



# Asal Peydaei

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## Research Interests:

My research aims to address environmental challenges posed by pollution through multidisciplinary approaches and innovative solutions. I have specific focus on understanding the fate, behavior, impact, and degradation processes (biotic and abiotic) of plastic pollution in different environments. Currently, my expertise lies predominantly in environmental biotechnology, molecular biology, plastic chemistry, and analytical methods.

**Current project:** Mineral-influenced plastic degradation in aquatic environments to understand of the complex interplay between minerals/metals and plastic pollution supported by Carlsberg Foundation.

## Education and Professional careers

- Dec 2023- Present | Postdoc at Department of Geosciences and Natural Resource Management (IGN), University of Copenhagen (KU), Denmark
- May 2021- Nov 2023 | Postdoc at MarinePlastic center, Department of Environmental Archaeology and Materials Science, Nationalmuseet, Copenhagen, Denmark
- Apr 2018 – Jan 2021 | PhD Visiting Scholar at Department of Chemistry and Bioscience, Aalborg University, Denmark
- May 2020 - Sep 2020 | Research Assistant at Department of Chemistry and Bioscience, Aalborg University, Denmark
- Sep 2016 - Mar 2018 | PhD Fellow and Teaching Assistant at Department of biotechnology, Buali-Sina University, Hamedan, Iran
- Sept 2013 –2015 |M.Sc. in Agricultural Science, Genetics and plant breeding, Azad University, Ardabil, Iran
- Sept 2009 - 2013 |B.Sc. in Agricultural Science, University of Mohaghegh Ardabili, Iran.

## Awards and Achievements

### French Institute Nordic Award, Copenhagen, Denmark, 2022

Acknowledged for contributions to environmental research, demonstrating a commitment to addressing critical issues related to ocean ecosystems for groundbreaking studies on the degradation of single use plastic pollution in oceans.

### Khwarizmi Youth Award, Tehran, Iran, 2021

In recognition of outstanding contributions to scientific advancement for research endeavors related to environmental conservation.

### World Intellectual Property Organization Medal, 2021

Recognized for innovative approaches in plastic pollution management, polyolefin degradation via *Galleria mellonella* larvae.

### International Festival on Top Scientific Research Khayyam Award, Ghom, Iran, 2020

Recognized for exemplary scientific research and significant contributions to advancing knowledge in the chosen field.

### Research Award Grants, Ministry of Science, Research, and Technology of Iran, 2017

Secured a total of €29,418 for the execution of research projects.

## Skills

- Molecular Biology (Protein, DNA and 16s rRNA seq)
- Proficient in bioinformatics tools (QIIME, CLC, R, MaxQuant, Perseus).

- Programming (R software).
- Microscopy Techniques (SEM and AFM).
- Analytical Techniques (RAMAN, ATR and  $\mu$ FTIR , GC-MS)
- Chemometrics.
- Data Analysis and statistics
- Project Management and Team Collaboration
- Effective Communication and Presentation

### Referee information

- Prof. Yvonne Shashoua, Environmental Archaeology and Materials Science, National Museum of Denmark, Kongens Lyngby, Denmark yvonne.shashoua@natmus.dk
- Prof. Jeppe Lund Nielsen, Department of Chemistry and Bioscience, Aalborg University, Aalborg East, Denmark, jln@bio.aau.dk
- Peter Rasmussen, Head of Department, Environmental Archaeology and Materials Science, Nationalmuseet, peter.rasmussen@natmus.dk

### Publication list

Y.Shashoua, **A. Peydaei\***, A. B. Kanstrup, M. N. Mortensen, D. J. Gregory.,2023. Real Time Aging Studies on Single-Use Plastics in Coastal and Marine Environments. Environmental Pollution (In progress).

Shashoua, Y. and **Peydaei, A.** (2022). Engangsplast Bliver Til Mikroplast Langt Hurtigere, End Vi Troede (Single Use Plastics Form Microplastics Measurably Faster Than We Thought), Videnskab.dk 6th January 2023, <https://videnskab.dk/forskerzonen/naturvidenskab/engangsplast-bliver-til-mikroplast-langt-hurtigere-end-vi-troede> (in Danish)

Y.Shashoua, **A. Peydaei\***, A. B. Kanstrup, M. N. Mortensen, D. J. Gregory.,2022. Real-Time Degradation Studies on Polyurethane Household Sponges In Danish Weather And Marine Environments. Marine Pollution Bulletin Volume 184, 114128, <https://doi.org/10.1016/j.marpolbul.2022.114128>

Y.Shashoua, **A. Peydaei\***, A. B. Kanstrup, M. N. Mortensen, D. J. Gregory.,2022, Fate Of Single Use Plastics (SUP) Exposed To Weather, Placed In Seawater And Buried In Sediment. The Society of Environmental Toxicology and Chemistry (SETAC) Conference, Copenhagen, Denmark. <https://www.setac.org/store/ViewProduct.aspx?ID=21443256>

**Peydaei, A.**, de Jonge, N.¥, Petersen, N.K., Baudu, E., Fernando, E., Fojan, P., Wimmer,R., Nielsen, J.L. 2023 Microbial Colonization and Anaerobic Degradation of Polypropylene in Digester Sludge. (¥ = equal contribution). Environmental Science and Technology (under revision).

**Peydaei, A.**, de Jonge, N., Gurevich, L., Nielsen, J.L., Bagheri, H.,2021, Mastication of polyolefins alter the microbial composition in *Galleria mellonella*. Environmental Pollution 280 (Suppl):116877. <https://doi.org/10.1016/j.envpol.2021.116877>

**Peydaei, A.**, Bagheri, H., Gurevich, L., de Jonge, N., Nielsen, J.L., 2020. Impact of polyethylene on salivary glands proteome in *Galleria melonella*. Comp. Biochem. Physiol. Part D Genomics Proteomics 34, 100678. <https://doi.org/10.1016/j.cbd.2020.100678>

Nielsen, J.L., Petersen, N.K., **Peydaei, A.**, Baudu, E., Gurevich, L., Wimmer,R., 2019.Potential for biodegradation of microplastics in thermophilic anaerobic digesters. Anaerobic Digestion Conference AD16At: Delft, The Netherlands.

[https://vbn.aau.dk/ws/portalfiles/portal/348541605/Potential\\_for\\_biodegradation\\_of\\_microplastics\\_in\\_thermophilic\\_anaerobic\\_digesters\\_2019\\_28321\\_ad16abstractjln\\_microplastic.pdf](https://vbn.aau.dk/ws/portalfiles/portal/348541605/Potential_for_biodegradation_of_microplastics_in_thermophilic_anaerobic_digesters_2019_28321_ad16abstractjln_microplastic.pdf)