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Global distribution patterns of mycorrhizal associations: abundance, environmental drivers and ecological impacts

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Curriculum Vitae

Milagros Barceló was born on May 20th, 1988, in Mar del Plata, Argentina. In 2006 she graduated from Sant Josep Obrer high school, in Palma de Mallorca, Spain. From 2007 to 2012 she studied for her Bachelor's degree in Environmental Sciences at the Faculty of Biology of the University of Barcelona, Spain. To complete her Bachelor's final thesis, she spent one semester (2012) at Lund University (Sweden). There, she studied the impacts of different crop covers and agricultural practices on soil ecosystem services under the supervision of Dr Alwyn Williams. She pursued her Master's degree in Ecology and Environmental Restauration also at the University of Barcelona (2012-2013) with a specialization in Fundamental Ecology. During that period, she won a scholarship to collaborate with the Ecology Department on the project CARBONET (Carbon Transport and Processing in the River Network). In her MSc thesis, she assessed the effect of multiple stressors on river ecosystem functioning using the breakdown rates of wood sticks as a river functional indicator. In 2014 she moved to Australia to gain proficiency in English. In 2017, she joined the Institute of Environmental Sciences (CML) at Leiden University, the Netherlands as a PhD candidate under the supervision of Prof. Nadia Soudzilovskaia and Prof. Peter van Bodegom. Her PhD project (2017-2022) focused on investigating the global distribution patterns of different types of mycorrhizal fungi, the environmental and ecological drivers of these patterns and the implications on biogeochemical cycles.

List of Publications

Publications in peer-reviewed Journals:

1. **Barceló, M.**, van Bodegom, P. M., Tedersoo, L., Olsson, P. A., & Soudzilovskaia, N. A. (2022). Mycorrhizal tree impacts on topsoil biogeochemical properties in tropical forests. Journal of Ecology. DOI: 10.1111/1365-2745.13868

2. He, L., Rodrigues, J. L. M., Soudzilovskaia, N. A., **Barceló, M.**, Olsson, P. A., Song, C., Tedersoo, L., Yuan, F., Yuan, F., Lipson D.A. & Xu, X. (2020). Global biogeography of fungal and bacterial biomass carbon in topsoil. Soil Biology and Biochemistry, 151, 108024. DOI: 10.1016/j.soilbio.2020.108024

3. **Barceló, M.**, van Bodegom, P. M., Tedersoo, L., den Haan, N., Veen, G. F., Ostonen, I., Trimbos, K. & Soudzilovskaia, N. A. (2020). The abundance of arbuscular mycorrhiza in soils is linked to the total length of roots colonized at ecosystem level. PloS one, 15(9), e0237256. DOI:10.1371/journal.pone.0237256

4. Soudzilovskaia, N. A., Vaessen, S., **Barcelo, M.**, He, J., Rahimlou, S., Abarenkov, K., Brundrett, M.C., Gomes, S.I.F., Merckx, V. & Tedersoo, L. (2020). FungalRoot: global online database of plant mycorrhizal associations. New Phytologist, 227(3), 955-966. DOI: 10.1111/nph.16569

5. Davison, J., Garcia de Leon, D., Zobel, M., Moora, M., Bueno, C. G., **Barceló, M.**, Gerz, M, León D., Meng, Y., Pillar, V.D, Sepp, S-K., Soudzilovaskaia N.A., Tedersoo, L., Vaessen, S., Vahter, T., Winck, B. & Öpik, M. (2020). Plant functional groups associate with distinct arbuscular mycorrhizal fungal communities. New Phytologist, 226(4), 1117-1128. DOI: 10.1111/nph.16423

6. **Barceló, M.**, van Bodegom, P. M., & Soudzilovskaia, N. A. (2019). Climate drives the spatial distribution of mycorrhizal host plants in terrestrial ecosystems. Journal of Ecology, 107(6), 2564-2573. DOI: 10.1111/1365-2745.13275

7. Abril, M., Muñoz, I., Casas-Ruiz, J. P., Gómez-Gener, L., **Barceló, M.**, Oliva, F., & Menéndez, M. (2015). Effects of water flow regulation on ecosystem functioning

in a Mediterranean river network assessed by wood decomposition. Science of the Total Environment, 517, 57-65. DOI: 10.1016/j.scitotenv.2015.02.015

In revision:

1. Barceló, M., van Bodegom, P. M., & Soudzilovskaia, N. A. Fine-resolution global maps of root biomass C colonized by AM and EcM fungi.

Conference Abstracts:

1. Barceló, M., van Bodegom, P. M., & Soudzilovskaia, N. A (2018). Global distribution of mycorrhizal host plants explained by climate and soil properties. 3rd Ecology of Soil Microorganisms meeting. 17 – 21 June 2018, Helsinki , Finland (Oral Presentation).
2. Barceló, M., van Bodegom, P. M., & Soudzilovskaia, N. A (2018). Global distribution of mycorrhizal host plants explained by climate and soil properties. Netherlands Annual Ecology Meeting (Poster)
3. Barceló, M., van Bodegom, P. M., Tedersoo, L., den Haan, N., Veen, G. F., Ostonen, I., Trimbos, K. & Soudzilovskaia, N. A. (2018). Relationship between the abundance of arbuscular mycorrhiza in soils and the total length of roots colonized. State of the World's Fungi Symposium, Kew Gardens, UK. (Oral Presentation)

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