

## RUKİYE BABACAN TOSUN

+90 541 714 53 09

rbabacantosun@gmail.com

## WORK EXPERIENCE

Bilkent University, Chemistry Department

Researcher,  
Feb. 2024- Present  
Ankara, Turkey

Turboard (E-Kalte Yazılım)

Data Analyst/Researcher  
Sep. 2022- Jan. 2024  
Ankara, Turkey

## EDUCATION

### Ph.D. - Nanotechnology and Nanomedicine

Hacettepe University

Thesis: *Synthesis and energy based applications of monodisperse-porous manganese oxide based microspheres*

Sep. 2017-July 2023  
Ankara, Turkey

Advisor: Prof. Dr. S. Ali Tuncel

### M.Sc. - Chemistry

Lomonosov Moscow State University

Thesis: *Oxidative desulfurization of oil fractions with hydrogen peroxide*

Sep. 2012-June 2014  
Moscow, Russia

Advisor: Prof. Dr. A. V. Anisimov

### B.Sc. - Chemical Engineering

Ankara University

Sep. 2006-June 2011  
Ankara, Turkey

## RESEARCH INTERESTS

Polymer synthesis, micro and nano particle synthesis, inorganic materials, heterogenous catalysts, material characterization

## PUBLICATIONS

**Tosun, R. B.**, Hamaloğlu, K. Ö., Tuncel, A. (2022). Bimetallic Pd-Au nanoparticles supported monodisperse porous silica microspheres as an efficient heterogenous catalyst for fast oxidation of benzyl alcohol. *ChemistrySelect*, 7(28), e202201646.

Özcan, S., Yıldırım, D., Çıldiroğlu, H. Ö., Polat, M., Hamaloğlu, K. Ö., **Tosun, R. B.**, Kip, Ç., Tuncel, A. (2022). Monodisperse-porous Mn<sub>5</sub>O<sub>8</sub> microspheres as an efficient catalyst for fast degradation of organic pollutants via peroxyomonosulfate activation. *New Journal of Chemistry*.

**Tosun, R. B.**, Hamaloğlu, K. Ö., Kavaklı, C., Kavaklı, P. A., & Tuncel, A. (2021). Reusable water oxidation catalyst with dual active center for enhanced water oxidation: Iridium oxide nanoparticles immobilized on monodisperse-porous Mn<sub>5</sub>O<sub>8</sub> microspheres. *International Journal of Hydrogen Energy*, 46(29), 15482-15496.

Hamaloğlu, K. Ö., **Tosun, R. B.**, Kayı, H., Kavaklı, P. A., Kavaklı, C., & Tuncel, A. (2021). Monodisperse-porous cerium oxide microspheres carrying iridium oxide nanoparticles as a heterogeneous catalyst for water oxidation. *Applied Surface Science*, 547, 149219.

Hamaloğlu, K. Ö., **Tosun, R. B.**, Ulu, S., Kayı, H., Kavaklı, C., Kavaklı, P. A., Kip, Ç., Tuncel, A. (2021). Monodisperse-porous cerium oxide microspheres as a new support with appreciable catalytic activity for a composite catalyst in benzyl alcohol oxidation. *New Journal of Chemistry*.

**Tosun Babacan, R.**, Hamaloğlu, K.Ö., Kavaklı, P. A., Kavaklı, C., Tuncel, A. (2020). A synergistic catalyst based on a multivalence monodisperse-porous microspheres with oxygen vacancies for benzyl alcohol oxidation. *Molecular Catalysis*.

**Tosun, R.B.**, Kip, Ç., Tuncel, A. (2019). Polymeric template assisted synthesis of monodisperse-porous manganese oxide microspheres: A new nanzyme with oxidase-like activity allowing biomolecule determination via bimodal sensing. *New Journal of Chemistry*.

Kip, Ç., **Tosun, R. B.**, Alpaslan, S., Koçer, İ., Çelik, E., & Tuncel, A. (2019). Ni (II)-decorated porous titania microspheres as a stationary phase for column chromatography applications: Highly selective purification of hemoglobin from human blood. *Talanta*, 200, 100-106.

## CONFERENCES AND PRESENTATIONS

---

G. Bayazit Sekitmen, **R. Babacan Tosun**, S. A. Tuncel, S. Ide, R&D Studies on metal oxide-based nanoparticles: Structure dependent physical and chemical properties, IUCr 2020 - XXV General Assembly and Congress of the International Union of Crystallography.

K. O. Hamaloglu, **R. Babacan Tosun**, A. Tuncel, Iridium Oxide Immobilized On Cerium Oxide For Enhanced Water Oxidation, 6th International Conference on New Trends in Chemistry (ICNTC E-Conference), 16-18 October 2020.

B. Gokcal, E. Ogut, **R. Babacan Tosun**, C. Kip, O. Hamaloğlu, A. Tuncel, Monodisperse-porous metal oxide microspheres with peroxidase/oxidase mimetic activity as a new tool for biomolecule determination, 27th Balkan Clinical Laboratory Federation Meeting (BCFL 2019) and 30th National Congress of the Turkish Biochemical Society (TBS 2019), 27-31 October 2019, Belek, Antalya, Turkey.

**R. Babacan Tosun**, C. Kip, B. Gokcal, C. Demir, A. Tuncel, Effects of vitamins on the peroxidase-like activity of monodisperse-porous MnO<sub>2</sub> microspheres 5 μm in size, 32nd International Symposium on Chromatography, ISC2018, 23-27 September 2018, Cannes, France.

B. Gokcal, C. Kip, **R. Babacan Tosun**, C. Demir, A. Tuncel, Effects of Process Conditions on Peroxidase-Like Activity of Monodisperse-Porous Metal Oxide Microspheres Modified with Cupric Oxide, 32nd International Symposium on Chromatography, ISC2018, 23-27 September 2018, Cannes, France.

Akopyan A.V., Polikarpova P.D., **Babacan R.**, Rakhmanov E.V., Anisimov A.V. Selective oxidative desulfurization of gasoline from catalytic cracking in the presence of olefins // XI. International Young Petrochemists Conference. September 16-19, 2014 Moscow Region, Zvenigorod, Russia. Thesis abstracts p.37.

## SKILLS

---

**Languages:** Turkish (mother tongue), English (Advanced), Russian (Intermediate)

**Programmig:** Microsoft Office, MATLAB, Aspen HYSYS, CHEMCAD

**Instruments:** UV-Vis spectrophotometer, BioDrop UV-Vis spectrophotometer, N<sub>2</sub> adsorption/desorption equipment (BET surface area and pore size analyzer), Qubit fluorometer, fluorescence spectrophotometer, Zeta sizer, High-Performance Liquid Chromatography (HPLC), Gas chromatography - Mass spectrometer (GC-MS)