and Regenerative Medicine, Tehran, Iran, 2018.
- **Monireh Kouhi**, Mohammadhossein Fathi, Morteza Shamanian, Molamma P. Prabhakaran, Seeram Ramakrishna “Preparation and Characterization of Poly (hydroxybutyrate co hydroxyvalerate)

Nanofibers Containing Sol-gel Derived Bredigite for Bone Regeneration Applications” Society For Biomaterials, Charlotte, North Carolina, USA, 2015.

- **Monireh Kouhi**, Mohammad Morshed, Jaleh Varshosaz, Mohammad Hossein Fathi “Preparation of PCL/PEG composite nanofiber incorporated bioactive glass nanoparticles: Evaluation of bioactivity and mechanical properties”, The 8th National Conference of Textile Engineering, Yazd, Iran, 2012.
- **Monireh Kouhi**, Mohammad Morshed, Jaleh Varshosaz, Mohammad Hossein Fathi, “Production and evaluation of PCL/PEG nanofibers containing bioactive glass nanoparticles and simvastatin” The 10th Nanotechnology Iranian Student Conference, Tehran, Iran, 2011.
- **Monireh Kouhi**, Ali Zadhoush, “Solid state polymerization of PET flake”, The 1th International and 7th National Conference of Textile Engineering, Rasht, Iran, 2009.

WORKSHOP ATTEND

- 1) **Grant Proposal Writing**-Dec 2019- IRAN Nanotechnology Innovation Council
- 2) **Osteoinductive Ceramics: Controlled Submicron Structures for Bone Tissue Regeneration** – May 2017-Materials and Energy Research Center-Iran
- 3) **Nanolayer Formation of Engineered Proteins on Materials for Biomedical Applications**- May 2017-Materials and Energy Research Center-Iran
- 4) **Nanobiomaterials Surface Characterization by X-Ray Photoelectron Spectroscopy (XPS)**- May 2017-Materials and Energy Research Center-Iran
- 5) **Cell Culture Principles**-Oct 2013-University of Tehran-Iran
- 6) **Iran-Korea Nanotechnology**- Oct 2012- Tarbiat Modares University-Iran
- 7) **Characterization and Microanalysis of Materials**- Oct 2011-Isfahan University of Technology-Iran

REFERENCES

- 1) **Prof. Seeram Ramakrishna** - Department of Mechanical Engineering, National University of Singapore, Singapore seeram@nus.edu.sg
- 2) **Prof. Mohammadhossein Fathi** - Department of Materials Engineering, Isfahan University of Technology, Isfahan, Iran fathi@cc.iut.ac.ir
- 3) **Prof. Jaleh Varshosaz** - Department of Pharmaceutics, Isfahan University of Medical Sciences, Isfahan, Iran varshosaz@pharm.mui.ac.ir
- 4) **Dr. Venugopal Jayarama Reddy** - Department of Industrial Sciences & Technology, Universiti Malaysia Pahang, Malaysia venugopal@ump.edu.my
- 5) **Dr. Mahdi Bodaghi**-School of Science & Technology, Nottingham Trent University, Nottingham, UK mahdi.bodaghi@ntu.ac.uk