

Characterization of *Mortierella* spp. Isolated from a *Sanionia* Moss Colony in Ny-Ålesund, Spitsbergen Island, Norway: Focus on Mycelium Growth and Colonization under Low-Temperature Conditions

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The genus *Mortierella* is recognized as comprising soil-inhabiting saprobic fungi that are distributed globally (Wagner et al., 2013). Numerous species within this genus are capable of producing polyunsaturated fatty acids, thus positioning them as potentially significant biotransforming organisms. Additionally, some *Mortierella* species exhibit pathogenic behavior towards plants. Intriguingly, *Mortierella* spp. have been documented in both Arctic and Antarctic regions (Melo et al., 2014; Tsuji et al., 2016).

In our preliminary investigation, we successfully isolated and identified several *Mortierella* species from a *Sanionia* moss colony located in Ny-Ålesund, Spitsbergen Island, Norway. However, limited information is available concerning their survival strategies in low-temperature environments.

The current investigation has provided clarification that *Mortierella* species, isolated from a *Sanionia* moss colony in Ny-Ålesund, manifest significant mycelial proliferation at a temperature of 0 °C. Furthermore, these organisms have exhibited the ability to colonize *Sanionia* moss shoots and leaves under low-temperature conditions (1 °C or 7 °C) within controlled laboratory environments (Figure 1). These findings strongly indicate that *Mortierella* species should not be regarded solely as saprophytic entities but should also be acknowledged as colonizers of living *Sanionia* moss in the Ny-Ålesund region.

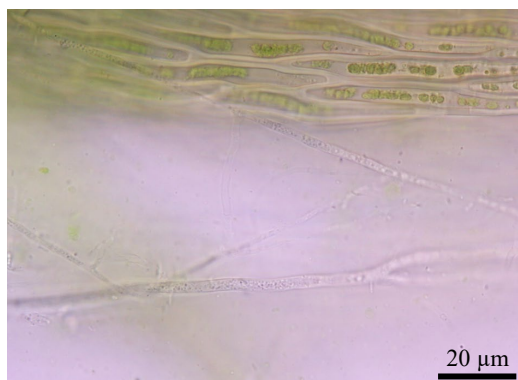


Figure 1. Colonization of *Mortierella* sp. isolated from a *Sanionia* moss in Ny-Ålesund, Spitsbergen Is., Norway.

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