

Dr. Nikolina Udiković-Kolić

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EMPLOYMENT

2017 to date – Senior Research Associate and Head of the Lab for Environmental Microbiology and Biotechnology, Rudjer Bošković Institute, Zagreb

Previous work positions

2011-2016 Research Associate, Rudjer Bošković Institute, Zagreb

2012-2013 Fulbright Fellow, Yale University, New Haven, CT, USA. Host: Dr. Jo Handelsman

2008 – 2011 Senior Research Assistant, Rudjer Bošković Institute, Zagreb

2001 – 2008 Research Assistant, Rudjer Bošković Institute, Zagreb

EDUCATION

2008 PhD in Biotechnology, Faculty of Food Technology and Biotechnology, University of Zagreb

2001 BSc in Biotechnology, Faculty of Food Technology and Biotechnology, University of Zagreb

AWARDS

- 2020 Branimir Jernej Foundation Award – Annual Award for a publication in high-impact journal in the field of molecular biology (published in 2019)
- 2019 2018 Ruđer Bošković Institute Director General Award for the scientific publication with high impact factor
- 2019 Outstanding Associate Editor Award from Journal of Environmental Quality
- 2008 The BP Young Scientists & Students Award, 13th International Biotechnology Symposium and Exhibition, Dalian, China
- 2001 Rector's Award of the University of Zagreb for the best undergraduate student paper in the field of biotechnology for academic year 2000/2001
- 2001 Dean's Award of the Faculty of Food Technology and Biotechnology, University of Zagreb, for the best undergraduate student on the Biotechnology Programme for academic year 2000/2001

GRANTS AND FELLOWSHIPS

- 2020-2023 Research Grant from the Croatian Science Foundation. Topic: Resistance to carbapenems and extended spectrum cephalosporins in Croatian wastewater treatment plants;
- 2017-2019 Research Grant from the Adris Foundation. Topic: Macrolide resistance in environmental and clinical isolates;
- 2015-2018 Research Grant from the Croatian Science Foundation. Topic: Antibiotic resistance in pharmaceutical wastewaters and receiving environments;
- 2015-2016 Bilateral Croatia-Germany project. Topic: Biodegradation of antibiotic azithromycin. Partner: Prof. Michael Schloter, Helmholtz Zentrum München, Germany
- 2016 Research Grant from the Croatian Academy of Sciences and Arts. Topic: Ecotoxicology of pharmaceutical wastewaters
- 2015 Conference Attendance Grant from the Croatian Microbiological Society
- 2012 Fulbright Postdoctoral Fellowship for research stay at Yale University, USA (2012-2013)
- 2003 Research Fellowship funded by Federation of European Microbiological Societies for a 3-months stay at INRA Institute, Dijon, France

MENTORSHIP OF POSTGRADUATE STUDENTS

- Ongoing Ana Puljko, University of Zagreb, in progress
- 2020 Milena Milakovic, PhD Thesis: "Impact of pharmaceutical wastewaters on selection and dissemination of antibiotic resistance", University of Zagreb
- 2015 Tamara Jurina (co-advised with Prof. Ž. Kurtanjek), PhD Thesis: "Modeling of biodegradation and dissipation kinetics of terbuthylazine in soil: comparison with atrazine", University of Zagreb

MENTORSHIP OF UNDERGRADUATE STUDENTS

- 2020 Valentina Žuljević, mag. ing. agr. Thesis: "Resistance to carbapenems and colistin in enterobacteria from wastewaters", University of Zagreb
- 2020 Lucia Pole, mag. ing. agr. Thesis: "Resistance to macrolide antibiotics: comparison of resistance mechanisms between environmental and clinical bacteria", University of Zagreb

TEACHING ACTIVITIES

- 2013 to date postgraduate course "Biotechnology in environmental protection", University of Osijek, Doctoral study in Environment Protection and Nature Conservation
- 2013 to date graduate course "Bioremediation and biological processes for wastewater treatment" University of Zagreb, Doctoral study in Biotechnology

WORK EXPERIENCE

- ◆ Published **30 papers** in peer-reviewed journals, h-index 19, 1365 citations (Google scholar)
- ◆ **Member of the Management Committee of COST Action ES1403:** New and emerging challenges and opportunities in wastewater reuse (NEREUS) (2014-2018)
- ◆ **Member of the Scientific Committee** of the XENOWAC II Conference: Challenges and Solutions related to Xenobiotics and Antimicrobial Resistance in the Framework of Urban Wastewater Reuse, 2018, Cyprus
- ◆ **Trainer at the workshop** "Too precious to waste? Challenges & opportunities for wastewater reuse" at the 10th Eastern European YWPs Conference, 2018, Zagreb
- ◆ **Associate Editor** of the Journal of Environmental Quality (2016-2021)
- ◆ **Member of Editorial boards** of Frontiers in Microbiology and Food Technology and Biotechnology (2015 to date)
- ◆ **Member of the Evaluation Committee** for bilateral research projects at Croatian Ministry of Science and Education (2013 to date)
- ◆ **Co-instructor of International Workshop in Metagenomics:** "Mastering Metagenomics", 2013, Yale University, New Haven, CT, USA
- ◆ **Member of the Scientific Committee** of the 5th Croatian Congress of Microbiology with International Participation, 2012, Croatia
- ◆ **Member of the Croatian Microbiological Society, Federation of European Microbiological Societies, International Union of Microbiological Societies** (2002 to date)
- ◆ **Referee for papers under consideration for publication** in FEMS Microbiology Ecology, Environmental Science and Pollution, Environment International, Water Research, Frontiers in Microbiology, Science of the Total Environment, Biodegradation, Journal of Hazardous Materials, International Biodeterioration and Biodegradation, Plos One, Food Technology and Biotechnology.

SELECTED RECENT PUBLICATIONS

1. Milaković, M., Križanović, S., Petrić, I., Šimatović, A., Gonzalez-Plaza, J. J., Gužvinec, M., Tambić Andrašević, A., Pole, L., Mrkonjić Fuka, M., **Udiković-Kolić, N.** (2020) Characterization of macrolide resistance in bacteria isolated from macrolide-polluted and unpolluted river sediments and clinical sources in Croatia, *Sci. Tot. Env.* 749, 142357.
2. Milakovic, M., Vestergaard, G., González-Plaza, J.J., Petrić, I., Kosić-Vukšić, J., Senta, I., Kublik, S., Schloter, M., **Udiković-Kolić, N.** (2020) Effects of industrial effluents containing moderate levels of

antibiotic mixtures on the abundance of antibiotic resistance genes and bacterial community composition in exposed creek sediments, *Sci. Tot. Env.* 706, 136001.

3. Bengtsson-Palme, J., Milakovic, M., Švecová, H., Ganjto, M., Jonsson, V., Grabic, R., **Udiković-Kolić, N.** (2019) Industrial wastewater treatment plant enriches antibiotic resistance genes and alters the structure of microbial communities, *Wat. Res.* 162, 437-445.
4. González-Plaza, J.J., Blau, K., Milaković, M., Jurina, T., Smalla, K., **Udiković-Kolić, N.** (2019) Antibiotic-manufacturing sites are hot-spots for the release and spread of antibiotic resistance genes and mobile genetic elements in receiving aquatic environments. *Env. Int.* 130, 104735.
5. Milaković, M., Vestergaard, G., González-Plaza, J.J., Petrić, I., Šimatović, A., Senta, I., Kublik, S., Schloter, M., Smalla, K., **Udiković-Kolić, N.** (2019) Pollution from azithromycin-manufacturing promotes macrolide-resistance gene propagation and induces spatial and seasonal bacterial community shifts in receiving river sediments. *Env. Int.* 123: 501-511
6. González-Plaza, J.J., Šimatović, A., Milaković, M., Bielen, A., Wichmann, F., **Udiković-Kolić, N.*** (2017) Functional repertoire of antibiotic resistance genes in antibiotic manufacturing effluents and receiving freshwater sediments. *Front. Microbiol.* 8: 2675
7. Terzic, S., **Udiković-Kolić, N.**, Jurina, T., Krizman-Matasic, I., Senta, I., Mihaljevic, I., Loncar, J., Smital, T., Ahel, M. (2018) Biotransformation of macrolide antibiotics using enriched activated sludge culture: Kinetics, transformation routes and ecotoxicological evaluation. *J. Hazard. Mat.* 349: 143-152
8. Bielen, A., Šimatović, A., Kosić-Vukšić, J., Senta, I., Ahel, M., Babić, S., Jurina, T., González Plaza, J.J., Milaković, M., **Udiković-Kolić, N.** (2017) Negative environmental impacts of antibiotic-contaminated effluents from pharmaceutical industries. *Wat. Res.* 126: 79-87
9. **Udiković-Kolić, N.**, Wichmann, F., Broderick, N.A., Handelsman, J. (2014) Bloom of resident antibiotic resistant bacteria in soil following manure fertilization. *P. Natl. Acad. Sci. USA.* 111(42): 15202–15207
10. Wichmann, F., **Udiković-Kolić, N.**, Andrew, S., Handelsman, J. (2014) Diverse antibiotic resistance genes in dairy cow manure. *mBio*5(2): e01017-13.