

DESCRIPTION FOR THE GENERAL PUBLIC

Mucoralean fungi occur commonly in various habitats in different parts of the world. They can be found on mouldy bread or spoiled strawberries. They are mostly saprotrophic organisms which derive their nourishment from dead or decaying organic matter. In recent years, several different bacteria species were isolated from mucoraceous hyphae. However, the diversity and factors influencing their occurrence in hyphae remain unknown.

Aim of our study is to verify the **impact of soil contamination on the occurrence and diversity of selected Mucoromycota representatives and bacteria living in their hyphae**. We want to answer few questions which have not been addressed yet. First, which bacteria species can form partnership with Mucoromycota? Further, can soil contamination type affect diversity of both studied groups?

To answer these question we plan to study soil samples collected from fifty sites located in Poland. They were chosen carefully so that half represent polluted areas. We will not only characterize every soil sample in terms of physical and chemical parameters, but we will also evaluate type and level of contamination. All mucoralean fungi will be identified in all fifty samples and all bacteria – in ten selected samples. We will achieve this goal by using next-generation sequencing technique with specific barcode for each group of organisms.

After initial analysis of fungal and bacterial diversity in each sample we aim to check growth ability of isolated Mucoromycota. We will isolate fungi on culture media constantly monitoring bacterial community inside and outside of their hyphea. Finally, we will remove all fungi-related bacteria and replate sterile mucoralean strains on solidified soil extract from the fungus isolation site. By comparing ability to grow in each variant we will learn whether endosymbionts help Mucoromycota representatives live in contaminated environment.