Universiteit Leiden
The Netherlands

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

Barcelo, M.

Citation

Barcelo, M. (2022, October 26). *Global distribution patterns of mycorrhizal associations: abundance, environmental drivers and ecological impacts*. Retrieved from https://hdl.handle.net/1887/3484258

Version:	Publisher's Version
License:	Licence agreement concerning inclusion of doctoral thesis in the Institutional Repository of the University of Leiden
Downloaded from:	https://hdl.handle.net/1887/3484258

Note: To cite this publication please use the final published version (if applicable).

GLOBAL DISTRIBUTION PATTERNS OF MYCORRHIZAL ASSOCIATIONS

Abundance, environmental drivers and ecological impacts

Milagros Barceló

Milagros Barceló (2022). Global distribution patterns of mycorrhizal associations: abundance, environmental drivers and ecological impacts

PhD Thesis at Leiden University, The Netherlands

ISBN: 978-90-5191-202-9

The research described in this thesis was conducted at the Institute of Environmental Sciences (CML), Leiden University, and funded by the Netherlands Organization for Scientific Research.

Cover Design: Nuria Muñoz Subirana
Layout: Milagros Barceló

Global distribution patterns of mycorrhizal associations:

abundance, environmental drivers and ecological impacts

Proefschrift

ter verkrijging van
de graad van doctor aan de Universiteit Leiden,
op gezag van rector magnificus prof.dr.ir. H. Bijl,
volgens besluit van het college voor promoties
te verdedigen op woensdag 26 oktober 2022
klokke 10:00 uur

door

Milagros Barceló
geboren te Mar del Plata, Argentina
in 1988

POMOTOR

Prof. dr. P. M. van Bodegom

CO-PROMOTOR

Prof. dr. N. A. Soudzilovskaia

PROMOTIECOMMISSIE

Prof.dr. J.C. Biesmeijer

Prof.dr.ing. J.W. Erisman

Dr. S.E. Hannula

Prof.dr.ir. F.T. de Vries

Dr E. Verbruggen

To my mother

“Everything flows and nothing abides; everything gives way and nothing stays fixed.”

- Heraclitus -

CONTENTS

Chapter 1 - General introduction 1

Chapter 2 – Climate drives the spatial distribution of mycorrhizal host plants in terrestrial ecosystems 15

Chapter 3 – Mycorrhizal tree impacts on topsoil biogeochemical properties in tropical forests 51

Chapter 4 – Fine-resolution global maps of root biomass carbon colonized by arbuscular and ecto-mycorrhizal fungi 75

Chapter 5 – The abundance of arbuscular mycorrhiza in soils is linked to the total length of roots colonized at ecosystem level 103

Chapter 6 – General discussion 123

Summary 161

Samenvatting 164

Curriculum Vitae 168

List of Publications 169

Acknowledgements 171