Panagopoulou Eleni

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Education

B.Sc. in Chemistry (2013-2017), National and Kapodistrian University of Athens, Grade: 6.98/10

M.Sc. in Analytical Chemistry (2017-2019), National and Kapodistrian University of Athens, Grade: 9.43/10

Ph.D. in Analytical Chemistry (2019-today), National and Kapodistrian University of Athens

Research Topics:

Undergraduate Thesis: "Determination of phenolic compounds in honey samples using LC-QTOF-MS" Laboratory of Analytical Chemistry, Chemistry department, University of Athens, Greece (2017)

Master Thesis: "Method development for the determination of priority pollutants and emerging contaminants in river water samples by GC-APCI-QTOFMS", Laboratory of Analytical Chemistry, Chemistry department, University of Athens, Greece (2018-2019)

Ph.D. Thesis: "Study of the influence of pH in the toxicity of xenobiotics in aquatic organisms through toxicokinetics and metabolomics approaches utilizing high resolution mass spectrometric techniques", Laboratory of Analytical Chemistry, Chemistry department, University of Athens, Greece (2019-today)

Research Interests

General research interests:

- Environmental chemistry/monitoring
- High Resolution Mass Spectrometry (HRMS)
- Trapped Ion Mobility Spectrometry (TIMS)
- Ultra-high Performance Liquid Chromatography (UHPLC)
- Method Development, Determination of priority pollutants and emerging contaminants
- Determination of Priority Pollutants and Emerging Contaminants by GC-EI-MS/MS, GC-APCI-QTOFMS in environmental samples including (biota, sediments, surface water, underground water)
- Determination of organic contaminants in biota samples and environmental samples
- Reversed Phase Liquid Chromatography (RPLC) and Hydrophilic interaction chromatography (HILIC)
- Investigation of toxicity, uptake and bioaccumulation of xenobiotics in aquatic organisms
- Biotransformation (Phase I & II) of emerging contaminants in zebrafish embryos
- Target, suspect and non-target (HRMS) screening of emerging pollutants.
- Metabolomics approaches
- Ecotoxicological risk assessment
- Sample preparation techniques (QuEChERS, Solid Phase Extraction, Liquid-Liquid Extraction)

Projects:

2017 –2018**: EMBLAS II, EU/UNDP Project**: Improving environmental monitoring in the Black Sea. Analysis of water framework priority substances and screening of black sea specific pollutants in water biota and sediment samples obtained during the National Pilot Monitoring Studies and Joint Open Sea Surveys and risk assessment of identified pollutants.

2018–2019: **Asopos River Project**: Monitoring of Asopos river basin waters - Assessment of pollution/ contamination and qualitative and quantitative investigation of contamination levels and possible sources of pollution. (funding: The Region of Attica)

2019: **Metabolomics analysis**:TSC1 and TSC2 Fly (drosophila heads) samples

2019 –2022: **pHION Project**: Analytics and Modelling within the UBA project "Acidity - not always fun: pH effect on toxicity and bioaccumulation of ionic substances" ("A&M in PHION").

2020-2021: **Imazalil Project**: "Assessment of Imazalil degradation by the fungi Mycosphaerella and investigation of its potential biotransformation products", Collaboration with Department of Biochemistry and Biotechnology, University of Thessaly

2021-2023: Collision Cross Section (CCS) value as an additional identification point for chemical characterization: **Development of a LC-ESI-TIMS-QTOFMS database** for environmental (bio)monitoring studies (In collaboration with Bruker, Department of Application Development - Applied Markets)

2022: **Acesulfame Project:** "Assessment of Acesulfame degradation and investigation of its potential biotransformation products", Collaboration with Department of Chemical Engineering, University of Patras and Department of Chemical Engineering, University of Western Macedonia

2022: **Baltic Marine Environment Protection Commission** (**HELCOM**): A pre-emptive study of the inputs of hazardous substances to the Baltic Sea (HELCOM Pre-EMPT) (funding: NEFCO (Nordic Environment Finance Corporation) under the Baltic Sea Action Plan Fund, https://portal.helcom.fi/default.aspx)

2022-2023: **LUBW project**: Analysis of metals and organic pollutants in biota samples (livers and bird eggs) (funding: LUBW Landesanstalt für Umwelt, Baden-Württemberg, https://www.lubw.baden-wuerttemberg.de/startseite)

2022-2023: **HUJI project**: "Determination of organic pollutants in environmental samples from Israel by LC-QTOFMS" in collaboration with Ruppin Academic Center

2023: **Losartan Project:** "Assessment of Losartan degradation and investigation of its potential biotransformation products", Collaboration with Department of Chemical Engineering, University of Patras and Department of Chemical Engineering, University of Western Macedonia

Publications in journals

- Kosmas Lalas, Olga S.Arvaniti, **Eleni I.Panagopoulou**, Nikolaos S. Thomaidis, D.Mantzavinos, Z.Frontistis, "Acesulfame degradation by thermally activated persulfate: Kinetics, transformation products and estimated toxicity" Chemosphere, vol. 352, March 2024, 141260 (https://doi.org/10.1016/j.chemosphere.2024.141260)
- O.S.Arvaniti, G.Cheiletzari, **E.I.Panagopoulou**, N.S. Thomaidis, D.Mantzavinos, Z.Frontistis, "Sonochemical degradation of the artificial sweetener acesulfame in aqueous medium and identification of transformation products", Journal of Water Process Engineering, vol 53, July 2023, 103890, (doi: https://doi.org/10.1016/j.jwpe.2023.103890)
- H-R.Köhler, T.Gräff, M.Schweizer, J.Blumhardt, L.Ehmann, J.Hebel, C.Heid, L.Kundy, J.Kuttler, M.Malusova, F-M.Moroff, A-F. Schlösinger, P.Schulze-Berge, **E.I. Panagopoulou**, D.E. Damalas, N.S. Thomaidis, R.Triebskorn, D.Maletzki, U. Kühnen, P. C. von der Ohe, " LogD-based modelling and ΔlogD as a proxy for pH-dependent action of ionizable chemicals reveal the relevance of both neutral and ionic species for fish embryotoxicity and possess great potential for practical application in the regulation of

chemicals", Water Research, vol 235,May 2023, 119864, (doi: https://doi.org/10.1016/j.watres.2023.119864)

- G.A. Koulis, A.S. Tsagkaris, P.A. Katsianou, P.L.P. Gialouris, I. Martakos, F. Stergiou, A. Fiore, , **E. Panagopoulou**, S. Karabournioti, C. Baessmann, N. van der Borg, M.E. Dasenaki, C. Proestos, N.S. Thomaidis, "Thorough Investigation of the Phenolic Profile of Reputable Greek Honey Varieties: Varietal Discrimination and Floral Markers Identification Using Liquid Chromatography–High-Resolution Mass Spectrometry", Molecules, vol. 27, 2022, pp. 1–17 (https://doi.org/10.3390/molecules27144444)
- Mona Schweizer, Peter C.von der Ohe, Thomas Gräff, Ute Kühnen, Janine Hebel, Christoph Heid, Lone Kundy Julia Kuttler, Friederike-Marie Moroff, Anne-Frida Schlösinger, Pia Schulze-Berge, RitaTriebskorn**, Elena Panagopoulou**, Dimitrios E.Damalas, Nikolaos S.Thomaidis, Heinz-R.Köhler, "Heart rate as an early warning parameter and proxy for subsequent mortality in Danio rerio embryos exposed to ionisable substances", Science of The Total Environment 2021, (https://doi.org/10.1016/j.scitotenv.2021.151744)
- Georgios A.Koulis, Aristeidis S. Tsagkaris,Reza Aalizadeh,Marilena E. Dasenak, **Eleni I. Panagopoulou**, Spyros Drivelos, Michał Halagarda, Constantinos A. Georgiou, Charalampos Proestos and Nikolaos S. Thomaidis , "Honey Phenolic Compound Profiling and Authenticity Assessment Using HRMS Targeted and Untargeted Metabolomics" Molecules 2021, 26(9), 2769, (https://doi.org/10.3390/molecules26092769)

Conferences Presentations

- K. Diamanti, G. Gkotsis, **E. Panagopoulou**, M.-C. Nika, N. Alygizakis, K. Vasilatos, A. Konomi, N. Boinis, N. Maragou, P. Oswald, S. Rohner, U. Siebert, F. Reif, M. Dähne, S. Persson, A. Galatius, I. Pawliczka, A. Künitzer, E. Vähä, A. Lastumäki, A. Grajewska, T. Zalewska, E. Usin, M. Laht, J. Mitrulevičiūtė, N. Suhareva, L. Brokmar, C. Engelke, H. Johansson, H. Ruedel, U. Pirntke, D. Frank-Kamenetsky, M. M. Larsen, J. Slobodnik, N. S. Thomaidis, "Unveiling the chemical fingerprints in organisms from different trophic levels using advanced HRMS workflows: The case study of the Baltic Sea", NORMAN Biodiversity workshop, 07-08/12/2023, Frankfurt, Germany (Poster presentation)
- **E.Panagopoulou**, D.E. Damalas, E.Aleiferi, V.Tzepkinli, I.Nordhorn, C.Baessmann, N.S. Thomaidis, "Investigation of the potential biotransformation of different pharmaceuticals in zebrafish (Danio rerio) embryos, utilizing LC-TIMS-HRMS combined with suspect and non-target screening workflows", International Conference on Environmental & Food Monitoring (ISEAC41), 20-24 November 2023, Amsterdam, Netherlands (Poster presentation)
- **E. Panagopoulou**, Damalas.D, Aleiferi.E, V.Tzepkinli, Thomaidis.N, "Investigation of the potential biotransformation of different pharmaceuticals in zebrafish embryos (Danio rerio), utilizing LC-QTOFMS and LC-TIMS-QTOFMS", International Mass Spectrometry School, IMSS 2023, 17-22/09/2023, Gagliari, Sardinia, Italy (Poster presentation)
- Konstantina S. Diamanti, Dimitrios E. Damalas, Georgios O. Gkotsis, **Eleni I. Panagopoulou**, Maria-Christina Nika, Carsten Baessmann, Bob Galvin, Nikolaos S. Thomaidis, "Leveraging LC-TIMS-QTOFMS for addressing analytical challenges in chemical exposome studies", International Mass Spectrometry School, IMSS 2023, 17-22/09/2023, Gagliari, Sardinia, Italy (Oral and Poster presentation)
- Boinis.N, Diamanti.K, **Panagopoulou.E**, Gkotsis.G, Maragou.N, Nika.M-C, Vasilatos K., Hopker.K.A, Schafer.H, Wieczorek.M, Osteraurer.R, "Unveiling the occurrence of organic micropollutants in different species of terrestrial mesocarnivores utilizing HRMS techniques", 18th International Conference on Environmental Science and Technology, (CEST-2023), 30 August-2 September 2023, Athens, Greece (Flash and Poster presentation)
- **E. Panagopoulou**, Damalas.D, Aleiferi.E, V.Tzepkinli, Schweizer.M, Heid.C, Köhler.H.R., P.C. von der Ohe, Triebskorn.R, Thomaidis.N, "Determination of the effect of environmentally relevant pH values on the toxicity, uptake & biotransformation of Propranolol in zebrafish embryos by LC-HRMS", 18th International Conference on Environmental Science and Technology, (CEST-2023), 30 August-2 September 2023, Athens, Greece (Flash and Poster presentation)
- **E. Panagopoulou**, Damalas.D, Aleiferi.E, V.Tzepkinli, Schweizer.M, Kundy.L, Köhler.H.R., P.C. von der Ohe, Triebskorn.R, Thomaidis.N, "Investigating the role of biotransformation in the toxicity of ionizable organic compounds, using LC-HRMS – Zebrafish embryos exposed to Ibuprofen as a case study", Society

of Environmental Toxicology and Chemistry, SETAC Europe 33rd Annual Meeting (SETAC Europe 2023), 30 April - 4 May 2023, Dublin, Ireland (Poster presentation)

- **E. Panagopoulou**, Damalas.D, Aleiferi.E, V.Tzepkinli, Thomaidis.N, "Assessment of the potential biotransformation of pharmaceuticals in zebrafish embryos, utilizing LC-HRMS techniques", Society of Environmental Toxicology and Chemistry, SETAC Europe 33rd Annual Meeting (SETAC Europe 2023), 30 April - 4 May 2023, Dublin, Ireland (Poster presentation)
- D.E. Damalas, **E.I.Panagopoulou**, M. Agalou, D. Beis, N.S. Thomaidis, "Answering environmental toxicology questions through LC-TIMS-HRMS based toxico-metabolomics of zebrafish exposed to xenobiotics - Lipid metabolism under the spotlight", Society of Environmental Toxicology and Chemistry, SETAC Europe 33rd Annual Meeting (SETAC Europe 2023), 30 April - 4 May 2023, Dublin, Ireland (Poster presentation)
- D.E. Damalas, **E.I.Panagopoulou**, M. Agalou, D. Beis, N.S. Thomaidis, " LC-TIMS-HRMS combined with advanced data processing tools - A powerful 4-D workflow for the identification of biotransformation products of zebrafish exposed to xenobiotics", Society of Environmental Toxicology and Chemistry, SETAC Europe 33rd Annual Meeting (SETAC Europe 2023), 30 April - 4 May 2023, Dublin, Ireland (Oral presentation)
- Diamanti K.S., Galvin B., Damalas D.E., Gkotsis G., **Panagopoulou E.**, Nika M.C.,Thomaidis N.S. , Baessmann C. "Development of a LC-ESI-TIMS-QTOFMS database toenhance the performance of wide-scope target screening in environmental (bio)monitoring studies" IMSC 2022, 27/08-02/09/2022, Maastricht, the Netherlands (oral presentation)
- Konstantina S. Diamanti, Dimitrios E. Damalas, Georgios O. Gkotsis, **Eleni I. Panagopoulou**, Maria-Christina Nika, Carsten Baessmann, Bob Galvin, Nikolaos S. Thomaidis, "Enhanced performance of 4D wide-scope target screening in environmental (bio)monitoring studies utilizing LC-ESI-TIMS-QTOF-MS and a comprehensive database", 70th ASMS Conference on Mass Spectrometry and Allied Topics. (ASMS 2022) June 5 - 9, 2022, Minneapolis, MN, USA (Poster presentation)
- Konstantina S. Diamanti, Dimitrios E. Damalas, Georgios Gkotsis, **Eleni I. Panagopoulou**, Maria-Christina Nika, Carsten Baessmann, Bob Galvin, Nikolaos S. Thomaidis, "Collision Cross Section (CCS) value as an additional identification point for chemical characterization: Development of a LC-ESI-TIMS-QTOFMS database for environmental (bio)monitoring studies", Society of Environmental Toxicology and Chemistry, SETAC Europe 32th Annual Meeting (SETAC Europe 2022), 15-19 May 2022,Copenhagen, Denmark (Poster presentation)
- **E.I.Panagopoulou**, Tzepkinli V, Damalas.D, Aalizadeh.R, Schweizer.M, Kundy.L, Köhler.H.R., P.C. von der Ohe, Triebskorn.R, Thomaidis.N, "Investigation of the pH-effect on the toxicity, uptake & biotransformation of the Metoprolol in zebrafish (Danio rerio) embryos, utilizing LC-ESI-QTOFMS", Society of Environmental Toxicology and Chemistry, SETAC Europe 32th Annual Meeting (SETAC Europe 2022), 15-19 May 2022,Copenhagen, Denmark (Poster presentation)
- Damalas.D, E.I.Panagopoulou, Aleiferi.E, Tzepkinli V., Aalizadeh.R, Schweizer.M, Kundy.L, Köhler.H.R., P.C. von der Ohe, Triebskorn.R, Thomaidis.N "Toxicity, uptake, and biotransformation assessment of zebrafish embryos exposed to tetracaine, under different pH values, utilizing embryotoxicity and LC-HRMS", 17th International Conference on Environmental Science and Technology, (CEST-2021), 1-4 September 2021, Athens, Greece (Poster presentation)
- E.I.Panagopoulou, Tzepkinli V., Damalas.D, Aalizadeh.R, Schweizer.M, Kundy.L, Köhler.H.R., P.C. von der Ohe, Triebskorn.R, Thomaidis.N "Assessment of the pH-effect on the toxicity, uptake & biotransformation of Fluoxetine in Zebrafish (Danio rerio) embryos by LC-ESI-QTOFMS", 17th International Conference on Environmental Science and Technology, (CEST-2021), 1-4 September 2021, Athens, Greece (Poster-Flash presentation)
- Tzepkinli V., **E.I.Panagopoulou**, Damalas.D, Aalizadeh.R, Schweizer.M, Kundy.L, Köhler.H.R., P.C. von der Ohe, Triebskorn.R, Thomaidis.N, "Investigation of the influence of environmentally relevant pH values in the toxicity of the b-blocker Metoprolol in zebrafish (Danio Rerio) embryos through toxicokinetic approaches(uptake, bioaccumulation, and biotransformation)", 17th International Conference on Environmental Science and Technology, (CEST-2021),1-4 September 2021, Athens, Greece (Oral presentation)

- D.E. Damalas, **E.I.Panagopoulou**, M. Agalou, D. Beis, Robert Galvin, Carsten Baessmann, N.S. Thomaidis "Holistic platform for xenometabolome coverage of zebrafish embryos exposed to triclosan utilizing timsTOFpro and a biotransformation-oriented data processing workflow", 69th ASMS Conference on Mass Spectrometry and Allied Topics (ASMS 2021), 31/10-4/11/2021, Philadelphia, PA, USA (Poster presentation)
- D.E. Damalas, **E.I. Panagopoulou**, E.Aleiferi, R.Aalizadeh, M.Schweizer, A.Schlösinger, H.R. Köhler, P.C. von der Ohe, R.Triebskorn, N.S. Thomaidis," Zebrafish toxicity, uptake and biotransformation assessment of tetracaine exposure under different pH values, utilizing embryotoxicity and LC-HRMS" Open Science for Enhanced Global Environmental Protection, SETAC Europe 31st Annual Meeting (SETAC Europe 2021 Virtual conference), 3-6 May 2021(Poster presentation)
- **Panagopoulou.E**, Damalas.D, Aleiferi.E, Aalizadeh.R, Schweizer.M, Kundy.L, Köhler.H.R., P.C. von der Ohe, Triebskorn.R, Thomaidis.N, " Investigation of the influence of pH on the toxicity, uptake and biotransformation of Ibuprofen in zebrafish (Danio rerio) embryos", Open Science for Enhanced Global Environmental Protection, SETAC Europe 30th Annual Meeting (SETAC SciCon 2020), 3-7 May 2020 (Poster presentation)
- Damalas.D, **Panagopoulou.E**, Agalou.M, Beis.D, Thomaidis.N, "Holistic approach for comprehensive xeno-metabolome coverage of Zebrafish embryos exposed to Benzotriazoles, combining orthogonal chromatographic modes, trapped ion mobility and HRMS", Open Science for Enhanced Global Environmental Protection, SETAC Europe 30th Annual Meeting (SETAC SciCon 2020, 3-7 May 2020 (Oral presentation)
- Aleiferi.E**, Panagopoulou.E**, Damalas.D, Aalizadeh.R, Schweizer.M, Kuttler.J, Köhler.H.R., P.C. von der Ohe, Triebskorn.R, Thomaidis.N, "Assessment of the pH effect on toxicity & biotransformation of the anti-inflammatory drug Diclofenac using the zebrafish (Danio rerio) toxicity test", Open Science for Enhanced Global Environmental Protection, SETAC Europe 30th Annual Meeting (SETAC SciCon 2020, 3-7 May 2020 (Poster presentation)
- Koulis.G, Katsianou.P, **Panagopoulou.E**, Aalizadeh.R, Proestos.C, Thomaidis.N, "Metabolomic approach for Greek honey origin discrimination making use of Ultra High Performance Liquid Chromatography coupled to High Resolution Mass Spectrometry", 11th International Conference on "Instrumental Methods of Analysis" (IMA-2019), 22-25 September, 2019, Ioannina, Greece (Poster presentation)
- **Panagopoulou.E**, Nika.M.-C, Damalas.D, Koulis.G, Thomaidis.N. «Development of a novel GC-APCI-QTOFMS methodology for the determination of more than 300 organic compounds in Asopos river water samples » 16th International Conference on Environmental Science and Technology, CEST-2019, 4-7 September 2019,Rhodes,Greece (oral presentation).
- Damalas.D, **Panagopoulou.E**, Agalou.M, Beis.D, Lamoree.M, Leonards.P.E.G, Thomaidis.N «Combining acute toxicity, toxicokinetics and metabolomics approaches for comprehensive toxicity assessment of xenobiotics in aquatic organisms-Zebrafish embryosexposed to triclosan as a case study» 15 th Annual Conference of the Metabolomics Society, Metabolomics-2019, 23-27 June 2019, The Hague, The Netherlands (poster presentation).
- **Panagopoulou.E**, Nika.M.-C, Koulis.G, Damalas.D, Thomaidis.N. «Development of a novel methodology for the determination of priority pollutants and emerging contaminants in Asopos river water samples by GC-EI-MS/MS and GC-APCI-QTOFMS» 17th International Conference on Chemistry and the Environment, ICCE-2019, 16 – 20 June 2019,Thessaloniki, Greece (poster presentation).
- Katsianou.P, Koulis.G, **Panagopoulou.E**, Stergiou.F, Fiore.A, Karabournioti.S, Proestos.C, Thomaidis.N «Honey Authenticity: Evaluation of phenolic compounds as potential authenticity markers using target LC-HRMS screening» 11th International Conference AACD-2018, 25 – 29 September 2018, Chania, Crete, Greece(poster presentation)

Awards and Honors

- 2018-2019: **Scholarship** from the Master's Degree Program "Analytical Chemistry" (Laboratory of Analytical chemistry, Department of Chemistry, University of Athens) for the second year of M.Sc. studies (2019-2020).
- 2019: **Best Poster Award:** «Development of a novel methodology for the determination of priority pollutants and emerging contaminants in Asopos river water samples by GC-EI-MS/MS and GC-APCI-

QTOFMS» 17th International Conference on Chemistry and the Environment, (ICCE-2019), 16 – 20 June 2019,Thessaloniki, Greece .

- 2020-2021: **Scholarship for Ph.D. studies**, A.G. Leventis Foundation,
- 2020-2021:**Teaching grand for co-supervision in laboratory courses of undergraduate students/**National and Kapodistrian University of Athens, academic year: 2020-2021
- 2021-2022: **Scholarship for Ph.D. studies**, A.G. Leventis Foundation,
- 2021-2022:**Teaching grand for co-supervision in laboratory courses of undergraduate students/**National and Kapodistrian University of Athens, academic year: 2021-2022
- 10/2021-present: **Scholarship /**Hellenic Foundation for Research and Innovation (HFRI) and the General Secretariat for Research and Technology (GSRT), under the HFRI Ph.D. Fellowship grant (GA. no. 6819).
- 10/2022:**Travel grand/** Society of Environmental Toxicology and Chemistry (SETAC) for participation in international conference
- 06/2023: **Travel grand**/ Nico Nibbering Travel Awards issued by the International Mass Spectrometry Foundation and the Organizing Committee of the International Mass Spectrometry School (IMSS 2023) for participation in the 6th IMSS in Cagliari, Sardinia, Italy
- 09/2023: **Poster Award**: "Unveiling the occurrence of organic micropollutants in different species of terrestrial mesocarnivores utilizing HRMS techniques", 18th International Conference on Environmental Science and Technology, (CEST 2023), 30 August-2 September 2023, Athens, Greece

Professional Affiliations

Association of Greek Chemists, 2017-Present

Hellenic Mass Spectrometry Society (HMSS), 2017-Present

Contact information

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