



**BIODIVERSITY
2025**

**15TH NATIONAL CONFERENCE
ON BIODIVERSITY**

**2ND INTERNATIONAL CONFERENCE
ON MEDITERRANEAN BIODIVERSITY**



BIODIVERSITY IN THE XXI CENTURY: NEW PARADIGMS FOR NEW CHALLENGES

PROGRAMME

JUNE 3-6, 2025

**HOTEL GIÒ - PERUGIA CONGRESS CENTRE
PERUGIA, ITALY**

www.perugiabiodiversity2025.com

**15th National Conference on
Biodiversity
2nd International Conference on
Mediterranean Biodiversity**

***Biodiversity in the XXI century: new paradigms
for new challenges***

Perugia, Italy

June 3-6, 2025

BOOK OF ABSTRACTS

Edited by:

Pietro Buzzini
Benedetta Turchetti
Ciro Sannino
Gianmarco Mugnai

Published by the Dipartimento di Scienze Agrarie, Alimentari ed Ambientali, University of Perugia,
Borgo XX Giugno 74, I-06121, Perugia, Italy.
All rights reserved.

ISBN 978-88-99407-03-2

<https://dsa3.unipg.it>

Session: Parallel session: Fungal diversity and bioprospecting

Fungi in Multi-Taxon analysis: updates from the PRIN MultiForDiv Project

Silvia Giusto¹, Anna Andreetta², Giorgio Brunialti³, Giandiego Campetella⁴, Roberto Canullo⁴, Marco Cervellini⁴, Stefano Chelli⁴, Francesco Chianucci⁵, Zuzana Fackovcová¹, Maura Francioni⁴, Luisa Frati³, Paolo Giordani¹, Nicola Puletti⁶, Mirca Zotti¹, Simone Di Piazza¹

¹University of Genova, Italy, ²University of Cagliari, Italy, ³University of Siena, Italy ⁴University of Camerino, Italy, ⁵University of Florence, Italy, ⁶CREA, Research Centre for Forestry and Wood, Italy

silvia.giusto@edu.unige.it

Temperate forests in Europe provide essential ecosystem services, such as carbon storage, water regulation, and habitat provision. However, they face significant threats from climate change and human disturbances. Biodiversity conservation is a priority of national and international policies, yet many aspects of forest diversity, particularly understorey plants, and fungi (including lichens) remain poorly understood. This project investigates the patterns and drivers of multi-taxon forest diversity in Italian forests using sites from the International Co-operative Programme on Forests LII network. The study focuses on soil fungal diversity, key players in nutrient cycling and forest resilience. In particular, we studied the vital soil microfungal component. Soil samples from ten Italian plots were analyzed using dilution plating to quantify and identify fungal strains. Functional traits such as xerotolerance and thermotolerance were assessed to explore their ecological roles and responses to environmental variables. Five plots were analyzed, revealing 1289 colony-forming units (CFUs) and 140 morphotypes. Molecular analysis refined genus identification. The most represented genera were *Penicillium* (55%), *Trichoderma* (9%), and *Aspergillus* (6%). Significant differences in fungal distribution among plots suggest the influence of soil type, forest composition, and organic matter. For instance, the TOS2 plot (Tuscany), dominated by holm oaks and sandy colluvial soil, showed higher fungal presence (248 CFUs) than BOL1 (Bolzano), dominated by Norway spruce and podzolic soil on drift (168 CFUs). The dominant genus also varied: *Penicillium* in TOS2 and *Umbelopsis* in BOL1. Culture-based tests on *Penicillium* and *Aspergillus* strains were conducted to characterize their functional traits. These findings will provide insights into their contributions to organic matter decomposition, symbiosis, and vegetation interactions, enhancing our understanding of forest ecosystem dynamics.

Keywords: Microfungi, Soil, Fungal biodiversity, Global change