



**Mohammad Barati**

Assistant Professor

College: Faculty of Chemistry

Department: Chemistry

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### **Assistant Professor**

**Applied Chemistry, University of Kashan, Kashan, Iran, 2015-Now.**

Fields of Research: **Gaseous, liquid and solid fuels production from bio resources.** Biodiesel production from algae and other oily biomasses in supercritical conditions. Water, methanol, hexane and acetone in supercritical conditions is used for biomass conversion to biofuels in our Lab. **Nanocomposites for bio applications** is my other field of research. Extraction of chemicals from medicinal herbs for using in controlled drug delivery systems, especially polymer nanocomposites.

**Current research projects:** Kinetic study of biodiesel production processes in supercritical environment and conversion studies of bio-aviation fuels production processes in supercritical environment.

### **PhD**

**Applied Chemistry, University of Tehran, Tehran-Iran, 2011-2015.**

Field of Research: Catalytic renewable fuels production from biomass.

More specifically, in my PhD thesis, I have focused on the production of hydrogen gas from biomass feedstock using catalytic sub and supercritical water gasification. Ni, Ru, Cu and K are the metals we are working on. Renewable liquid fuels production especially higher alcohols and ethers is our parallel aim in the thesis. With progressing the experimental steps of thesis, we could produce relatively significant amounts of higher alcohols from a catalytic subcritical methanol/water process as well as hydrogen production was successful.

### **Master of Science**

**Applied Chemistry, University of Tabriz, Tabriz-Iran, 2008-2011.**

Field of Study: Anticorrosion behavior of electroactive polymer coatings on steel.

In MSc thesis we try to inhibit the steel electrochemical corrosion with polymer nanocomposite coatings. The polymer matrix contain polyaniline as an electroactive polymer and Zn metal nanoparticles was applied as additive. The nanocomposite

coatings exhibited good anticorrosion performance. The field included courses such as preparation of polymer nanocomposites and electrochemical tests as CV and electrochemical impedance spectroscopy.

### Bachelor of Science

Applied Chemistry, University of Tabriz, Tabriz-Iran, 2008-2011.

### Employment Information

Faculty/Department	Position/Rank	Employment Type	Cooperation Type	Grade
(not set)	(not set)	Tenure Track	Full Time	10

### Papers in Conferences

1. Zahra Mirzaei, Mohammad Barati, Adel Raeisi Vanani ,Synthesis of Poly (vinyl alcohol)-Sodium Alginate /Graphene Oxide films for controlled release of the anticancer drug curcumin ,11th International chemical engineering congress & exhibition ,2020/10/30.
2. M. Fatehi, M. Barati ,Catalytic Supercritical Process for Biodiesel Production from Sesame Oil ,International Congress of Sciences and Innovative Technologies ,pp. 95 ,2018.
3. M Barati, G Kahid ,Bagasse nano-catalytic conversion to biofuel in a mixed supercritical/subcritical medium ,19th Iranian Congress of Chemistry ,Shiraz ,2017 2 20.
4. Maryam Aghilinategh , Mohammad Barati , Masood Hamadianian ,Direct Conversion of Chlorella Vulgaris Microalgae to Biodiesel Under Supercritical Methanol Condition in The Presence of Heterogeneous Nano- photocatalyst ,22th Iranian Physical Chemistry Confrance ,2019-8.

### Papers in Journals

1. A Davoodimehr, A Shakeri, M Azizi, M Barati,The process optimization of FAMES production from bio-oil transesterification via nano-biocatalyst based on lipase/SBA-15 nanostructure,Journal of Nanostructures,2025,SCOPUS ,ISC ,ISI-Listed.
2. A. Davoodimehr, A. Shakeri, M. Barati.Biodiesel Production from Castor Oil in the Presence of Lipase/calcium alginate Biocatalyst; Optimizing and Evaluation of Temperature, Catalyst Amount, and Methanol to Oil Ratio Effects.Journal of Applied Research in Chemistry, ۰۸ ۱۹,۲۰۲۳ شماره صفحات ۱۷,مجلد ۱۷,ISC.
3. A. A. Alavijeh, M. Dadpay, M. Barati,The Effect of Silk-nanocefixime Suture on Healing and Antibacterial Properties,Journal of Kerman University of Medical Sciences (JKMU),Vol. 26,pp. 246,2022 05 10.
4. Zahra Mirzaie, Adel Reisi ,& Vanani, Mohammad Barati, Seyed Mohammad Atyabi,The Drug Release Kinetics and Anticancer Activity of the GO/PVA-Curcumin Nanostructures: The Effects of the Preparation Method and the GO Amount,Journal of Pharmaceutical Sciences,Vol. 110,pp. 3715-3725,2021/11/1.
5. T Nematian; M Fatehi; M Hosseinpour; M Barati,One-pot conversion of sesame cake to low N-content biodiesel via nano-catalytic supercritical methanol,Renewable Energy,Vol. 170,pp. 964-973,2021/2/18.
6. Ali Alirezaei Alavije, Farid Barati, Mohammad Barati, Hassan Nazari, Iraj Karimi,Polyethersulfone/MWCNT nanocomposite scaffold for endometrial cell culture: preparation, characterization, and in vitro investigation,Biomedical Physics & Engineering Express,Vol. 7,pp.

1,2021/01/06.

7. Ali alirezaie alavijeh; Milad Rajabi; Farid Barati; Moosa Javdani; Iraj Karimi; Mohammad Barati; Mohsen Moradian, Catgut enriched with CuSO<sub>4</sub> nanoparticles as a surgical suture: Morphology, Antibacterial activity, Cytotoxicity and Tissue reaction, *Nanomedicine Research Journal*, Vol. 5, pp. 256-264, 2020 10 10.
8. Zahra Mirzaie, Mohammad Barati, Mohammad Asadi Tokmedash, Anticancer Drug Delivery Systems Based on Curcumin Nanostructures: A Review, *Pharmaceutical Chemistry Journal*, Vol. 54, pp. 353-360, 2020 07 18.
9. Maryam Aghilinategh, Mohammad Barati, Masood Hamadani, The modified supercritical media for one-pot biodiesel production from *Chlorella vulgaris* using photochemically-synthesized SrTiO<sub>3</sub> nanocatalyst, *Renewable Energy*, Vol. 160, pp. 176-184, 2020 07 01.
10. Mohammad Taha Badri, Mohammad Barati, Sayyed Hossein Rasa, Kinetic study of acetone acidic oxidation with KMnO<sub>4</sub> in the absence and presence of CuO/γ-Al<sub>2</sub>O<sub>3</sub> as a heterogeneous nanocatalyst, *Scientia Iranica*, Vol. 27, pp. 1234-1242, 2020 06 01.
11. Ali Alirezaie Alavijeh; Mohammad Barati; Meisam Barati; Hussein Abbasi Dehkordi; The Potential of Magnetic Nanoparticles for Diagnosis and Treatment of Cancer Based on Body Magnetic Field and Organ-on-the-Chip, *Advanced Pharmaceutical Bulletin*, pp. 360-373, 2019-8.
12. Ali Alirezaie Alavijeh; Masoomeh Dadpey; Farid Barati; Mohammad Barati;., Diagnosis and treatment of the Cancer Tumor Cells (CTCs); Capturing and Diagnosing Kits, *Nanomedicine Research Journal*, Vol. 4, pp. 56-62, 2019-6, ISC.
13. Maryam Aghilinategh, Mohammad Barati, Masood Hamadani, Supercritical methanol for one pot biodiesel production from *Chlorella vulgaris* microalgae in the presence of CaO/TiO<sub>2</sub> nanophotocatalyst and subcritical water, *Biomass and Bioenergy*, Vol. 123, pp. 34-40, 02-2019, SJR, JCR.
14. Zahra Mirzai, Adel Reisi, & Vanani, Mohammad Barati, Polyvinyl alcohol-sodium alginate blend, composited with 3D-graphene oxide as a controlled release system for curcumin, *Journal of Drug Delivery Science and Technology*, Vol. 50, pp. 380-387, 04-2019, SJR, JCR.
15. A. Alavijeh, M. Dadpey, M. Barati, A. Molamirzaie, Silk suture reinforced with Cefixime nanoparticles using polymer hydrogel (CFX@PVA); Preparation, Bacterial resistance and Mechanical properties, *Nanomedicine Research Journal*, Vol. 3, No. 3, pp. 133, 2018 08 22.
16. Barati. M, Kahid, B, G, Hydrogen, alcohols, and ethers production from biomass in supercritical methanol-subcritical water medium with Cu-K nanocatalysts, *ENVIRON PROG SUSTAIN*, 2017, ISI, SCOPUS.
17. Tavasoli. A, Barati. M, Karimi. A, Conversion of sugarcane bagasse to gaseous and liquid fuels in near-critical water media using K<sub>2</sub>O promoted Cu/γ-Al<sub>2</sub>O<sub>3</sub>-MgO nanocatalysts, *BIOMASS BIOENERG*, 2015 4 01, ISI, SCOPUS.
18. Tavasoli. A, Barati. M, Karimi. A, Sugarcane bagasse supercritical water gasification in presence of potassium promoted copper nano-catalysts supported on γ-Al<sub>2</sub>O<sub>3</sub>, *INT J HYDROGEN ENERG*, 2015 11 01, ISI, SCOPUS.
19. A Olad, M Barati, H Shirmohammadi, Conductivity and anticorrosion performance of polyaniline/zinc composites: Investigation of zinc particle size and distribution effect, *PROG ORG COAT*, 2011 7 01, ISI, SCOPUS.
20. A Olad, M Barati, S Behboudi, Preparation of PANI/epoxy/Zn nanocomposite using Zn nanoparticles and epoxy resin as additives and investigation of its corrosion protection behavior on iron, *Progress in Organic Coatings*, 2011.
21. Barati. M, Babatabar, M, Hydrogen production via supercritical water gasification of bagasse using unpromoted and zinc promoted Ru/γ-Al<sub>2</sub>O<sub>3</sub> nanocatalysts, *FUEL PROCESS TECHNOL*, 2014 7 01, ISI, SCOPUS.
22. Mehrani. R, Barati. M, Tavasoli. A, Karimi. A, Hydrogen production via supercritical water gasification of bagasse using Ni-Cu/γ-Al<sub>2</sub>O<sub>3</sub> nano-catalysts, *ENVIRON TECHNOL*, 2015 5 01, ISI, SCOPUS, PubMed.

23. مسعود همدانيان ,مريم عقيلي ناطق,محمد براتي ,Supercritical microalgae conversion to biofuel and value-added components (oxygenates, hydrocarbons, and aromatics): A catalyst characterization study,Environmental Progress & Sustainable Energy,Vol. 43,pp. 1,2023 12 11,SCOPUS ,ISC ,JCR.
24. Farid Barati , Ahmad Ali Papahn , Mahsa Afrough, Barati. M,Effects of Tyrode's solution osmolarities and milk on bull sperm storage above zero temperatures,Iran J Reprod Med,2012 2 01,ISI ,SCOPUS ,ISC ,SID ,IranMedex ,PubMed.