CURRICULUM VITAE

Maryam Yousefi, PhD

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Education:

2007-2011	PhD, Organic chemistry, Department of Pure Chemistry,
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2003-2005	M.Sc., Organic chemistry, Department of Pure Chemistry,
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1991-2003 B.Sc., Pure Chemistry, Department of Chemistry, Azzahra University, Tehran, Iran

Research Interests:

- Biotransformation and biocatalysis
- Application of enzymes in organic synthesis
- Immobilization of enzymes
- Enzymatic production of biodiesel
- Extraction and structure elucidation of natural products from plants
- Organic synthesis
- Nanobiotechnology
- High performance liquid chromatography

PUBLICATIONS:

Journal Papers:

- Mehdi Mohammadi, Mansour Shahedi, Faezeh Ahrari, Mostafa Mostafavi, Zohreh Habibi, and Maryam Yousefi*. Isocyanide-based multi-component reactions for carrier-free and carrier-bound covalent immobilization of enzymes. *Nature Protocols*, 2023, <u>accepted for publication</u>.
- Mostafa Mostafavi, Kazem Mahmoodzadeh, Zohreh Habibi, Maryam Yousefi*, Jespe Brask, Mehdi Mohammadi. Immobilization of Bacillus amyloliquefaciens protease "Neutrase" as hybrid enzyme inorganic nanoflower particles: A new biocatalyst for aldol-type and multicomponent reactions. *International Journal of Biological Macromolecules*. 2023, 230, 123140.
- Faezeh Ahrari, Maryam Yousefi, Zohreh Habibi, Mehdi Mohammadi. Crosslinked lipase particles with improved activity; application of a non-toxic linker for cross-linking. *LWT - Food Science and Technology*, 2023, 173, 114371.
- Mansour Shahedi, Rojina Shahani, Zohreh Habibi, Maryam Yousefi*, Jesper Brask, Arash Minai-Tehrani, Fatemeh Yazdi Samadi and Mehdi Mohammadi. Diarylation of thiazolo pyrimidins by laccase and their in vitro evaluation as antitumor agents. *Scientific reports*, 2022, 12:22326-22338.
- Hossein Bavandi, Mansour Shahedi, Zohreh Habibi, Maryam Yousefi*, Jesper Brask and Mehdi Mohammadi. Biocatalytic decarboxylative Michael addition for synthesis of 1,4-benzoxazinone derivatives. *Scientific Reports*, 2022, 12, 12713-12722.
- Yalda Amini, Mansour Shahedi, Zohreh Habibi, Maryam Yousefi, Mehdi Mohammadi. A multi-component reaction for covalent immobilization of lipases on amine-functionalized magnetic nanoparticles: production of biodiesel from waste cooking oil. *Bioresource and Bioprocess*. 2022, 9, 60.
- Faezeh Ahrari, Maryam Yousefi, Zohreh Habibi, Mehdi Mohammadi, Application of undecanedicarboxylic acid to prepare cross-linked enzymes (CLEs) of *Rhizomucor miehei* lipase (RML); Selective enrichment of polyunsaturated fatty acids, *Molecular Catalysis*, 2022, 520, 112172.
- Mohamad Reza Safarpoor Moguei, Zohreh Habibi, Mansour Shahedi , Maryam Yousefi*, Abouzar Alimoradi, Sepideh Mobini, Mehdi Mohammadi. Immobilization of *Thermomyces lanuginosus* lipase through isocyanide-based multi component reaction on multi-walled carbon nanotube: application for kinetic

resolution of rac-ibuprofen. *Biotechnology Reports*, 2022, 35, e00759.

- Mansour Shahedi, Zohreh Habibi, Maryam Yousefi*, Jesper Brask, Mehdi Mohammadi Improvement of biodiesel production from palm oil by coimmobilization of *Thermomyces lanuginosa* lipase and *Candida antarctica* Lipase B: Optimization using response surface methodology. *International Journal of Biological Macromolecules*, 2021, 170, 490-502.
- Maryam Ashjari , Maryam Garmroodi , Faezeh Ahrari, Maryam Yousefi,* , Mehdi Mohammadi, Soluble enzyme cross-linking via multi-component reactions; a new generation of cross-linked enzymes. *Chemical Communications*, 2020, 56, 9683-9686.
- 11. Saba Ghasemi, Maryam Yousefi, Ahmad Nikseresht, Hoda Omidi. Covalent binding and in-situ immobilization of lipases on a flexible nanoporous material. *Process Biochemistry*, 2021, 102, 92-101.
- Hossein Bavandi, Zohreh Habibi, Maryam Yousefi*, Porcine pancreas lipase as a green catalyst for synthesis of bis-4-hydroxy coumarins. *Bioorganic Chemistry*, 2020, 103,104139-104145.
- 13. ElaheMemari,AmirMaghsoudi,FatemehYazdian,MaryamYousefi,MehdiMoham madi. Synthesis of PHB-co-PEI nanoparticles as gene carriers for miR-128-encoding plasmid delivery to U87 glioblastoma cells. *Colloids and Surfaces A: Physicochemical and Engineering Aspects*. 2020, 599, 124898.
- 14. Maryam Yousefi, Marzia Marciello, Jose Manuel Guisan, Gloria Fernandez-Lorente, Mehdi Mohammadi and Marco Filice. Fine Modulation of the Catalytic Properties of Rhizomucor miehei Lipase Driven by Different Immobilization Strategies for the Selective Hydrolysis of Fish Oil. *Molecules*, 2020, 25, 545.
- 15. Maryam Ashjari, Maryam Garmroodi, Fatemeh Amiri Asl, Mahsa Emampour, Maryam Yousefi, Mitra Pourmohammadi Lish, Zohreh Habibi, Mehdi Mohammadi. Application of multi-component reaction for covalent immobilization of two lipases on aldehyde-functionalized magnetic nanoparticles; production of biodiesel from waste cooking oil. *Process Biochemistry*. 2020, 90, 156-167.
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- 19. Mehdi Mohammadi, Mohammad Ali As'habi, Peyman Salehi, Maryam Yousefi, Mahboobeh Nazari, Jesper Brask. Immobilization of laccase on epoxyfunctionalized silica and its application in biodegradation of phenolic compounds. *International Journal of Biological Macromolecules*. 2018, 109, 443-447.
- 20. Fatemeh Salami, Zohreh Habibi, **Maryam Yousefi***, Mehdi Mohammadi. Covalent immobilization of laccase by one pot three component reaction and its application in the decolorization of textile dyes. *International Journal of Biological Macromolecules*. 2018, 120, 144-151.
- Ramin Ghahremanzadeh, Fatemeh Yazdi Samadi, Maryam Yousefi*. Green Synthesis of gold nanoparticles using three medicinal plant extracts as efficient reducing agents. *Iranian Journal of Chemistry and Chemical Engineering*. 2019, 38, 1-10.
- 22. Mehdi Mohammadi, Somayeh Gandomkar, Zohreh Habibi, **Maryam Yousefi** A novel approach for bioconjugation of Rhizomucor miehei lipase (RML) onto amine-functionalized supports; Application for enantioselective resolution of rac-ibuprofen. *International Journal of Biological Macromolecules* 2018, 117, 523-531.
- 23. Mohammad-Reza Nejadmoghaddam, Amir Hassan Zarnani, Ramin Ghahremanzadeh, Roya Ghods, Jafar Mahmoudian, Maryam Yousefi, Mahbobeh Nazari, Mohammad Hossein Ghahremani, Maryam Abolhasani, Ali Anissian, Morteza Mahmoudi, and Rassoul Dinarvand. Placenta-specific1 (PLAC1) is a potential target for antibody-drug conjugate-based prostate cancer immunotherapy. *Scientific Reports* 2017, 17;7(1):13373.

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- 25. Mahboobeh Nazari, Amir-hassan Zarnani, Roya Ghods, Rahman Emamzadeh, Somayeh Najafzadeh, Arash Minai-Tehrani, Jafar Mahmoudian, Maryam Yousefi, Sedigheh Vafaei, Sam Massahi, Mohammad-Reza Nejadmoghaddam. Optimized protocol for soluble prokaryotic expression, purification and structural analysis of human placenta specific-1(PLAC1). *Protein Expression and Purification*, 2017, 133, 139-151.
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- 31. Shima Ghaedizadeh, Rahman Emamzadeh, Mahboobeh Nazari, S. Mohamad Mahdi Rasa, Sayyed Hamid Zarkesh-Esfahani, Maryam Yousefi. Understanding the molecular behaviour of Renilla luciferase in imidazolium-based ionic liquids, a new model for the α/β fold collapse. *Biochemical Engineering Journal*. 2016, 105. 505-513.
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- 37. Mehdi Mohammadi, Zohreh Habibi, Shaghayegh Dezvarei, **Maryam Yousefi**. Selective enrichment of polyunsaturated fatty acids by hydrolysis of fish oil using immobilized and stabilized *Rhizomucor miehei* lipase preparations. *Food and bioproduct processing*. 2015, 94, 414–421.
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benzylidene malonate derivatives. *Chemistry of natural compounds* 2015, 51, 861-864.

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- 51. Rasool Eshaghi Najafabadi, Mehdi Mohammadi, Maryam Yousefi, Zohreh Habibi. Chemical Composition and Antibacterial Activity of Essential Oils from Flowers, Seeds and Stems of *Heracleum rechingeri* (Manden) from Iran. *Journal of Essential Oil Bearing Plants*. 2011, 14, 746 – 750.
- Maryam Yousefi, Mehdi Mohammadi, Zohre Habibi. Disulfides in the volatile oil of *Ferula behboudiana* Rech. f. & Esfand. *Natural Product Research*. 2011, 25, 1629–1634.
- 53. Maryam Yousefi, Mehdi Mohammadi, Zohreh Habibi, Zohreh Cheraghi. Biotransformation of nitrile by whole cells of *Aspergillus* sp. PTCC 5266. *Biocatalysis and Biotransformation* 2011, 29, 54-59.
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activity of the volatile oils from *Artemisia turcomanica* Gand. *Chemistry of Natural Compounds*. 46 (5), 819-821, 2010.

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- 60. Maryam Yousefi, Mehdi Mohammadi, Zohre Habibi, Abbas Shafiee. Biotransformation of Progesterone by *Acremonium chrysogenum* and *Absidia* griseolla var. igachii. *Biocatalysis and Biotransformation*. 2010, 28, 254–258.
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Conference Presentations:

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- Maryam Yousefi, Zohreh Habibi, Peyman Salehi, Farahnaz Nariman, Phytochemical study of Codonocephalum stenocalathium Rech.f. an Endemic plant of Iran with Antibacterial activity, First Seminar of Medicinal & Natural Products Chemistry, 10-11 May, 2005, Shiraz, Iran.
- Zohreh Habibi, Peyman Salehi, Maryam Yousefi. Chemical Composition and Antimicrobial Activity of the Essential Oil of Ferula latisecta RECH. F. & AELL.
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- Seyyed Mojtaba Taghizadeh, Hamid Mirzadeh, Mehdi Barikani, Maryam Yousefi. The Investigation on Miscibility of Acrylic /Poly (vinylpyrrolidone) Blends. ISPST 8th International Seminar on Polymer Science and Technology, October 23-24, Tehran, Iran, 2007.
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- 8. Zohre Habibi, Maryam Yousefi, Mehdi Mohammadi.

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- 20. Ramin Ghahremanzadeh, Parisa Eslami, Maryam Yousefi, Amir Hasan Zarnani Mohammad Mehdi Akhondi, Mehdi Mohammadid. Plant-mediated synthesis of golc nanoparticles using plant extract. 19th Iranian Seminar on Organic Chemistry. Vali-e-Asr University of Rafsanjan, 5 -7 Sep. 2012.
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and therapy. Congress of Nanomedicine in Diagnosis and Treatment of Incurable Disease, 18 and 19 February 2015. Avicenna Research Institute, Tehran, Iran.

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- 28. Mohadese Babaki, Maryam Yousefi, Zohreh Habibi, Mehdi Mohammadi, Somayyeh Gandomkar. Conversion of soya oil to biodiesel using lipases: effect of water, tbutanol and silica content. 1st congress of chemical biotechnology 2016 March 6-8 at NIGEB-CCERCI, Tehran, Iran.
- 29. Maryam Garmroodi, Ali Ramezani, Mehdi Mohammadi, Maryam Ashjari, Maryam Yousefi. Hydrophobic immobilization of Rhizomucor miehei (RML) on octyl-functionalized SBA-15 for kinetic resolution of racemic ibuprofen. 1st congress of chemical biotechnology 2016 March 6-8 at NIGEB-CCERCI, Tehran, Iran.
- 30. Fatemeh Salami, Zohreh Habibi, Mehdi Mohammadi, Maryam Yousefi. Covalent immobilization of laccase by one pot three component reaction and application for textile dye degradation. 5th International Conference on Recent Innovations in

Chemistry and Chemical Engineering 2018 February 2 at Allameh tabatabai University, Tehran, Iran.

- 31. Mohammad Ali As'habi, Maryam Yousefi, Peyman Salehi, Mehdi Mohammadi. Preparation of Biocatalyst by Immobilization of Eversa on Chitosan Beads for Production of Biodiesel from Palm Oil. 1st Iranian Catalyst Conference (ICC), 1-2 September 2018, Zanjan, Iran.
- 32. Mohammad Ali As'habi, Maryam Yousefi, Peyman Salehi, Mehdi Mohammadi, Jesper Brask. Biocatalytic Application of Immobilized Laccase on Epoxy-Functionalized Silica in Biodegradation of Phenolic Compounds. 1st Iranian Catalyst Conference (ICC), 1-2 September 2018, Zanjan, Iran.
- 33. Mohammad Ali As'habi, Maryam Yousefi, Peyman Salehi, Mehdi Mohammadi, Jesper Brask. Biocatalytic Application of Immobilized Laccase on Epoxy-Functionalized Silica in Biodegradation of Phenolic Compounds. 1st Iranian Catalyst Conference (ICC), 1-2 September 2018, Zanjan, Iran.
- 34. Mehdi Mohammadi, Maryam Ashjari, Maryam Garmroodi, Maryam Yousefi. Multicomponent reactions for covalent immobilization of biomolecules: What is the mechanism? 1st Iranian Catalyst Conference (ICC), 1-2 September 2018, Zanjan, Iran.
- 35. Mehdi Mohammadi, Soheil golisani, Hossein Ahmadi, Mehdi qafari, Maryam Yousefi. "A chemo-enzymatic approach for the synthesis of plant pigments". 1th International Congress and the 2nd National Conference on Biotechnology of Medicinal Plants and Mushrooms. University of Zanjan on August 27-28, 2018.
- 36. Somayeh Rahmati, Maryam Yousefi, Mohammad zaman Kassae. Laccase on graphene oxide: Immobilization and use as a novel biocatalyst for phenol degradation. 1th International Congress and the 2nd National Conference on Biotechnology of Medicinal Plants and Mushrooms. University of Zanjan on August 27-28, 2018.

Editorial Activities

Review Editor on the Editorial Board of Microbiotechnology (specialty section of Frontiers in Microbiology, Frontiers in Bioengineering and Biotechnology and Frontiers in Environmental Science).

Teaching Experiences:

- Teaching assistant in molecular spectroscopy class involving various spectroscopic techniques, Organic Chemistry, B.Sc. and M.Sc. levels, (Tutorial leader for molecular spectroscopy for science students responsible for preparing mini-lectures, quizzes and solutions to problem sets, marking the assignments, and term test papers.) (2007-2011)
- High performance liquid chromatograph for Ph.D students of Immunology (2012)
- Introduction to spectroscopy for B.Sc. students of chemistry in Shahid Beheshti University (2014)
- General Chemistry for B.Sc. students of genetic in Al TahaUniversity (2015)
- Organic Chemistry for B.Sc. students of genetic in Al TahaUniversity (2016)
- Organic Chemistry for B.Sc. students of genetic in Al TahaUniversity (2018)

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Completed or ongoing projects (As project manager or main co-worker):

- "Enzymatic production of biodiesel from waste oil by using two lipases covalently immobilized on magnetic silica nanocomposite; development of isocyanide-based multicomponent reaction for enzyme immobilization", National Institute of Genetic Engineering and Biotechnology, 2016.
- "Enzymatic production of biodiesel using immobilized lipases on functionalized magnetic silica nanocomposite", National Institute of Genetic Engineering and Biotechnology, 2015.
- "Biodiesel production by immobilized lipases on functionalized silica and silica nanoparticles", Avicenna Research Institute (grant from Iran National Science Foundation), 2014.
- "Synthesis of plant-mediated gold nanoparticles using medicinal plant extracts", Avicenna Research Institute, 2014.
- "Investigation of essential oil from aerial parts of of Betonica grandiflora Willd.
 from Iran", Shahid Beheshti University, 2011.
- "Synthesis of cyclophosphamide", Ministry of Health and Medical Education of Iran, 2013.

- "Synthesis of acetylcystein", Ministry of Health and Medical Education of Iran, 2013.
- "Design, Synthesis and Functionalization of QD525 Nanoparticles", Avicenna Research Institute, 2013.
- "Using Plant sources for production of chiral alcohols", Shahid Beheshti University, 2012.
- "Immobilization of Rhizomocur miehei lipase on modified silica nanoparticles", National Institute of Genetic Engineering and Biotechnology, 2012.
- "Phytochemical investigation of some species of iranian plants and a novel one pot synthesis of unsymmetrical acyclic imides and amides in presence of silica sulfuric acid "
- "Formulation and evaluation of anti-acne patches", Novel Drug Delivery Systems in Iran Polymer and Petrochemical Institute 2005.

Conferences as Scientific or Executive Committee:

- Member of Iran nanotechnology laboratory network chromatography experts workgroup
- Member of the scientific committee of international seminar of "Chemical Biotechnology". March 2016.
- Member of the scientific committee of national seminar of "Nanomedicine in Diagnosis and Treatment of Hard to Treat Diseases". Jan, 2015.
- Member of the Executive committee of "Novel Drug Delivery Systems" Seminar held by Iran Polymer and Petrochemical Institute; Tehran, Iran, September 2007.
- Member of the Executive committee of "Methods for Identification of Nanoparticles" workshop held by Iran Polymer and Petrochemical Institute; Tehran, Iran, September 2006.

Review board of scientific journals:

- Journal of Molecular Catalysis B: Enzymatic
- Renewable Energy
- Applied Energy
- Process Biochemistry
- Natural Product Research

- Biocatalysis and Biotransformation

Presented Workshops:

- Introductory High Performance Liquid Chromatography (3 hr); at Avicenna Research Institute; Tehran, Iran, 1 May 2014.
- Theoretical and Practical High Performance Liquid Chromatography (8 hr); at Avicenna Research Institute; Tehran, Iran, 6 September 2014.
- Introductory High Performance Liquid Chromatography (2.5 hr); at Avicenna Research Institute; Tehran, Iran, 9 October 2014.
- Theoretical and Practical High Performance Liquid Chromatography (8 hr); at Avicenna Research Institute; Tehran, Iran, 25 January 2015.
- Introductory High Performance Liquid Chromatography (3 hr); at Avicenna Research Institute; Tehran, Iran, 18 February 2015.
- Introductory High Performance Liquid Chromatography (3 hr); at Avicenna Research Institute; Tehran, Iran, 24 April 2015.
- Introductory High Performance Liquid Chromatography (2 hr); at Avicenna Research Institute; Tehran, Iran, 15 August 2015.
- Introductory High Performance Liquid Chromatography (2.5 hr); at Avicenna Research Institute; Tehran, Iran, 5 October 2015.

Received Trainings:

- "Response surface Method" workshop; held by Iranian Research Organization for Science and Technology (IROST); Tehran, Iran, May 2015.
- "Inductively Coupled Plasma Optical Emission Spectrometry (ICP-OES)" workshop; held by Iran Nanotechnology Laboratory Network; Tehran, Iran, April 2014.
- "Dynamic Light Scattering (DLS)" workshop; held by Iran Nanotechnology Laboratory Network; Tehran, Iran, April 2014.
- "X-ray powder diffraction (XRD)" workshop; held by Iran Nanotechnology Laboratory Network; Tehran, Iran, April 2014.
- "Sample preparation for analytical chromatographic techniques, held by Iran Nanotechnology Laboratory Network; Tehran, Iran, August 2014.

- "Two-dimensional Gas Chromatography GC-GC"; held by Shahid Beheshti University; Tehran, Iran, November 2013.
- "Safety in Academic chemistry laboratories"; held by Avicenna Research Institute; Tehran, Iran, February 2013.
- "Statistical Package for the Social Sciences (SPSS)"; held by Avicenna Research Institute; Tehran, Iran, September 2012.
- "Methods for Identification of Nanoparticles"; held by Iran Polymer and Petrochemical Institute; Tehran, Iran, September 2006.

Honours and Achievments:

 Ranked the sixth in written and the fourth in total in the national exam for entrance nation wide PhD program in Organic Chemistry (2007).