

Special Issue

The Functional Role of Mycorrhizal Fungi in Forest Ecosystems

Message from the Guest Editors

Mycorrhizal fungi are organisms that play an important role in the forest ecosystem, where under natural conditions, most plants, including almost all forest trees, live in a symbiotic relationship, supplying the plants with water and mineral salts but also protecting the roots from pathogen infection. In return for increasing the plant's access to soil nutrients, the fungi receive carbon (C) from photosynthesis as a source of energy for the fungus, and the fungus (mycobiont) significantly increases the plant's supply of biogenic elements, mainly nitrogen (N) and phosphorus (P), taken up from the soil via the root hairs.

In recent years, research has indicated an additional role for mycorrhizae in learning, memory and communication between host trees via a common mycorrhizal network. Research on ECM mycorrhizal hyphae shows that mycorrhizal fungi have a strong influence on soil structure but also directly on soil carbon fixation processes through its accumulation in the frass and indirectly by influencing decomposition. Mycorrhizae are very sensitive to anthropogenic changes leading to the disruption of biogeochemical cycles, including carbon and nitrogen.

Guest Editors

Dr. Wojciech Szewczyk

Department of Forest Pathology, Poznań University of Life Sciences,
Wojska Polskiego 71c, 60-625 Poznań, Poland

Prof. Dr. Jolanta Behnke-Borowczyk

Faculty of Forestry and Wood Technology, Poznań University of Life Sciences,
Wojska Polskiego 71c, 60-625 Poznań, Poland

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Editorial Office
MDPI, Grosspeteranlage 5
4052 Basel, Switzerland
Tel: +41 61 683 77 34
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Prof. Dr. Giacomo Alessandro Gerosa

Department of Mathematics and Physics, Catholic University of Brescia,
I-25121 Brescia, Italy

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