

Pathways of Mg acquisition by ectomycorrhizal mycelia in forest soils: weathering versus decomposition

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Ectomycorrhizal fungi play important roles in accessing N and P from organic polymers in forest ecosystems but they are also important in accessing mineral nutrients. These symbiotic fungi allocate plant-derived carbon to both organic and mineral substrates and have been shown to improve retention of base cations in soil and acquisition by plants. The relative importance of uptake from the mineral and organic pools is still uncertain however. Preliminary studies of ours suggest that dead fungal mycelium may represent a significant source of Ca and Mg that can be accessed by ectomycorrhizal plants. Many studies have demonstrated fractionation of C and N stable isotopes by ectomycorrhizal and saprotrophic fungi but no studies of Mg are currently available. $\delta^{26}\text{Mg}$ values in mineral sources should be higher than in organic matter if similar fractionation, involving discrimination against heavier isotopes, takes place during biological processes. *In-vitro* studies of Mg isotope fractionation by different fungi are being used to examine fractionation patterns associated with different organic and mineral substrates. These studies should enable us to determine the relative importance of the organic matter decomposition and mineral weathering pathways.