Mycelium Decomposition

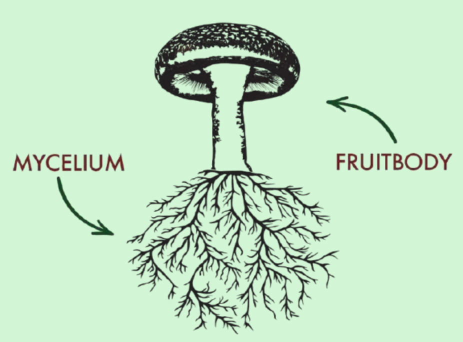
The Effects of Plant Removal Treatments and Climate Gradients

UNIVERSITY OF BERGEN

B299.3

1 Background

With huge amounts of **carbon** being stored by mycelium in the soil, it is important to learn more about what affects this process in the context of **climate change**[1].



Mycelium consists of filamentous hyphae and are the underground part of the fungi fruitbody visible above ground[2]. Different species have different **melanin** concentrations, affecting the rate of decomposition[3].

The aim of this project is to find out how the decomposition rate in 2 types of fungi are affected by the composition of plant functional groups present, the amount of precipitation, and temperature. (Figure 1)

Functional groups of plants are plant species sharing a similar function in the ecosystem[4]. By systematically removing functional groups we can see if their function has any effect on the decomposition rate of the mycelium.

2 Project Setup

The first part of the project was done by a team at UiO and included preparing, burying, and then digging up the samples from the field after a few years.

The samples were then handed to me to document the decomposition rate by weighing the samples post-decomposition and comparing to the weight pre-decomposition to estimate **weight loss.** (Figure 2)

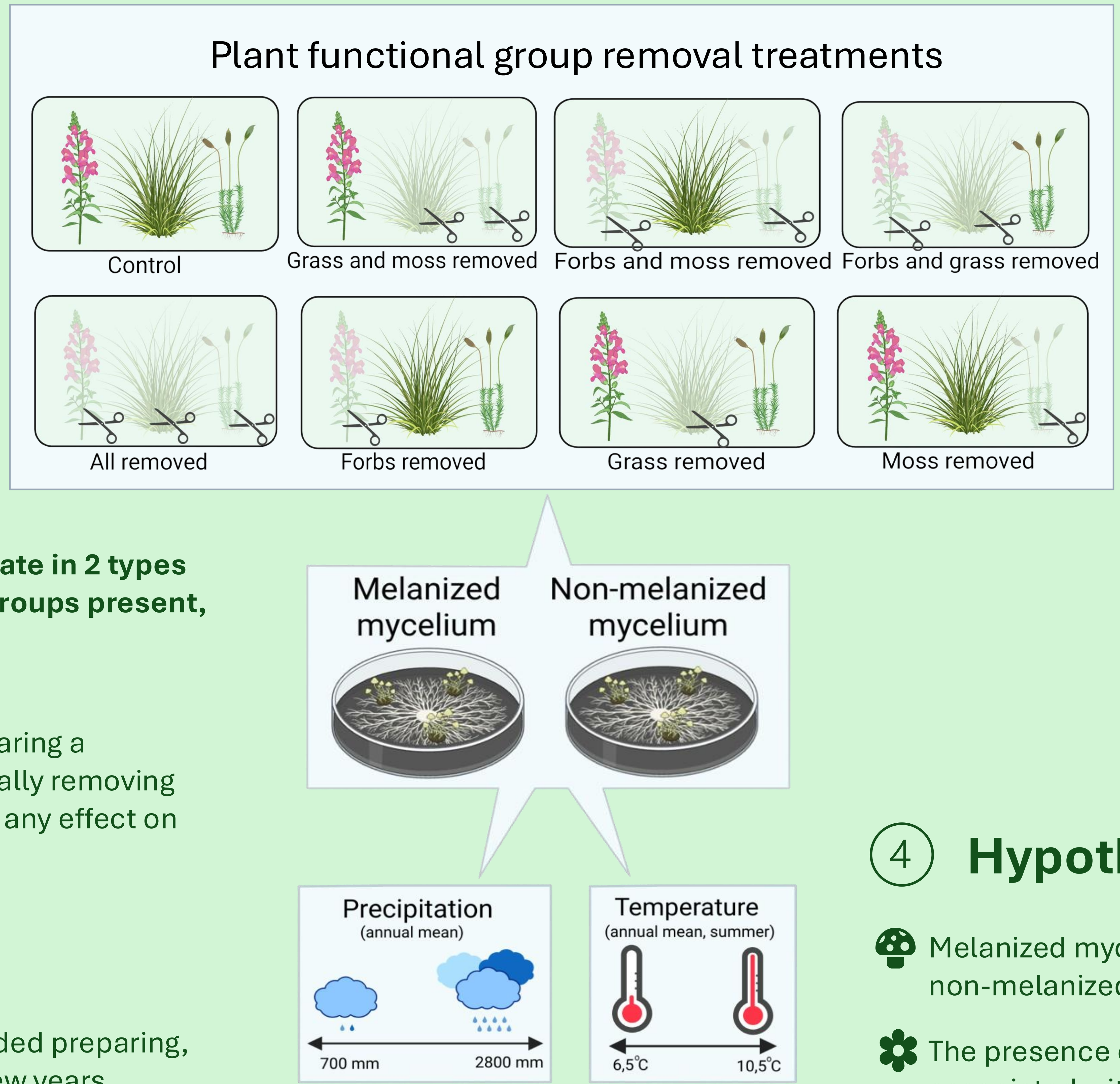


Figure 1: The different removal treatments conducted and the climate gradients used for each of the 2 types of mycelium

3 What I Did

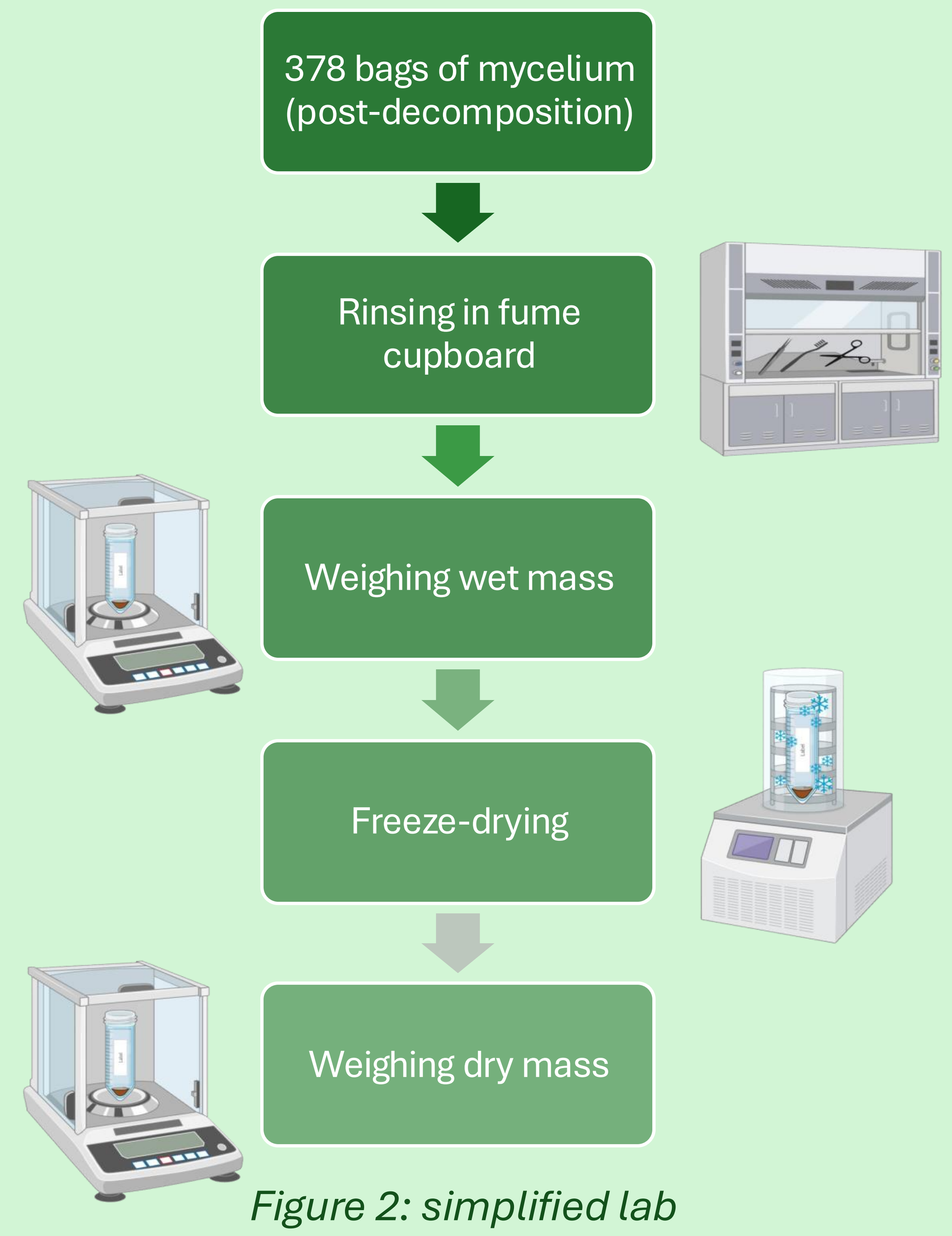


Figure 2: simplified lab protocol and equipment

4 Hypotheses

- Melanized mycelium decomposes at a lower rate than non-melanized mycelium[3]
- The presence of more functional groups of plants is associated with a higher rate of decomposition, indepently of the specific groups
- Wetter climate slows down decomposition[5]
- Warmer temperatures lead to faster decomposition[5]

References

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5. Althuizen, I.H.J., Lee, H., Sarneel, J.M., Vandvik, V. (2018). Long-Term Climate Regime Modulates the Impact of Short-Term Climate Variability on Decomposition in Alpine Grassland Soils. *Ecosystems 21*, 1580–1592. https://doi.org/10.1007/s10021-018-0241-5

Figures made in BioRender

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BETWEEN THE FJORDS