



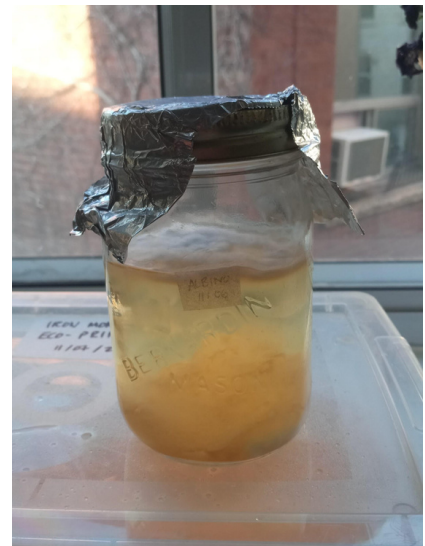
# MYCELIUM MEMBRANES

# MYCELIUM MEMBRANES

If you're aiming to create materials like leathers and foams using mycelium, you should consider a species of mycelium that naturally expands upwards from its base, forming a matrix, rather than one that grows inward. It's also beneficial to create an environment with high levels of carbon dioxide, as this can prevent the mycelium from producing fruiting bodies, encouraging it to continue growing upwards. This process is known as aerial mycelium, and it's been effectively utilized by companies like Ecovative in creating their foam and leather products. This method uses less water, reduces animal cruelty related to fashion demands, and saves agricultural land by enabling vertical farming.

## Instructions:

- Take half to a full agar plate of mycelium. Suitable species include
- *Trametes Versicolor*, *Schizophyllum commune*, *Pleurotus ostreatus*, or *Ganoderma lucidum*.
- Carefully remove all the agar to maintain just the mycelium.
- Introduce the pure mycelium into a sterilized liquid medium rich in nutrients. A recipe for this could be: 3g malt extract, 3g yeast extract, 5g peptone, 10g glucose, and 1000ml distilled water.
- Incubate the mixture at a temperature of 23-28°C for 5-10 days.
- Leave it to grow undisturbed in a container of the desired size.
- The mycelium will grow on the surface of the liquid and fill up the container.
- After 5-10 days, use a syringe to add more nutrient medium underneath the sheet of mycelium.
- Allow another incubation period of 5-10 days. The growth time can depend on the size of the container.
- Harvest the sheet of mycelium.
- Immerse the mycelium sheet in a plasticizer, such as glycerol or choline chloride:ethylene glycol, for 24-48 hours.
- Dry it at a temperature of 70-130°C for several hours. You can also heat-press the mycelium sheet.
- Thoroughly rinse the mycelium sheet to ensure all the plasticizer is removed.
- Dry it again at 70-130°C for several hours.







# MYCELIUM MEMBRANES

Start by placing a piece of agar that has mycelium on it onto a textile base. In this scenario, we're using jute fabric as the base, which has been sterilized in an autoclave for at least 30 minutes. Add a bit of water to the bottle that holds the jute (this helps ensure that the jute gets fully sterilized under the heat pressure).

This base (the jute fabric) needs to be put in a container that can be sterilized and sealed to protect the sample and its environment from outside contaminants. A glass dish with a lid, like a Pyrex dish or petri dish, is a good option.

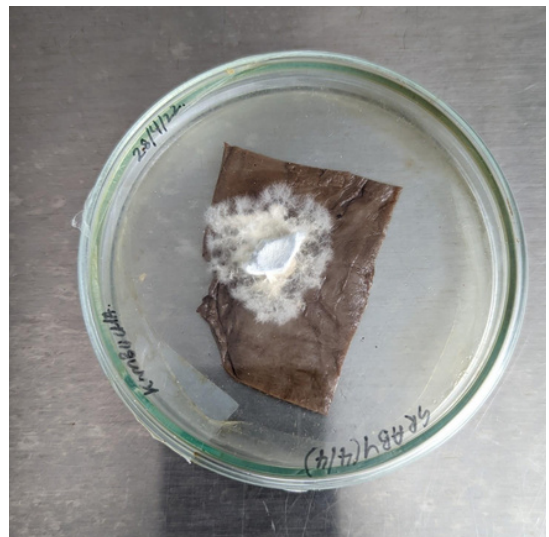
Lastly, gently pour the PDB (Potato Dextrose Broth) medium into the glass dish, making sure not to add too much, as this could inhibit growth. To ensure the fungus spreads evenly across the fabric, periodically rotate the textile within the dish.







# MYCELIUM MEMBRANES



Instead of using a liquid base for growth, mycelium can also be cultivated on fibers derived from plant materials, known as lignocellulosic fibers. Additionally, these fibers can be combined with the liquid medium, providing another method for growth.

# MYCELIUM MEMBRANES



[ADD DESCRIPTION](#)



# MYCELIUM MEMBRANES

ADD PHOTO OF RESULT



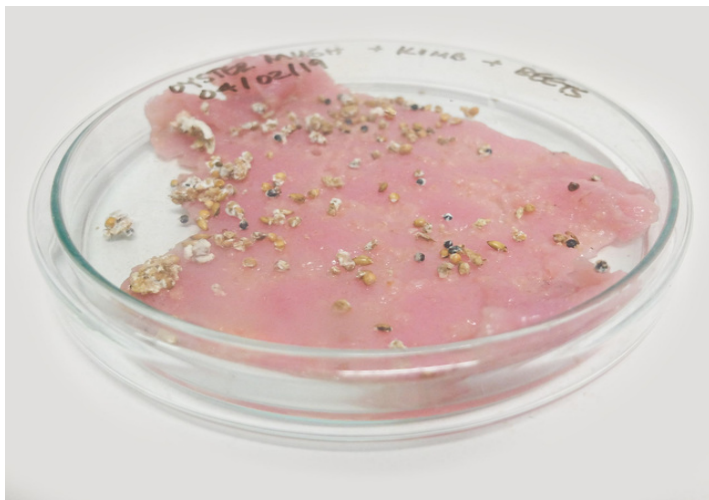
ADD DESCRIPTION



# MYCELIUM MEMBRANES



# MYCELIUM MEMBRANES



There's an exciting application of mycelium, which is its use in creating finishing sprays for textiles made from biological materials. For example, consider its interaction with kombucha. The mycelium serves to make the kombucha more resistant to water, while the kombucha gives the end product the texture and flexibility of leather-like material.

Imagine growing a base material using kombucha scoby (which stands for "Symbiotic Culture Of Bacteria and Yeast"). This scoby textile isn't water-resistant like those made with mycelium, but it is quite durable.

First, you could cultivate a scoby, which forms a tough cellulose mat. Then, after sterilizing or pasteurizing it, it could serve as the base for growing mycelium. If you allow the mycelium to partially consume the scoby, you can find a perfect balance between the amount of scoby left and the amount of mycelium grown. This balance can be adjusted according to specific needs, allowing for the ideal combination of durability and water resistance.



