

NARESH DEVARAJAN, Ph.D.

Curriculum vitae

Postdoctoral Scholar
Dep of Wildlife, Fish, and Conservation Biology
University of California Davis
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Davis, CA 95616

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OBJECTIVE: To pursue an engaging career as part of progressive organization that will give scope to learn and utilize my research expertise and molecular/microbial skills in order to make significant contribution to the field of clinical, molecular and environmental microbiology.

EDUCATION

- Doctor of Philosophy (Ph.D. in Environmental Sciences), Sep 07, 2015, University of Geneva, Geneva, Switzerland.
- Master of Science (M.Sc. Biochemistry), 2007, Bharathiar University, Coimbatore, India.
- Bachelor of Science (B.Sc. Biochemistry), 2005, Bharathiar University, Coimbatore, India.

CURRENT EMPLOYMENT

From April 2016 – to present

Associate Specialist, Microbial Source Tracking - funded by Proposition 50 in the State of California Clean Beaches Initiative.

Bren School of Environmental Science & Management
University of California, Santa Barbara, CA 93106, USA

PROFESSIONAL EXPERIENCE

- Team Lead (Oct 2011- May 2012)
- Process Analyst (Sep 2010 - Sep 2011)
- Data Coordinator (Dec 2007 - Sep 2011)

VWR Lab Products Pvt. Ltd, Coimbatore, Tamil Nadu, India (Dec-2007 to May 2012).

AWARDS/SCHOLARSHIPS

- Swiss Government Excellence Scholarships for Foreign Scholars (FCS).
- Bourse Augustin Lombard 2013
- Ernst and Lucie Schmidheiny Foundation
- Healthy Campus Network UCSB

RESEARCH EXPERINCE

Molecular Biology Techniques

- Extraction of DNA and RNA from samples (clinical, agricultural and environmental)
- Detection of pathogens from clinical and environmental samples on various platforms such as conventional/quantitative polymerase chain reaction (PCR), and sequencing.
- Hands on experience with PCR and quantitative-PCR/Real-Time PCR, Digital PCR
- Bacterial community analysis - 16S rRNA gene sequencing and data analysis
- cDNA synthesis and reverse transcriptase to quantify the gene expression levels
- Phenotypic and genotypic (resistance genes and mobile genetic elements) characterization of antimicrobial resistance in foodborne, clinical and environmental pathogens.
- Experienced in electrophoresis, Native PAGE, SDS-PAGE, and Agarose.
- Cloning techniques and gene transfer techniques
- Restriction Fragment Length Polymorphism (RFLP) and Sequence typing (MLST)

Microbiology Laboratory Techniques

- Isolation and characterization of foodborne, human, animal pathogens and commensal bacteria through culture based and molecular testing.
- Antimicrobial susceptibility assays using microdilution, and disc diffusion methods on bacterial pathogens from fresh produce, clinical/environmental settings.
- Knowledge of laboratory hazards and the proper safety procedures including how to use and care for laboratory equipment for BLS-1 and BSL-2 laboratory safety.
- Disinfection and disposal of biohazards

Sampling expertise

- Hands on experience to collect study samples from diverse fields: clinical, environmental and, built environments.
- Collection, analysis and age dating of samples (soil/sediment cores).
- Collaborate with other teams to acquire samples from distinct locations.

Physiochemical analysis

- Prepare samples for organic and inorganic analysis and interpretation of results
- ICP-MS, ICP-OES, AMA (Hg analysis)
- Particle grain size and total organic matter measurements
- Analysis for total carbon, phosphorus, nitrogen and oxygen
- Ecotoxicological experiments

Other expertise

- Published several articles in peer reviewed scientific journals as leading author and co-author.
- Assisted lectures/presentations to undergraduate and master students.

- Supervised and mentored bachelors and masters students from academia and visiting doctoral students from collaborative labs.
- Coordinated tripartite collaboration between Congo DR, India and Switzerland.

Computer skills: Microsoft office, Molecular Biology related software's, XLstat, MOTHUR, QIIME, CLC workbench, Sigmaplot, BioEdit, JMP10 and Grapher

LIST OF PUBLICATIONS

Doctoral thesis:

Devarajan, N., 2015. Exploring research frontiers in aquatic ecosystems: role of hospital and urban effluents in the dissemination of antibiotic resistance and metals to fresh water ecosystems. Thèse de doctorat. Univ. Genève, 2015 - Sc. 4830 - 2015/09/07. <http://archive-ouverte.unige.ch/unige:75971>

Peer Review Publications:

Google scholar link: <https://scholar.google.com/citations?user=PffRGDwAAAAJ&hl=en>

2018

1. Mortimer, M., **Devarajan, N.**, Li, D. and Holden, P.A. (2018) Multiwall Carbon Nanotubes Induce More Pronounced Transcriptomic Responses in *Pseudomonas aeruginosa* PG201 than Graphene, Exfoliated Boron Nitride, or Carbon Black. ACS Nano. DOI: 10.1021/acsnano.7b08977.

2017

2. **Devarajan, N.**, Köhler, T., Sivalingam, P., van Delden, C., Mulaji, C.K., Mpiana, P.T., Ibelings, B.W. and Poté, J. (2017) Antibiotic resistant *Pseudomonas* spp. in the aquatic environment: A prevalence study under tropical and temperate climate conditions. Water Res 115, 256-265.

2016

3. **Devarajan, N.**, Laffite, A., Mulaji, C.K., Otamonga, J.P., Mpiana, P.T., Mubedi, J.I., Prabakar, K., Ibelings, B.W. and Pote, J. (2016) Occurrence of Antibiotic Resistance Genes and Bacterial Markers in a Tropical River Receiving Hospital and Urban Wastewaters. PLoS One 11(2).
4. Adler, A., **Devarajan, N.**, Wildi, W. and Pote, J. (2016) Metal Distribution and Characterization of Cultivable Lead-Resistant Bacteria in Shooting Range Soils. Soil & Sediment Contamination 25(4), 378-394.
5. Atibu, E.K., **Devarajan, N.**, Laffite, A., Giuliani, G., Salumu, J.A., Muteb, R.C., Mulaji, C.K., Otamonga, J.-P., Elongo, V., Mpiana, P.T. and Poté, J. (2016) Assessment of trace metal and rare earth elements contamination in rivers around abandoned and active mine areas. The case of Lubumbashi River and Tshamilemba Canal, Katanga, Democratic Republic of the Congo. Chemie der Erde - Geochemistry 76(3), 353-362.
6. Kilunga, P.I., Kayembe, J.M., Laffite, A., Thevenon, F., **Devarajan, N.**, Mulaji, C.K., Mubedi, J.I., Yav, Z.G., Otamonga, J.P., Mpiana, P.T. and Pote, J. (2016). The impact of hospital and urban wastewaters on the bacteriological contamination of the water resources in Kinshasa, Democratic Republic of Congo. J Environ Sci Health A Tox Hazard Subst Environ Eng, 1-9.
7. Laffite, A., Kilunga, P.I., Kayembe, J.M., **Devarajan, N.**, Mulaji, C.K., Giuliani, G., Slaveykova, V.I. and Pote, J. (2016) Hospital Effluents Are One of Several Sources of Metal, Antibiotic Resistance Genes, and Bacterial Markers Disseminated in Sub-Saharan Urban Rivers. Front Microbiol 7, 1128.

8. Mavakala, B.K., Le Faucheur, S., Mulaji, C.K., Laffite, A., **Devarajan, N.**, Biey, E.M., Giuliani, G., Otamonga, J.P., Kabatusuila, P., Mpiana, P.T. and Pote, J. (2016) Leachates draining from controlled municipal solid waste landfill: Detailed geochemical characterization and toxicity tests. *Waste Manag* 55, 238-248.

2015

9. **Devarajan, N.**, Laffite, A., Graham, N.D., Meijer, M., Prabakar, K., Mubedi, J.I., Elongo, V., Mpiana, P.T., Ibelings, B.W., Wildi, W. and Pote, J. (2015a) Accumulation of clinically relevant antibiotic-resistance genes, bacterial load, and metals in freshwater lake sediments in central Europe. *Environmental Science & Technology* 49(11), 6528-6537.
10. **Devarajan, N.**, Laffite, A., Ngelikoto, P., Elongo, V., Prabakar, K., Mubedi, J.I., Piana, P.T., Wildi, W. and Pote, J. (2015b) Hospital and urban effluent waters as a source of accumulation of toxic metals in the sediment receiving system of the Cauvery River, Tiruchirappalli, Tamil Nadu, India. *Environ Sci Pollut Res Int* 22(17), 12941-12950.
11. Mwanamoki, P.M., **Devarajan, N.**, Niane, B., Ngelinkoto, P., Thevenon, F., Nlandu, J.W., Mpiana, P.T., Prabakar, K., Mubedi, J.I., Kabele, C.G., Wildi, W. and Pote, J. (2015) Trace metal distributions in the sediments from river-reservoir systems: case of the Congo River and Lake Ma Vallee, Kinshasa (Democratic Republic of Congo). *Environ Sci Pollut Res Int* 22(1), 586-597.
12. Niane, B., Guedron, S., Moritz, R., Cosio, C., Ngom, P.M., **Deverajan, N.**, Pfeifer, H.R. and Pote, J. (2015) Human exposure to mercury in artisanal small-scale gold mining areas of Kedougou region, Senegal, as a function of occupational activity and fish consumption. *Environmental Science and Pollution Research* 22(9), 7101-7111.

2014

13. Mwanamoki, P.M., **Devarajan, N.**, Thevenon, F., Atibu, E.K., Tshibanda, J.B., Ngelinkoto, P., Mpiana, P.T., Prabakar, K., Mubedi, J.I., Kabele, C.G., Wildi, W. and Pote, J. (2014a) Assessment of pathogenic bacteria in water and sediment from a water reservoir under tropical conditions (Lake Ma Vallee), Kinshasa Democratic Republic of Congo. *Environ Monit Assess* 186(10), 6821-6830.
14. Mwanamoki, P.M., **Devarajan, N.**, Thevenon, F., Birane, N., de Alencastro, L.F., Grandjean, D., Mpiana, P.T., Prabakar, K., Mubedi, J.I., Kabele, C.G., Wildi, W. and Pote, J. (2014b) Trace metals and persistent organic pollutants in sediments from river-reservoir systems in Democratic Republic of Congo (DRC): Spatial distribution and potential ecotoxicological effects. *Chemosphere* 111, 485-492.
15. Ngelinkoto, P., Thevenon, F., **Devarajan, N.**, Birane, N., Maliani, J., Buluku, A., Musibono, D., Mubedi, J.I. and Pote, J. (2014) Trace metal pollution in aquatic sediments and some fish species from the Kwilu-Ngongo River, Democratic Republic of Congo (Bas-Congo). *Toxicological and Environmental Chemistry* 96(1), 48-57.
16. Tshibanda, J.B., **Devarajan, N.**, Birane, N., Mwanamoki, P.M., Atibu, E.K., Mpiana, P.T., Prabakar, K., Mubedi Ilunga, J., Wildi, W. and Poté, J. (2014) Microbiological and physicochemical characterization of water and sediment of an urban river: N'Djili River, Kinshasa, Democratic Republic of the Congo. *Sustainability of Water Quality and Ecology* 3-4, 47-54.

2013

17. Atibu, E.K., **Devarajan, N.**, Thevenon, F., Mwanamoki, P.M., Tshibanda, J.B., Mpiana, P.T., Prabakar, K., Mubedi, J.I., Wildi, W. and Pote, J. (2013) Concentration of metals in surface water and sediment of Luilu and Musonoie Rivers, Kolwezi-Katanga, Democratic Republic of Congo. *Applied Geochemistry* 39, 26-32.
18. Mubedi, J.I., **Devarajan, N.**, Le Faucheur, S., Mputu, J.K., Atibu, E.K., Sivalingam, P., Prabakar, K., Mpiana, P.T., Wildi, W. and Pote, J. (2013) Effects of untreated hospital effluents on the

accumulation of toxic metals in sediments of receiving system under tropical conditions: case of South India and Democratic Republic of Congo. *Chemosphere* 93(6), 1070-1076.

19. Prabakar, K., Sivalingam, P., Rabeek, S.I.M., Muthuselvam, M., **Devarajan, N.**, Arjunan, A., Karthick, R., Suresh, M.M. and Wembonyama, J.P. (2013) Evaluation of antibacterial efficacy of phyto fabricated silver nanoparticles using *Mukia scabrella* (Musumusukkai) against drug resistance nosocomial gram negative bacterial pathogens. *Colloids and Surfaces B-Biointerfaces* 104, 282-288.

Conference papers:

- **Devarajan N**, Laffite A, Sivalingam P, and Poté J. Exploring Research in Aquatic Ecosystem: Historical pollution and dissemination of micro-pollutants, pathogens and antibiotic resistance according to the country's degree of development and different climate conditions. 10th Congress of Chemical Sciences, Technology and Innovation. 33^o Latin-American Congress of Chemistry. 2018. Havana, Cuba
- Mortimer M, **Devarajan N**, Li D, and Holden PA. Transcriptional response of *Pseudomonas aeruginosa* PG201 to multiwall carbon nanotubes – potential implications for antibiotic susceptibility. EDAR, 2017. Lancing, MI, USA.

Manuscripts in preparation:

- Efficacy of Microbial-Based Cleaning Products in Restrooms in University of California Santa Barbara, California, USA.
- Microbiological Water Quality and Public Health Implications of Upland Sediment Disposal to a Recreational Beach – in review *Water Research*

Research Project:

Efficacy of Microbial-Based Disinfecting Products in Restrooms in University of California Santa Barbara, California, USA. (Budgeted \$64, 084).

Ad hoc Reviewer for peer review journals:

- *Chemosphere*
- *Environmental Pollution*
- *Environmental Science & Technology Letters*
- *Environmental Science: Nano*
- *Exposure and Health*
- *Journal of Geochemical Exploration*
- *Science of the Total Environment*
- *Scientific Data* – Nature Publication Group
- *Water Research*