

Danguolė Montvydienė

CONTACT INFORMATION

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orcid.org/0000-0002-8664-2746

EDUCATION AND ACADEMIC DEGREE

1995 – 2002 Vilnius University and Institute of Botany (Vilnius, Lithuania), PhD (Doctor of Biomedicine Sciences, 04 B, botany).
1989 – 1994 Vilnius University, Faculty of Natural Sciences, Department of Genetics, M.Sc. in Biology-Genetics.

PROFESSIONAL EXPERIENCE

2021 – until now Senior Researcher of the Laboratory of Ecotoxicology, Institute of Ecology of Nature Research Center, Lithuania
2019 – 2021 Senior Researcher of the Sector of Ecological Physiology and Toxicology at the Laboratory of Fish Ecology, Institute of Ecology of Nature Research Center, Lithuania
2016 – 2019 Researcher of the Sector of Ecological Physiology and Toxicology at the Laboratory of Fish Ecology, Institute of Ecology of Nature Research Center, Lithuania
2014 – 2016 Senior Researcher of the Laboratory of Algology and microbial ecology, Institute of Botany of Nature Research Center, Lithuania
2010 – 2014 Senior Researcher of the Laboratory of Radioecology, Institute of Botany of Nature Research Center, Lithuania
2008 – 2010 Senior Researcher of the Laboratory of Radioecology, Institute of Botany, Lithuania
2004 – 2008 Researcher of the Laboratory of Radioecology, Institute of Botany, Lithuania
2002 – 2004 Junior Researcher of the Laboratory of Radioecology, Institute of Botany, Lithuania

RESEARCH INTERESTS

Main interests of scientific research: ecotoxicology, nanotoxicology, plant and fish physiology, ecology, environmental studies. I conduct research related to the investigation of effects of various stressors (heavy metals, cyanotoxins, nanomaterials, radionuclides, etc.) on the growth and physiological state of algae, higher plants, crustaceans, and fish. I am particularly interested in researching the physiological and biochemical mechanisms of the body's reaction to individual pollutants and their mixtures; I am also very interested in the interaction of contaminants in multicomponent mixtures. I participate in complex ecotoxicological studies and use biological methods to study the toxicity of industrial wastewater and the contamination of water bodies. I conduct searches for the processes of distribution and accumulation of various pollutants in water ecosystems. In addition, I am very interested in research on the uptake of various substances from the incubation medium into organisms and their transfer to the organs and tissues of organisms, especially when exposed to substances that can potentially be used for wastewater treatment. I also carry out research, assessment, and prediction of changes in the ecotoxicological status of water

ecosystems under the influence of anthropogenic influences I also participate in researching the possibilities of using treated wastewater in technological processes and agriculture for the economic and sustainable use of water resources.

PUBLICATIONS

Scientific articles published in journals (books), indexed in „Clarivate Analytics Web of Science“ database (with citation index):

1. Kazlauskas M., Jurgelėnė Ž., Šemčuk S., Jokšas K., Kazlauskienė N., Montvydienė D. (2023) Effect of graphene oxide on the uptake, translocation and toxicity of metal mixture to *Lepidium sativum* L. plants: mitigation of metal phytotoxicity due to nanosorption. *Chemosphere* 312, 1 .<https://doi.org/10.1016/j.chemosphere.2022.137221> , IF: 8,94, Q1.
2. Butrimienė, R., Kalnaitytė, A., Januškaitė, E., Bagdonas, S., Jurgelėnė, Ž., Butkauskas, D., Virbickas, T., Montvydienė, D., Kazlauskienė, N., & Skrodenytė Arbačiauskienė, V. (2022). Interactions of semiconductor Cd-based quantum dots and Cd²⁺ with gut bacteria isolated from wild *Salmo trutta* fry. *PeerJ*, 10, 1-22. doi:10.7717/peerj.14025/supp-6. IF: 3,061; Q2
3. Jurgelėnė, Ž., Montvydienė, D., Šemčuk, S., Stankevičiūtė, M., Sauliutė, G., Pažusienė, J., Morkvėnas, A., Butrimienė, R., Jokšas, K., Pakštas, V., Kazlauskienė, N., & Karabanovas, V. (2022). The impact of co-treatment with graphene oxide and metal mixture on *Salmo trutta* at early development stages: The sorption capacity and potential toxicity. *Science of the total environment*, 838(4), 1-18. doi:10.1016/j.scitotenv.2022.156525. IF: 10,753; Q1
4. Jurgelėnė, Ž., Montvydienė, D., Stakėnas, S., Poviliūnas, J., Račkauskas, S., Taraškevičius, R., Skrodenytė Arbačiauskienė, V., & Kazlauskienė, N. (2022). Impact evaluation of marking *Salmo trutta* with alizarin red S produced by different manufacturers. *Aquatic toxicology*, 242, 1-12. doi:10.1016/j.aquatox.2021.106051. IF: 5,202; Q1
5. Montvydienė, D., Jagminas, A., Jurgelėnė, Ž., Kazlauskas, M., Butrimienė, R., Žukauskaitė, Z., & Kazlauskienė, N. (2021). Toxicological effects of different-sized Co–Fe (CoFe₂O₄) nanoparticles on *Lepidium sativum* L.: towards better understanding of nanophytotoxicity. *Ecotoxicology*, 30(2), 277-291. doi:10.1007/s10646-020-02340-y. IF: 2,935; Q3
6. Montvydienė, D., Šulčius, S., Jurgelėnė, Ž., Makaras, T., Kalcienė, V., Taraškevičius, R., Kazlauskas, M., & Kazlauskienė, N. (2020). Contrasting ecotoxic effects of landfill leachate and cyanobacterial biomass on aquatic organisms. *Water, air, and soil pollution*, 231(7), 1-14. doi:10.1007/s11270-020-04684-x. IF: 4,223; Q2
7. Makaras, T., Montvydienė, D., Kazlauskienė, N., Stankevičiūtė, M., & Raudonytė-Svirbutavičienė, E. (2020). Juvenile fish responses to sublethal leachate concentrations: comparison of sensitivity of different behavioral endpoints. *Environmental science and pollution research*, 27(5), 4876-4890. doi:10.1007/s11356-019-07211-6. IF: 4,223; Q2
8. Makaras, T., Montvydienė, D., Kazlauskienė, N., & Stankevičiūtė, M. (2019). Rapidness- and sensitivity-based comparison of behavioral and respiratory responses of European perch and Rainbow trout to metal mixture exposure. *Bulletin of environmental contamination and toxicology*, 103(3), 391-399. doi:10.1007/s00128-019-02682-2 IF: 1,657; Q3
9. Rotomskis, R., Jurgelėnė, Ž., Stankevičius, M., Stankevičiūtė, M., Kazlauskienė, N., Jokšas, K., Montvydienė, D., Kulvietis, V., & Karabanovas, V. (2018). Interaction of carboxylated CdSe/ZnS quantum dots with fish embryos: Towards understanding of nanoparticles toxicity. *Science of the total environment*, 635, 1280-1291. doi:10.1016/j.scitotenv.2018.04.206. IF: 5,589; Q1
10. Jurgelėnė, Ž., Kazlauskienė, N., Montvydienė, D., Kulvietis, V., Rotomskis, R., & Jokšas, K. (2018). Embryotoxicity of quantum dots in rainbow trout *Oncorhynchus mykiss* during the hatching period. *Bulletin of environmental contamination and toxicology*, 101(2), 191-196. doi:10.1007/s00128-018-2367-IF: 1,650; Q3

11. Makaras, T., Svecevičius, G., Kazlauskienė, N., & Montvydienė, D. (2018). Rapid detection of sublethal toxicity using locomotor activity of Rainbow trout juveniles. *Bulletin of environmental contamination and toxicology*, 100(2), 221-227. doi:10.1007/s00128-017-2244-x. IF: 1,650; Q3
12. Šulčius, S., Montvydienė, D., Mazur-Marzec, H., Kasperovičienė, J., Rulevičius, R., & Cibulskaitė, Ž. (2017). The profound effect of harmful cyanobacterial blooms: From food-web and management perspectives. *Science of the total environment*, 609, 1443-1450. doi:10.1016/j.scitotenv.2017.07.253. IF: 4,610; Q1
13. Marčiulionienė, E. D., Lukšienė, B., Montvydienė, D., Jefanova, O., Mažeika, J., Taraškevičius, R., Stakėnienė, R., Petrošius, R., Maceika, E., Tarasiuk, N., Žukauskaitė, Z., Kazakevičiūtė, L., & Volkova, M. (2017). ¹³⁷Cs and plutonium isotopes accumulation/retention in bottom sediments and soil in Lithuania: A case study of the activity concentration of anthropogenic radionuclides and their provenance before the start of operation of the Belarusian Nuclear Power Plant (NPP). *Journal of environmental radioactivity*, 178-179, 253-264. doi:10.1016/j.jenvrad.2017.07.024. IF: 2,263; Q2
14. Marčiulionienė, E. D., Montvydienė, D., Svecevičius, G., Taraškevičius, R., Kazlauskienė, N., & Jefanova, O. (2015). Heavy metal migration from closed landfill in the water, bottom sediments and macrophytes of neighboring aquatic ecosystem. *Fresenius environmental bulletin*, 24(10), 3371-3380. IF: 0,372; Q4
15. Marčiulionienė, E. D., Montvydienė, D., Kazlauskienė, N., & Kesminas, V. (2011). Changes in macrophytes and fish communities in the cooler of Ignalina nuclear power plant (1988-2008). *Journal of environmental engineering and landscape management*, 19(1), 21-33. doi:10.3846/16486897.2011 IF: 1,958; Q2
16. Montvydienė, D., & Marčiulionienė, E. D. (2007). Assessment of toxic interaction of metals in binary mixtures using *Lepidium sativum* and *Spirodela polyrrhiza*. *Polish journal of environmental studies*, 16(5), 777-783. IF: 0,627; Q4
17. Marčiulionienė, E. D., Lukšienė, B., Kiponas, D., Montvydienė, D., Maksimov, G., Darginavičienė, J., & Gavelienė, V. (2006). Influence of Cs-137 and Sr-90 on vegetative and generative organs of *Lepidium sativum* L. and *Tradescantia* clone 02. *Nukleonika*, 51(4), 193-201. IF: 0,207; Q4
18. Montvydienė, D., & Marčiulionienė, E. D. (2004). Assessment of toxic interactions of heavy metals in a multicomponent mixture using *Lepidium sativum* and *Spirodela polyrrhiza*. *Environmental toxicology*, 19(4), 351-358. doi:10.1002/tox.20041. IF: 1,373; Q1
19. Kazlauskienė, N., Svecevičius, G., Vosylienė, M. Z., Marčiulionienė, E. D., & Montvydienė, D. (2004). Comparative study on sensitivity of higher plants and fish to heavy fuel oil. *Environmental toxicology*, 19(4), 449-451. doi.org/10.1002/tox. IF: 1,373; Q1
20. Marčiulionienė, E. D., Montvydienė, D., Kiponas, D., Lukšienė, B., & Butkus, D. (2004). Toxicity to *Tradescantia* of technogenic radionuclides and their mixture with heavy metals. *Environmental toxicology*, 19(4), 346-350. doi.org/10.1002/tox.20040. IF: 1,373; Q1

Scientific articles published in conference proceedings, indexed in „Clarivate Analytics Web of Science“ database:

1. Marčiulionienė, E. D., Montvydienė, D., & Paškauskas, R. (2011). The Impact of Ignalina Nuclear Power Plant wastewater of Lake Drūkšiai before the decommissioning of the plant (2007-2009). In *Advanced water supply and wastewater treatment: a road to safer society and environment* (pp. 277-286). Dordrecht: Springer. doi:10.1007/978-94-007-0280-6
2. Marčiulionienė, E. D., & Montvydienė, D. (2011). The coolong pond of Ignalina NPP as a model system evaluating effect of radioactive, chemical and thermal pollution to aquatic plants. In *Environmental engineering: the 8th international conference: selected papers: May 19-20, 2011, Vilnius, Lithuania. Vol. 1* (pp. 216-220). Vilnius: Technika.

3. Montvydienė, D., Marčiulionienė, E. D., Kazlauskienė, N., Ratkelytė, E., Lukšienė, B., Tautkus, S., & Padaruskas, A. (2008). Toxic impact of different salts of metals on organisms. In *Environmental engineering: the 7th international conference: selected papers: May 22-23, 2008, Vilnius, Lithuania. Vol. 1* (pp. 231-238). Vilnius: Technika.
4. Lakačauskienė, R., Montvydienė, D., & Marčiulionienė, E. D. (1999). Assessment of the effect of heavy metals on the test organism *Spirodela polyrrhiza*. In *Heavy metals in the environment: an integrated approach* (pp. 186-191). Vilnius, Lithuania

Scientific articles published in journals (books), indexed in „Clarivate Analytics Web of Science“ database (without citation index) (since 2017):

1. Jurgelėnė, Ž., Stankevičiūtė, M., Kazlauskienė, N., Montvydienė, D., Baršienė, J., Jokšas, K., Markuckas, A. 2018. Investigation of quantum dots toxicity, genotoxicity, cytotoxicity, and uptake in rainbow trout *Oncorhynchus mykiss* larvae. *Proceedings of the 14th International Conference on Protection and Restoration of the Environment*. July 3-6, 2018, Thessaloniki, Greece. Oral presentation.
2. Kazlauskas, M., Montvydienė, D., Butrimienė, R., Jurgelėnė, Ž., Kazlauskienė N. Impact of Magnetic Nanoparticles (CoFe₂O₄, MnFe₂O₄ and Fe₃O₄) on *Lepidium sativum* L. *The international Conference of Natural and Life Sciences The Coins 2020*, February 25 - 27, 2020, Vilnius, Lithuania. Poster presentation.
3. Montvydienė, D., Jurgelėnė, Ž., Kazlauskas, M., Butrimienė, R., Šemčuk, S., Makaras, T., Jokšas, K., Kazlauskienė N. The impact of graphene oxide nanostructures on *Lepidium sativum* L. *GREENCHEM6, Sept. 20-23, 2020, Thessaloniki*, Greece. Oral presentation.
4. Jurgelėnė, Ž., Montvydienė, D., Butrimienė, R., Kazlauskas, M., Šemčuk, S., Makaras, T., Jokšas, K., Kazlauskienė, N. Influence of graphene oxide nanostructures on fish at early development. *GREENCHEM6, Sept. 20-23, 2020, Thessaloniki*, Greece. Oral presentation.
5. Kazlauskas, M., Montvydienė, D., Jurgelėnė, Ž., Šemčuk, S., Jokšas, K., Kazlauskienė, N. Effects of graphene oxide nanostructures and metal mixtures on *Lepidium sativum*. *64th Scientific Conference for Students of Physics and Natural Sciences "Open Readings 2021"*, March 16-19, 2021, Vilnius, Lithuania. Poster presentation
6. Butrimienė, R., Skrodenytė-Arbačiauskienė, V., Montvydienė, D., Jurgelėnė, Ž., Butkauskas, D., Kalnaitytė, A., Bagdonas, S., Kazlauskienė, N. Effects of cd based, Cd free Quantum dots and Cd²⁺ on isolated gut microbiota of *Salmo trutta* fry. *64th Scientific Conference for Students of Physics and Natural Sciences "Open Readings 2021"*, March 16-19, 2021, Vilnius, Lithuania. Poster presentation.
7. Kazlauskas, M., Jurgelėnė, Ž., Butrimienė, R., Kazlauskienė, N., Montvydienė, D. 2022. Risk assessment of nano- and micro-sized materials for terrestrial and aquatic ecosystems. *Proceedings of the Ninth International Conference on Environmental Management, Engineering, Planning and Economics (CEMEPE 2022) and SECOTOX Conference Mykonos island*, Oral presentation.
8. Butrimienė, R., Kalnaitytė, A., Januškaitė, E., Bagdonas, S., Jurgelėnė, Ž., Butkauskas, D., Virbickas, T., Montvydienė, D., Kazlauskienė, N., Skrodenytė-Arbačiauskienė, V. 2022. An in vitro assay to assess the antibacterial efficacy of Cd-based, Cd-free quantum dots and Cd²⁺ on gut bacteria from wild *Salmo trutta* fry. *Proceedings of the Ninth International Conference on Environmental Management, Engineering, Planning and Economics (CEMEPE 2022) and SECOTOX Conference Mykonos island*, Oral presentation.
9. Jurgelėnė, Ž., Montvydienė, D., Šemčuk, S., Stankevičiūtė, M., Sauliūtė, G., Pažusienė, J., Morkvėnas, A., Butrimienė, R., Kazlauskas, M., Kazlauskienė, N., Karabanovas, V. 2022. Acute toxicity assessment of graphene oxide nanoderivatives on *Salmo trutta* at early development stages. *Proceedings of the 16th International Conference on Protection and Restoration of the Environment Kalamata*, Oral presentation.

10. Marčiulionienė, E. D., Lukšienė, B., Montvydienė, D., Sakalauskas, V., Sevriukova, O., Druteikienė, R., Jefanova, O., & Žukauskaitė, Z. (2017). Radiocesium phytotoxicity to single cell and higher plants. In *Impact of cesium on plants and the environment* (pp. 209-230). Switzerland: Springer. doi:10.1007/978-3-319-41525-3_12 [M.kr.: N 011]

Reviewed scientific articles, published in Lithuania:

1. Montvydienė, D., Marčiulionienė, E. D., Volkova Rogačiova, M., Paškauskas, R., Mažeika, J. ir Jefanova, O. (2016). 137CS ir 40K akumuliacija ir pernaša sistemoje Nemuno upė–užliejamosios pievos–Kuršių marios. *Visuomenės sveikata*, priedas1, 25-28
2. Marčiulionienė, E. D., Montvydienė, D., Kazlauskienė, N., Lukšienė, B., Jasinevičienė, D., & Tautkus, S. (2014). Response of test-organisms to different Na and Cu salts. *Botanica Lithuanica*, 20(2), 131-141. doi:10.2478/botlit-2014-0020
3. Montvydienė, D. (2009). Drūkšių ežero ekotoksikologinės būklės įvertinimas naudojant augalus - testuojamuosius organizmus. *Visuomenės sveikata*, 1(priedas), 53-58
4. Marčiulionienė, E. D., Montvydienė, D., Kiponas, D., Dušauskienė Duž, R., & Lukšienė, B. (2003). Genotoxic impact of ionizing radiation at low exposure doses of technogenic radionuclides accumulated in plants. *Environmental and chemical physics*, 25(4), 218-227.
5. Kazlauskienė, N., Marčiulionienė, E. D., Montvydienė, D., Svecevičius, G., & Vosylienė, M. Z. (2003). Comparative studies of the toxic effects of heavy metal model mixture on organisms of different phylogenetic level and ontogenesis. *Environmental and chemical physics*, 25(3), 116-122.
6. Marčiulionienė, E. D., Montvydienė, D., Kazlauskienė, N., & Svecevičius, G. (2002). Comparative analysis of the sensitivity of test-organisms of different phylogenetic level and life stages to heavy metals. *Environmental and chemical physics*, 24(2), 73-78.
7. Marčiulionienė, E. D. ir Montvydienė, D. (2002). Augalų testorganizmų panaudojimas ekotoksikologiniams tyrimams. *Botanica Lithuanica*, suppl.4, 75-90.

PARTICIPATION IN INTERNATIONAL AND NATIONAL SCIENTIFIC PROGRAMMES AND PROJECTS

2021 – 2023	Principal investigator „Development of functional fish feed additives from natural algal biomass” (funded by Agency of Science, Innovation and Technology of Lithuania (MITA))
2020 – 2022	Principal investigator "Fish as a model of trophic ontogenesis in the study of nanoparticles transport through aquatic food chain in the context of climate change" (funded by Research Council of Lithuania)
2019 – 2021	Investigator Framework for Organizational Decision-Making Process in Water Reuse for Smart Cities (SMART-WaterDomain)
2017 – 2020	Participant Cyanobacteria, Viruses, protozoan and Metazoan – Understanding ecological interaction of ecosystems. International collaboration between Lithuanian and Poland Academies of Sciences.
2015 – 2018	Investigator "Nanoparticle and heavy metal toxicity mechanisms in fish during ontogenesis" (funded by Research Council of Lithuania)
2014 – 2018	Participant European network for algal-bioproducts (EUALGAE). ESSEM COST action ESSEM COST Action ES1408 International programm.
2013 – 2014	Leader „Complex investigations of the Tytuvėnai lakes“ (part of project „Cross Border Cooperation for Sustainable Management of Lake Areas in Kurzeme and Lithuania“ (Nr. LLIV-326).
2012 – 2014	Principal investigator "Nanoparticle and heavy metal toxicity mechanisms in fish during ontogenesis" (funded by Research Council of Lithuania)

INTERNSHIP AND TRAINING

- 2007 NATO Advanced Research Workshop „Dangerous Pollutants (Xenobiotics) in Urban Water Cycle“ Lednice, Czech Republic.
- 2015 Internship at the Institute of Oceanography of the Faculty of Oceanography and Geography of the University of Gdańsk (Poland) in order to improve the ability to work in the field of liquid chromatography and mass spectrometry in determining the composition and amount of cyanotoxins in water and bottom sediment samples.

PARTICIPATION IN SCIENTIFIC (2022)

International scientific conferences:

1. Kazlauskas, M., Jurgelėnė, Ž., Butrimienė, R., Kazlauskienė, N., Montvydienė, D. 2022. Risk assessment of nano- and micro-sized materials for terrestrial and aquatic ecosystems. *Proceedings of the Ninth International Conference on Environmental Management, Engineering, Planning and Economics (CEMEPE 2022) and SECOTOX Conference* Mykonos island, Oral presentation.
2. Butrimienė, R., Kalnaitytė, A., Januškaitė, E., Bagdonas, S., Jurgelėnė, Ž., Butkauskas, D., Virbickas, T., Montvydienė, D., Kazlauskienė, N., Skrodenytė-Arbačiauskienė, V. 2022. An in vitro assay to assess the antibacterial efficacy of Cd-based, Cd-free quantum dots and Cd²⁺ on gut bacteria from wild *Salmo trutta* fry. *Proceedings of the Ninth International Conference on Environmental Management, Engineering, Planning and Economics (CEMEPE 2022) and SECOTOX Conference* Mykonos island, Oral presentation.
3. Jurgelėnė, Ž., Montvydienė, D., Šemčuk, S., Stankevičiūtė, M., Sauliūtė, G., Pažusienė, J., Morkvėnas, A., Butrimienė, R., Kazlauskas, M., Kazlauskienė, N., Karabanovas, V. 2022. Acute toxicity assessment of graphene oxide nanoderivatives on *Salmo trutta* at early development stages. *Proceedings of the 16th International Conference on Protection and Restoration of the Environment* Kalamata, Oral presentation.

PARTICIPATION IN THE STUDY PROCESS

Supervision of PhD students:

Research area: *Natural science (N000)*. Research field: *Ecology and Environmental science (N012)*
[Mindaugas Kazlauskas](#) Dissertation thesis: “Investigation of the impact of newly developed and environmental materials at the nano- and microscale to organisms of different trophic levels” 2019–2023

Supervision of bachelor and master students (2022):

Dovilė Lenkauskaitė Bachelor thesis: The ability of graphene oxide nanoparticles to change metals (Cu, Cr(III), Ni, Zn) toxicity on algae *Scenedesmus quadricauda* ((Turpin) Brébisson, 1835) 2019–2022