

PERSONAL INFORMATION



Dinesh, Sanka Loganatha Chetti, PhD (Microbiology), INDIAN (Passport no: S0771973)

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PERSONAL STATEMENT

I am a dedicated and sincere individual with a strong drive for success. My expertise lies in studying microbial ecology, with a particular focus on both natural and engineered ecosystems. Building good rapport and working collaboratively with my colleagues is something I thoroughly enjoy, as I strongly believe in the power of teamwork to achieve meaningful results.

WORK EXPERIENCE

01/08/2023–Current

Post-Doctoral Researcher

Advisor: Dr Martina Herrmann, Prof. Kirsten Küsel lab, **Institut für Biodiversität, Friedrich-Schiller-Universität Jena, Jena, Germany**

- Phyllosphere microbiome of trees.

21/09/2021–31/07/2023
(1 year, 10 months)

Post-Doctoral Research Associate,

Advisor: Dr. Sunil Mundra, Department of Biology, **United Arab Emirates University, Al Ain, UAE**

- Date palm belowground associate microbiome and its drivers under different irrigation water sources (non-saline and saline groundwater irrigation) in below ground compartments.
- Aridity gradient effect on desert soil microbiome of UAE
- Culture dependent studies on Sabka (salt flats) in UAE .
- Co-occurrence interaction analysis of antimicrobial resistance genes and microbial taxa in urban wastewater treatment plants of UAE

04/09/2018–13/05/2021
(2 years, 7 months)

Post-Doctoral Research Associate,

Dr. K.P. Krishan's lab, Arctic division, **National centre for polar and ocean research (Ministry of Earth Sciences), Vasco Da Gama, Goa (India)**

- Study on microbial communities of active layer permafrost, lake and glacier foreland of Arctic.
- Member of Indian Arctic Expedition to Ny-Alesund Svalbard, Arctic (May-June 2019)
- Co-PI for "Taxonomic and functional diversity of methanogens and methanotrophs in Antarctic tundra and lakes" (2020-2021 Antarctic expeditions- The expedition was cancelled due to COVID)

15/06/2017–09/08/2018
(1 year, 1 month)

Project Associate

Dr. Ligy Philip's Lab, Environmental and Water Resources Engineering Division, Civil Engineering department, **Indian institute of Technology Madras, Chennai (India)**

- Study of sludge microbiome from anaerobic biodigesters under different operational conditions.
- Operation of lab based biological wastewater treatment reactors for ammonia removal from synthetic urine waste water using nitrifying and denitrifying microbes.

- Field monitoring of ammonia removal from school urine wastewater using nitrifying and denitrifying microbes.

01/01/2009–21/12/2010
(2 years)

Post graduate research student, (discontinued)

University College Dublin, Dublin, Éire/Ireland

- Isolation of bacteria and fungi from disease suppressive soil and compost
- Screened 330 bacteria for broad spectrum anti-phytopathogenic activity against eight pathogens
- *Alcaligenes faecalis* fosmid genomic library construction and screening for anti-phytopathogenic activity
- Mini-Tn5 transposon mutagenesis based knock out screening on *B. subtilis*.

01/01/2009–21/12/2010

As a tutor/demonstrator for various courses

(Animal Diversity and Evolution BIOL10050, Animal Biology and Evolution BIOL10010, Biology for modern world – BIOL 10070, Cells, Genes & Microbes BIOL 10020, Plant Diseases: Biology and control BIOL30010, Medical entomology)

Career breaks

January 2011-December 2011 (Family illness)

May 2021- September 2021 (Illness due to Covid-19)

EDUCATION AND
TRAINING

01/01/2012–03/03/2018

Doctor of Philosophy in Microbiology (PhD) (3rd March 2018)

Highly
Commended

Bharathidasan University, Trichy (India)

Thesis title “Metagenomic studies on microbial diversity of mangrove soil, its functional relationship and biomedical potential of Fluostatin C” (Advisor: Prof. M. Sundaraman)

Brief summary :

- Optimization of metagenomic DNA isolation and purification from mangrove soil.
- Prokaryotic diversity of pneumatophore attached soil during monsoon and summer using 454 pyrosequencing
- Microbial diversity and community structure of *Avicennia marina* microhabitats (pneumatophore attached soil, rhizosphere and bulk sediment) using Ion torrent sequencing
- Functional screening of fosmid metagenomic library for biomolecules (hemicellulase enzymes and secondary metabolites)-Identification of novel AXE1 enzyme using fosmid based metagenomic exploration.
- Biomedical potential of Fluostatin C using reverse pharmacology approach and in vitro studies

14/08/2006–30/05/2008

Master of science (MSc) in Industrial Microbiology

5.47/6

Centre for Advanced Studies in Botany, University of Madras, Guindy campus, Chennai (India)

Thesis title “Role of effector T cells and natural regulatory T cells in HIV-TB co-Infection”

Advisor: Dr. Soumya Swaminathan (presently WHO chief scientist), Tuberculosis research center (ICMR), HIV division, Chennai

15/06/2003–30/04/2006 **Bachelor of science (BSc) in Plant biology and Biotechnology**
Loyola College (Affiliated to University of Madras), Chennai (India)

78 %

PUBLICATIONS

- Dinesh S.L and Mundra S., 2023. Water pH, not soil pH, alters bacterial community structural pattern and nitrogen cycling pathways in Date palm (*Phoenix dactylifera* L.) roots and bulk soil under freshwater irrigation regime, **Frontiers in Ecology and evolution**, 10.3389/fevo.2023.1142073.
- Chandran. S, Dinesh S.L., and Mundra S., 2022. Irrigation water source matters: Saline groundwater irrigation lowers date palm root-associated fungal richness and alters their community structural patterns, **Phytobiomes**, 10.1094/PBIOMES-12-22-0107-MF.
- Dinesh S.L., Fardous al-Hashimi, Subha.C, Sunil, M., Irrigation water salinity structures the bacterial communities, **Frontiers in plant science**, 10.3389/fpls.2022.944637. (IF:6.6)
- Shamim A*, Dinesh S.L*, Subha S, Khaled M, Sunil. M., Salinity of irrigation water selects distinct bacterial communities associated with Date palm (*Phoenix dactylifera* L.) root, **Scientific reports**, 10.1038/s41598-022-16869-x (* shared first author) (IF: 4.99)
- Dinesh Sanka Loganathachetti, Siddarthan Venkatachalam, T. Jabir P. V. Vipindas and K. P. Krishnan., 2022. Total nitrogen influences bacterial community structure of active layer permafrost across summer and winter seasons in Ny-Ålesund, Svalbard, **World J. Microbiol. Biotechnol**, 38, 28. 10.1007/s11274-021-03210-3.
- Siddarthan Venkatachalam, V.M. Kannan, V.K. Saritha, S.L. Dinesh, Mahesh Mohan, K.P. Krishnan., 2021. Bacterial diversity and community structure along the glacier foreland of Midtre Lovénbreen, Svalbard, Arctic. **Ecological Indicators**. 10.1016/j.ecolind.2021.107704.
- Dinesh, S.L., Poosakkannu, A., Muthuraman, S., 2020. Culture-independent Approach-based Mangrove Microbial Ecology Studies, in: **Encyclopedia of Marine Biotechnology**. Wiley, pp. 2001–2020. doi:10.1002/9781119143802.ch88 (Book chapter)
- Vipindas, P. V., Krishnan, K.P., Rehitha, T. V., Jabir, T., Dinesh, S.L., 2020. Diversity of sediment associated Planctomycetes and its related phyla with special reference to anammox bacterial community in a high Arctic fjord. **World J. Microbiol. Biotechnol**. 36, 107. doi:10.1007/s11274-020-02886-3
- S.L. Dinesh, P. Anbu and M. Sundararaman (2017), Fungal community assemblage of different soil compartments in mangrove ecosystem, **Scientific reports**, Nature Publishing Group, London. DOI: 10.1038/s41598-017-09281-3.
- S.L. Dinesh, S. Balamurugan, P. Anbu and M. Sundararaman (2016), Pyrosequencing based seasonal observation of prokaryotic diversity in pneumatophores associated soil of *Avicennia marina*, **Current microbiology** (springer), 72(1): 68-74.

- S.L. Dinesh and M. Sundararaman (2015), Biomedical potential of natural products derived through metagenomic approaches, **RSC advances** (Royal society of chemistry), 5, 101200-101213.
- B. Ravindran, S. L. Dinesh, L. John Kennedy & G. Sekaran (2008), Vermicomposting of Solid Waste Generated from Leather Industries Using Epigeic Earthworm *Eisenia foetida*, **Appl Biochem Biotechnol** (springer), 151:480–488.
- J. Ziyu, Joe Antony, S.L. Dinesh, N. Prasanna balaji, C. Baoan (2017), β -Elemene: Mechanistic Studies on Cancer Cell Interaction and Its Chemosensitization Effect, Volume 8, Article 105, **Frontiers in Pharmacology**, DOI: 10.3389/fphar.2017.00105.

Technical skills

- Bioinformatics : Experience in using high performance computing cluster, MOTHUR, DADA2, PICRUST, Primer7, MEGA, R (DADA2, phyloseq, DESEQ and ggplot2) and whole metagenome sequencing (Metawrap pipeline, Kraken2, CheckM and prodigal), antimicrobial resistance genes (AMRFinderPlus), climate data visualization using raster package, nestedness analysis, community assembly process analysis (deterministic/stochastic- iCAMP) and co-occurrence network analysis (iNAP and Gephi)
- Statistics: Univariate, spearman correlation, PERMANOVA, NMDS, ANOISM, Generalized Linear Models, Generalized Linear Mixed Models and basic knowledge of structural equation modelling.
- Isolation of metagenomic DNA, genomic and metagenomic fosmid library construction and large scale screening for anti-microbial and enzyme activities using GENTIX automated robot or manual method, tri-parental mating based mini-Tn5 mutagenesis of *Alcaligenes sp.*, analysis of sequences.
- Microscopy: Fluorescent imaging (DAPI bacterial staining and animal cell culture AO-EB staining) and inverted microscope.
- Physico-chemical characterization of wastewater (ammonia, nitrite, nitrate, TN, TKN, COD, TP, BOD, antimicrobials)
- PCR, semi-quantitative RT PCR and quantitative PCR

INTERNATIONAL CONFERENCES

- Dinesh Sanka Loganathachetti, Subha Chandran, Khaled Masmoudi and Sunil Mundra, Date palm (*Phoenix dactylifera*) root and bulk soil fungal communities are distinct and altered by salinity of irrigation water (2022), at **Ecology of Soil Microorganisms conference (19 – 23 June 2022), Prague, Czech Republic**
- Subha Chandran, Dinesh Sanka Loganathachetti, Azra Shammim, Khaled Masmoudi and Sunil Mundra, Saline water irrigation lower date palm (*Phoenix dactylifera*) root-associated fungal diversity and alter compositional patterns at **miCROPe 2022 (July 11 – 14, 2022), Vienna, Austria**
- Dinesh Sanka Loganathachetti, Subha Chandran and Sunil Mundra, Date palm (*Phoenix dactylifera*) belowground compartments (Root and bulk soil) select distinct bacterial communities based on irrigation water salinity (2022), at **New Phytologist Symposium 2022, Tartu, Estonia.**
- Dinesh S.L & Sundararaman. M (2016), Seasonal variation of prokaryotic diversity and root exudates in pneumatophore-associated soil of *Avicennia marina*, **International conference on Biodiversity and Biotechnology 2016, Trichy, India**
- Dinesh S.L & Sundararaman. M (2015), Seasonal observation of prokaryotic and

root exudate diversity in pneumatophore rhizosphere microhabitat (PRM) soil of *Avicennia marina*. RHIZO4, Maastricht, **The Netherlands**.

- Henneberger R., Dinesh S.L., Doohan F., Dobson A.D.W. and Marchesi J. (2009): Isolation of novel anti-phytopathogen agents from Irish soil using metagenomic strategies. Bacterial Genetics and Ecology BAGECO 10, Uppsala, **Sweden**
- N. Sudhakar, S.L. Dinesh, S. Sudha, S. Kumaran and K. Murugesan (2007), Induction of systemic resistance cv. PKM1 against cucumber mosaic virus by using plant growth promoting rhizobacteria (PGPR), 10th IPVE (International Plant virus Epidemiology symposium), **ICRISAT (International crop research institute for semi-arid tropics), Hyderabad, India**

PERSONAL SKILLS & ACHIEVEMENTS

Mother tongue(s) Tamil, Telugu

Foreign language(s)

	UNDERSTANDING		SPEAKING		WRITING
	Listening	Reading	Spoken interaction	Spoken production	
English	C1	C1	C1	C1	C1
German	A1	A1	A1	A1	A1

Levels: A1 and A2: Basic user - B1 and B2: Independent user - C1 and C2: Proficient user
Common European Framework of Reference for Languages

Scholarships/Prizes/award:

- **Helmholtz visiting researcher grant** in the field of data science (Metagenomics) – To be undertaken in May 15- August 15, 2023
- **New Phytologist travel grant** to attend emerging scientist meet in Estonia July 2022.
- **Travel award to attend Rhizosphere4** international conference in Maastricht, The Netherlands (2015).
- **Junior & Senior research scholar award** (2012-2017) by Lady Tata Memorial trust, Mumbai, India
- **Best oral presentation award**, International conference on Biodiversity and Biotechnology 2016, Trichy, India
- **A.L. Mudaliar scholarship** for meritorious students (during Masters)-2008 by University of Madras, India
- **Summer internship** carried out under Science Talent Promotion Scheme (STPS) by University of Madras during Masters.