

## Analysis of filamentous fungal cell wall components to study the existence of endophytes

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Endophyte is an organism that lives inside a plant. Endophytes of the ergot fungus family *Neotyphodium* reproduce by producing seeds, although the life cycle of the endophyte remains unclear. Tall fescue (*Festuca arundinacea*) non-infected and infected with *Neotyphodium* sp. Fe-047 were used as materials in this study. Chitin is a component of the filamentous fungal cell wall. Chitin is decomposed to (GlcNAc)<sub>2</sub> by an enzyme and we analyzed the amount of (GlcNAc)<sub>2</sub> that can be produced. This analysis has advantages compared to the already investigated methods using proteins or genes.

There are 80-90 % of land plants living together with filamentous fungi. The symbiotic relationships change between the plant and endophyte under microgravity conditions. We will discuss the value of this research method for symbiotic relationships between plants and endophytes in an artificial closed bio-ecosystem.

Keywords: endophyte, symbiosis, closed bio-ecosystem