

Curriculum Vitae: Dr. Ashish A. Malik

Professional Experience

- Nov 2019 - Lecturer in Biogeochemistry at University of Aberdeen, Aberdeen, UK.
- Aug 2017 - Aug 2019 US-Department of Energy Genomic Sciences Program Postdoctoral Scholar at University of California, Irvine (UCI), USA. Advisor: Steven Allison
- July 2015 - July 2017 Marie Skłodowska-Curie Fellow at NERC Centre for Ecology & Hydrology (CEH), Wallingford and University of Oxford, Oxford, UK. Advisors: Robert Griffiths, James McCullagh
- July 2014 - Feb 2015 Postdoctoral Fellow at the Max Planck Institute for Biogeochemistry (MPI-BGC), Jena, Germany. Advisor: Gerd Gleixner
- Jan 2011 - July 2014 Doctoral student at Max Planck Institute for Biogeochemistry, Jena, Germany Including research visits to NERC CEH, Wallingford, UK (2013-2014) Advisors: Gerd Gleixner, Robert Griffiths, Erika Kothe
- July 2008 - Dec 2010 Project Assistant at National Institute of Oceanography (NIO), Goa, India. Advisor: P. A. LokaBharathi

Education

- 2011 - 2014 PhD Soil Biogeochemistry – International Max Planck Research School in Global Biogeochemical Cycles (IMPRS-gBGC) at Max Planck Institute for Biogeochemistry and Friedrich Schiller University (FSU), Jena, Germany.
- 2006 - 2008 MSc Microbiology – Brindavan College, Bangalore University, India
- 2003 - 2006 BSc Microbiology – St. Xavier's College, Goa University, India
Other subjects: Chemistry, Botany

Awards and fellowships

- 2015-2017 EU funded 2-year Marie Skłodowska-Curie Individual Fellowship (review score: 99.2%)
2015 Scholarship to attend STAMPS (bioinformatics) course at Marine Microbiology Laboratory (MBL), Woods Hole, USA
- 2015 Represented the Max Planck Society at Global Young Scientists Summit 2015 in Singapore
- 2014 International Society for Microbial Ecology (ISME) Travel Award for 15th International Symposium on Microbial Ecology, Seoul, South Korea
- 2014 Career Orientation Grant for international laboratory visits by the Jena School for Microbial Communication (JSMC) of FSU, Jena, Germany
- 2014 Best poster award in the Soil System Sciences Division at European Geosciences Union General Assembly, Vienna, Austria
- 2011-2014 German Research Foundation-DFG PhD Fellowship in the research training group "Alteration and element mobility at the microbe-mineral interface" at FSU, Jena, Germany

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| 2012 | Darwin Center for Biogeosciences scholarship for Summer School on Biogeosciences in Utrecht, Wageningen and Texel, The Netherlands |
| 2008 | 'Best outgoing student' from Brindavan College, Bangalore, India |
| 2005 | 'Best behaved boy finalist from St. Xavier's College, Goa, India |

Publications

Preprints/under review:

1. Malik, A.A., Swenson, T., Weihe, C., Morrison, E., Martiny, J.B.H., Brodie, E.L., Northen, T., Allison, S.D. (2019) Physiological adaptations of leaf litter microbial communities to drought reduce decomposition rates. *BioRxiv*, doi.org/10.1038/s41467-018-05980-1.

Key peer-reviewed publications:

2. Malik, A.A., Martiny, J.B.H., Brodie, E.L., Martiny, A.C., Treseder, K.K., Allison, S.D. (2019) Defining trait-based microbial strategies with consequences for soil carbon cycling under climate change. *The ISME Journal*, doi.org/10.1038/s41396-019-0510-0.
3. Puissant, J., Jones, B., Goodall, T., Mang, D., Blaud, A., Gweon, H. S., Malik, A.A. et al. (2019). The pH optimum of soil exoenzymes adapt to long term changes in soil pH. *Soil Biol. Biochem.* 138, 107601. doi.org/10.1016/j.soilbio.2019.107601.
4. Malik, A.A., Puissant, J., Goodall, T., Allison, S.D., Griffiths, R.I. (2019) Soil microbial communities with greater investment in resource acquisition have lower growth yield. *Soil Biology & Biochemistry.* 132, 36-39.
5. Malik, A.A., Puissant, J., Buckeridge, K.M., Goodall, T., Jehmlich, N., Chowdhury, S., Gweon, H.S., Peyton, J.M., Mason, K.E., van Agtmaal, M., Blaud, A., Clark, I.M., Whitaker, J., Pywell, R.F., Ostle, N., Gleixner, G., Griffiths, R.I. (2018) Land use driven change in soil pH affects microbial carbon cycling processes. *Nature Communications*, 9:3591.
6. Malik, A.A., Thomson, B.C., Whiteley, A.S., Bailey, M. and Griffiths, R.I. (2017) Bacterial physiological adaptations to contrasting edaphic conditions identified using landscape scale metagenomics. *mBio*, 8, e00799-17.
7. Malik, A.A., Chowdhury, S., Schlager, V., Oliver A, Puissant J., Mellado Vázquez P.G., Jehmlich N., von Bergen M., Griffiths R.I. and Gleixner G. (2016). Soil fungal:bacterial ratios are linked to altered carbon cycling. *Frontiers in Microbiology.* 7, 1247.
8. Malik, A.A., Roth, V.-N., Hebert, M., Tremblay, L., Dittmar, T. and Gleixner, G. (2016). Linking molecular size, composition and carbon turnover of extractable soil microbial compounds. *Soil Biology & Biochemistry.* 100, 66-73.
9. Lange, M., Eisenhauer, N., Sierra, C. Bessler, H., Engels, C., Griffiths, R.I., Mellado-Vázquez, P.G, Malik, A.A. et al. (2015). Plant diversity increases soil microbial activity and soil carbon storage. *Nature Communications.* 6, 6707.
10. Malik, A.A., Dannert, H., Griffiths, R.I., Thomson, B.C., and Gleixner, G. (2015). Rhizosphere bacterial carbon turnover is higher in nucleic acids than membrane lipids: implications for understanding soil carbon cycling. *Frontiers in Microbiology.* 6, 268.

11. Malik, A.A., Fernandes, C.E.G., Gonsalves, M.-J.B.D., Subina, N.S., Mamatha, S.S., Krishna, K., et al. (2015). Interactions between trophic levels in upwelling and non-upwelling regions during summer monsoon. *J. Sea Res.* 95, 56–69.
12. Malik, A.A. and Gleixner, G. (2013). Importance of microbial soil organic matter processing in dissolved organic carbon production. *FEMS Microbiology Ecology.* 86, 139–148.
13. Malik, A.A., Blagodatskaya, E., and Gleixner, G. (2013). Soil microbial carbon turnover decreases with increasing molecular size. *Soil Biology & Biochemistry.* 62, 115–118.
14. Malik, A.A., Scheibe, A., LokaBharathi, P. A, and Gleixner, G. (2012). Online stable isotope analysis of dissolved organic carbon size classes using size exclusion chromatography coupled to an isotope ratio mass spectrometer. *Environmental Science and Technology.* 46, 10123–9.

Key contributions to symposia

1. Malik, A.A., Swenson, T., Weihe, C., Morrison, E., Martiny, J.B.H., Brodie, E.L., Martiny, A., Treseder, K., Northen, T., Allison, S.D. Inferring trait-based physiological strategies of leaf litter microbial communities along a precipitation gradient. 7th International Symposium on Soil Organic Matter (SOM2019) in Adelaide, Australia. (talk).
2. Malik, A.A., Swenson, T., Weihe, C., Morrison, E., Martiny, J.B.H., Brodie, E.L., Northen, T., Allison, S.D. Physiological adaptations of leaf litter microbial communities to drought reduce decomposition rates. 16th Southern California Geobiology Symposium, 2019, Pasadena, USA (talk).
3. Malik, A.A., Puissant, J., Goodall, T., Jehmlich, N., Gleixner, G., Allison, S.D. and Griffiths, R.I. (2019) Microbial control over soil carbon storage is dependent on tradeoffs among traits linked to resource acquisition, stress tolerance and growth yield. 17th International Symposium on Microbial Ecology, 2018, Leipzig, Germany (poster).
4. Malik, A.A., Allison, S.A. Microbial trait distribution and decomposition response to drought. US Department of Energy Genomic Sciences Program Annual PI Meeting, 2018, Washington DC, USA (talk).
5. Malik, A.A., Puissant J., Buckeridge, K., Goodall, T., Jehmlich, N., Chowdhury, S., Masson, K., Gleixner, G. Griffiths, R.I. Environmental context affects microbial ecophysiological mechanisms underpinning soil carbon storage under different land use. American Geophysical Union (AGU) Fall Meeting, 2017, New Orleans, USA (talk).
6. Malik, A.A., Thomson, B.C., Whiteley, A.S., Bailey, M. and Griffiths, R.I. Bacterial physiological adaptations to contrasting edaphic conditions identified using landscape scale metagenomics. Argonne Soil Metagenomics meeting, 2017, Argonne, USA (talk).
7. Malik A.A., Griffiths R.I. Novel understanding of microbial soil carbon cycling mechanisms through metagenomics-based assessment of central carbon metabolism genes. SOMmic meeting on microbial contribution and impact on soil organic matter, structure and genesis, 2016, Leipzig, Germany (talk).

8. Malik, A.A., Roth, V.-N., Hébert, M., Tremblay, L., Dittmar, T., Gleixner, G. Soil microbial biomass: molecular composition and carbon turnover. 5th International Symposium on Soil Organic Matter 2015, Goettingen, Germany (talk).
9. Malik, A.A., Dannert, H., Griffiths, R.I., Thomson, B.C., Gleixner, G. Underestimation of bacteria in rhizosphere soil carbon cycling? 15th International Symposium on Microbial Ecology (ISME), 2014, Seoul, South Korea (talk)
10. Malik, A.A., Dannert, H., Griffiths, R.I., Thomson, B.C., Gleixner, G. Microbial carbon turnover in the plant-rhizosphere-soil continuum. European Geosciences Union (EGU) General Assembly 2014, Vienna, Austria (talk)

Invited talks

1. School of Biological Sciences, Monash University, Melbourne, Australia, 2019.
2. Department of Environmental Science Policy and Management, University of California, Berkeley, USA, 2019.
3. Department of Earth Systems Science, University of California, Irvine, USA, 2018.
4. Cornell University, Ithaca, USA, 2018.
5. Department of Agricultural Sciences. Georg-August University of Goettingen, Germany, 2017.

Student mentoring

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| 2018-2019 | Kaveh Siah, Bachelor student at UCI: Extracellular enzyme activities of microbial communities along a precipitation gradient in grass and shrub litter. |
| 2017-2019 | Bahareh Sorouri, PhD student at UCI: Microbial control over litter decomposition under climate change studied along an elevation gradient. |
| 2016 - 2017 | Melanie Armbruster, PhD student at CEH: Biodiversity indicators in plant-soil systems under land use change |
| 2014 - 2016 | Somak Chowdhury, PhD student at MPI-BGC: Rhizosphere microbial community response to plant carbon inputs |
| 2014 | Veronika Schlager, Master thesis at MPI-BGC: Soil fungal:bacterial biomass ratios and microbial carbon use efficiency |
| 2013 | Melanie Armbruster, Master rotation project at MPI-BGC: ¹³ C measurements of soil microbial nucleic acids with LC-IRMS enable investigation of belowground carbon cycling |
| 2013 | Helena Dannert, Master thesis at MPI-BGC: Tracking photosynthetically fixed carbon into soil microbial groups using lipid biomarkers |