

Aynura Rzayeva

Researcher in Food Science, Biomaterials and Sustainable Technologies

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Professional Summary

PhD-qualified researcher and educator in Food Biochemistry and Physicochemistry with expertise in biomaterials, sustainable packaging systems, food safety, and applied food science. Experienced in academic research, student mentoring, curriculum development, and interdisciplinary collaborations bridging food science, materials science, and sustainability.

Experience

University of Montpellier, Doctoral researcher,

Oct 2021 – Dec 2024

- Designed antimicrobial active packaging systems improving shelf-life and food quality performance.
- Developed encapsulation methods for volatile compounds in PHBV matrices with controlled release.
- Evaluated migration behaviour, barrier properties, and structure-performance relationships.
- Prepared packaging prototypes by thermoforming/extrusion/coating.
- Evaluated the impact of active components on the material's biodegradability.
- Performed data interpretation and analysis.
- Mentored master's students during laboratory research activities, supporting experimental design, data interpretation and thesis work.
- Conducted seminars for Khazar University students.
- Contributed to the development of Khazar University's Chemistry/Biochemistry curriculum.
- Published scientific articles and presented packaging innovation results internationally.

Azerbaijan Food Safety Institute, Head of Food Safety Section,

Jul 2018 – May 2021

- Built the national food safety risk assessment framework aligned with Codex/EU EFSA standards.
- Developed analytical protocols for contaminants and toxins in food contact materials.
- Led cross-functional scientific team implementing risk-based inspection strategies.
- Supported evidence-based food safety decision-making and policy creation.
- Coordinated with FAO, EFSA and WHO on food risk mitigation projects.
- Prepared scientific reports, testing guidelines and regulatory documentation.
- Led internal safety training and promoted compliance culture within food testing labs.
- Delivered training and onboarding support to staff and interns joining the department, covering work procedures, laboratory practices and internal requirements.
- Acted as a media spokesperson for AFSI and AFSA, giving expert interviews and representing the agency on national TV.
- Represented Azerbaijan and AFSA at national and international conferences, technical committees, and expert panels.

Azerbaijan National Academy of Sciences, Research engineer,

Nov 2014 – Jun 2018

- Conducted laboratory studies on fuel additives aimed at improving diesel combustion performance.
- Prepared and tested additive solutions for exhaust gas and smoke evaluation.
- Evaluated smoke reduction and exhaust gas behaviour under controlled test conditions.
- Analysed and interpreted experimental data to assess additive efficiency.
- Documented experimental procedures and results and contributed to scientific publications.

- Developed national educational standards for Chemistry in secondary education to enhance scientific literacy and learning outcomes.
- Co-authored a 7th-grade Chemistry textbook, approved by the Ministry of Education, aligned with updated curriculum standards and student-centered teaching practices.
- Delivered tutoring and professional development programs for in-service teachers, guiding them in implementing new educational standards and methodologies.
- Trained educators on the use of active learning methods, including inquiry-based learning, group collaboration, and real-world problem-solving to enhance classroom engagement.

Education

PhD	University of Montpellier , Food Biochemistry and Physicochemistry	France
	• Thesis title: Antimicrobial packaging with tuned-release properties for increasing the shelf-life and safety of packed fresh foods.	Oct 2021 – Dec 2024
MSc	Baku State University , Environmental Chemistry	Azerbaijan
	• Thesis title: Development of technologies to obtain new environmentally friendly smoke-reducing organic metal complexes based on iron and manganese.	Sep 2008 – Jul 2010
BSc	Baku State University , Chemistry	Azerbaijan
		Sep 2004 – Jul 2008

Professional Skills

- Academic research supervision, project coordination, experimental design, and student mentoring
- Scientific leadership and cross-functional collaboration
- Material design (structure – property – performance)
- Material characterization (SEM, TEM, FTIR, TGA, DSC, UV-Vis)
- Analytical techniques (GC, HPLC)
- Encapsulation and controlled release systems
- Shelf-life studies and migration testing
- Biodegradation studies and life-cycle assessment (LCA)
- Scientific communication
- MS Office, OriginPro, SimaPro, ChemDraw, ImageJ
- Digital collaboration tools (Teams, Outlook)

Teaching and Research interests

- Food Biochemistry and Physicochemistry
- Materials Science (bio-based materials, functional materials)
- Encapsulation and Controlled Release Technologies
- Circular Bioeconomy and Food Waste Valorization

Languages

Excellent – English, Russian, Turkish; **Native** – Azerbaijani; **Intermediate** – French

Courses

Detailed information about the courses and certificates here: <https://www.linkedin.com/in/aynura-rzayeva-b5916049/>

Publications & Conferences

An overview of my research here: <https://scholar.google.com/citations?user=TVvaPAkAAAAJ&hl=en&oi=ao>