ELIZA MATUSZEWSKA-MACH, PhD

Department of Inorganic and Analytical Chemistry
Faculty of Pharmacy
Poznan University of Medical Sciences
Rokietnicka 3 Street, 60-806 Poznan, Poland

PERSONAL DATA

Date and place of birth: 17 February 1992, Slupca, Poland
Nationality: Polish
E-mail: eliza.matuszewska@ump.edu.pl
Phone: +48-504-706-925
https://orcid.org/0000-0002-5765-2603

EDUCATIONAL QUALIFICATIONS

November 2023	Specialist in the field: pharmaceutical analytics
July 2022	PhD in Pharmacy, Poznan University of Medical Sciences
March 2017	Master of Science, Pharmacy, Poznan University of Medical Sciences

RESEARCH SPECIALIZATION / SCIENTIFIC INTERESTS

- Analytical chemistry
- Mass spectrometry and high-performance liquid chromatography – an operator of a nanoLC-MALDI-TOF/TOF MS/MS and LC-ESI-QqQ-MS/MS systems
- Proteomics – proteomic characterization of different biological matrices (serum, urine, cerebrospinal fluid, tissue lysate, honeybee products – honeybee venom, royal jelly, honeybee pollen, propolis, honeybee larvae)
- Sample preparation techniques

EMPLOYMENT AND RESEARCH HISTORY

Oct. 2022 - present	ASSISTANT PROFESSOR at the Department of Inorganic and Analytical Chemistry, Faculty of Pharmacy, Poznan University of Medical Sciences, Poznan, Poland (PUMS); Head of the Department: Prof. Jan Matysiak, PhD
Jan. 2025 – Apr. 2025	POSTDOCTORAL FELLOW at the Systematic Proteomics and Bioanalytics group, Institute for Experimental Medicine, Christian-Albrechts-Universität zu Kiel, Germany; Supervisor: Prof. Andreas Tholey
May 2024	ERASMUS+ FELLOW at the Department of Pharmacy, Section for Pharmaceutical Chemistry, Pharmaceutical Analytical Chemistry research group at the University of Oslo, Norway; Supervisor: Prof. Stig Pedersen-Bjergaard
Sept. 2022 – Feb. 2023	POSTDOCTORAL FELLOW at the Molecular Virology Research Unit, Institute of Experimental Biology, Faculty of Biology, Adam Mickiewicz University, Poznań, Poland; Supervisor: Alicja Warowicka, PhD
July 2017 – Sept. 2022	RESEARCH ASSISTANT at the Department of Inorganic and Analytical Chemistry, PUMS; Head of the Department: Prof. Jan Matysiak, PhD
July 2017 – July 2022	PhD STUDENT at the Department of Inorganic and Analytical Chemistry, PUMS; Title of the PhD Thesis: "Application of mass spectrometry for characterization of selected bee products and for proteomic analyses of the effect of *Hymenoptera* venom on the human organism"; Supervisor: Jan Matysiak, PhD

RESEARCH GRANTS:

Principal Investigator of the projects funded by the National Science Centre, Poland:

2026 - present	"Honeybee larvae (*Apis mellifera*) as an innovative food source – characterization of nutritional composition, bioactive properties, and safety assessment" (2025/57/B/NZ7/00644)
2024 - 2025	"Proteomic analysis of the effect of SARS-CoV-2 infection on neural cells" (2024/08/X/NZ6/000844)

The co-investigator of research grants funded by the National Science Centre, Poland, Marshal Office of the Wielkopolska Region in Poland, and the Ministry of Science and Higher Education, Poland:

2023 - 2024	"Determining intoxicating substances in urban wastewater of selected cities in Greater Poland"; Principal Investigator: Agnieszka Klupczyńska-Gabryszak, PhD
2022 - present	"Genome-wide assessment of chromatin accessibility and sequence variants in non-coding regulatory elements in the pathogenesis of keratoconus"; PI: prof. Marzena Gajęcka, PhD
2021 - present	"Asymmetrical flow field-flow fractionation for gentle isolation of lipid-based nanoparticles biomolecule corona complexes and the study of corona influence on cellular uptake and in vivo delivery"; PI: Paulina Skupin-Mrugalska, PhD
2019 - 2024	"Multi-level molecular assessment based on laser microdissection of corneas to reveal biomarkers and therapeutic targets of keratoconus"; PI: prof. Marzena Gajęcka, PhD
2017 - 2019	"The role of HMGB1 protein in the pathogenesis of secondary ischaemic brain changes after subarachnoid haemorrhage"; PI: Norbert Wąsik, MD
2017 - 2021	"Characterization of the selected honeybee products based on omics techniques"; PI: Jan Matysiak, PhD

RESEARCH PUBLICATIONS:

Total Impact Factor (IF) = 141.148
H-index = 10

THE MOST IMPORTANT PUBLISHED PAPERS:

Matuszewska-Mach E, et al. Ensuring the safe use of bee products: a review of allergic risks and management. Int. J. Mol. Sci. 2025; 26(24):12074

Matuszewska-Mach E, et al. Insights into the nutritional value of honeybee drone larvae (*Apis mellifera*) through proteomic profiling. Sci Rep. 2024; 14:28562.

Rzetecka N, **Matuszewska E,** et al. Bee products as valuable nutritional ingredients: Determination of broad free amino acid profiles in bee pollen, royal jelly, and propolis. J. Food Compost. Anal. 2024; 126:105860

Matuszewska E, et al. Application of modern analytical techniques in the analysis of complex matrices of natural origin on the example of honeybee venom. Acta Pol. Pharm. 2023; 80;2, 175-189.

Matuszewska E, et al. Mining the Royal Jelly Proteins: Combinatorial Hexapeptide Ligand Library Significantly Improves the MS-Based Proteomic Identification in Complex Biological Samples. Molecules. 2021; 26(9):2762.

Matuszewska E, et al. Multielemental analysis of bee pollen, propolis, and royal jelly collected in west-central Poland. Molecules. 2021; 26(9): 2415.

Matuszewska E, et al. Proteomic features characterization of *Hymenoptera* venom allergy. Allergy, Asthma Clin Immunol. 2019; 15:77(1–8).

THE MOST IMPORTANT SCIENTIFIC CONFERENCES:

Matuszewska-Mach E, Matysiak J, Rzetecka N, Konieczny I, Warowicka A. Inhibitory potential of honeybee venom and its selected constituents against SARS-CoV-2 infection. Metabolomics Circle 2025: 11th International Conference of Polish Metabolomic Society. Poznan, Poland, 5-7 November 2025

Matuszewska E, Warowicka A, Rzetecka N, Matysiak J. Exploring the antiviral potential of *Apis mellifera* venom and its key compounds: an *in vitro* proteomic analysis. 10th European Congress of Apidology "EurBee 10". Tallin, Estonia, 16-19 September 2024.

Matuszewska E, Warowicka A, Matysiak J. The effect of honeybee venom and its selected components on the inhibition of SARS-CoV-2 infection. PolGerSym10. 10th Polish - German Symposium on Pharmaceutical Sciences "Beyond Corona - shaping the future". Düsseldorf, 22-23 September 2023.

Matuszewska E, Matysiak J. Mass spectrometry-based characterisation of selected bee products. 9th European Congress of Apidology "EurBee 9". Belgrade, Serbia, 20-22 September 2022.

Matuszewska E, Matysiak J. Proteomic analysis of bee pollen extracts. 22nd International Medical Esperanto Congress. Hódmezővásárhely – Szeged, Hungary, 13-17 July 2022.

Matuszewska E, Matysiak J. NanoLC-MALDI-TOF/TOF MS approach for the proteomic analysis of honeybee drone larvae. XIV Annual Congress European Proteomic Association "Proteomic Forum". Leipzig, Germany, 3-7 April 2022.