

Mycelium germination from spores
(Level 3 – mushroom expert)

When growing mushrooms out of spores you obtain plenty of autonomous mycelia strands forming dikaryotic mycelium, a so called spore mass inoculation. This mycelium has sprung from various germinating spores, sprouting mushroom cultures comprise individuals, descending from different mycelia strands (you can compare this mycelium to a fruit orchard – yielding heterogeneous fruits from different trees– not similar fruits from only one tree). Multicultural mycelium is mainly used for selecting the fittest individuals from the new culture to continue work with them.

Recommended Tools:

Spores (spore print or spore syringe)
Agar medium in petri dishes
One-way inoculation loop or needle holder with inoculation loop
Parafilm to seal the petri dishes
Spiritus lamp (only for metal inoculation loop)
Facemask and hairnet
Latex gloves
Workspace disinfection
Hand disinfection
Glove Bag (sterile workspace)



Inoculation of agar medium

To minimise the risk of contamination of agar medium by other organisms (e.g., bacteria, molds ...) we advise working in a Glove Box/Glove Bag or in front of a HEPA-filter. Clean the workspace, wash hands and forearms, put on face mask, hairnet and gloves, then disinfect your worktop well. Disinfect hands again and allow drying before starting. Antibacterial agar has proven to be successful with spore prints gained from outdoor collected mushrooms, for those often carry bacterial contamination.



If working with a reusable inoculation loop, heat the inoculation loop red hot in the flame of an alcohol lamp and let it cool down in your hand. Do not touch the spore print, inoculation loop or agar medium. Now rub the spore print until the whole loop has gathered some spores. Open the petri dish and import the spores to the agar, drawing a „S“ over the media. If using a spore syringe, 1-2 ml solution per petri dish will suffice.



Do not take off the lid fully and work quickly to lessen contamination risks. Close the lid and seal it with Parafilm. It is advisable always to inoculate several petri dishes with a spore print since they thrive and prosper varyingly.

Label the Petri dishes giving information about date, genus name, strain (strain means different type species within one genus – comparable with different kinds of apples) and consecutive number. A CD-marker or permanent marker will stick to it.

Mycelium growth

During spawn-run (development and growing of the mycelium) the sealed petri dishes are stored in a dark and neat place. The appropriate temperature depends on the genus cultivated. Ensure that the incubator in which the mycelium is grown provides enough ventilation. After a few days up to one week the spores start germination. As soon as rhizomorph mycelium strands become visible, they are ready for selection (look up the instruction for „Selection of mycelium strands“).



References:

„Mycelium running/ How mushrooms can help save the world“, Paul Stamets; Ten Speed Press, Berkeley/Toronto;

„The Mushroom Cultivator: A Practical Guide to Growing Mushrooms at Home“, Paul Stamets, Agarikon Press; First Edition (December 1983);

„Growing Gourmet and Medicinal Mushrooms“, Paul Stamets, Ten Speed Press, Berkeley/Toronto;