Grow Your Own Oyster Mushrooms

You Need:

- curiosity and a sense of play
- a clean container: large juice carton or yogurt container, 5 gallon food-grade bucket, 1-2 gallon garden pots, bags, etc
- Mushroom 'spawn' (pre-grown mycelium)
- spent coffee grounds, straw, cardboard or pelletized sawdust

1. **Prepare the material you will grow mushrooms on** (the "substrate") to kill the other bacteria and fungi that would compete with your mushroom. You can do this in a few ways:

Option 1: pick up some spent coffee grounds from a local coffee shop- the brewing process killed most competitor bacteria/fungi living on them, so you don't need to treat them if they were brewed in the last 24 hours and stored well (in a closed bag).

Option 2: stuff straw into a pillow case and put it in a big pot of boiling water and boil it for 1 hr or more, then drain it completely and let it cool down before using.

Option 3: fill a clean garbage bin or bucket with cold water. Pack straw into a pillow case or double garbage bag it and submerge it in the water, sealing the bin with the lid. Let it sit for at least one to two weeks, and then remove the lid and drain it for one day upside down. Spread the straw out on a clean surface and let it dry until it only drips 1-2 drops when squeezed.

Option 4: soak pelletized alder sawdust in just enough water to cover it in a clean bucket for 1 hour. Drain off excess water.

2. **Wash your hands and the container.** Prepare a clean working area, clean off the table, clean out the container and wipe with bleach/vinegar.

3. Make sure your coffee grounds or straw are moist enough with the 'squeeze test.' If not, spray them with spring, river or well water (not chlorinated water) until they drip one drop.

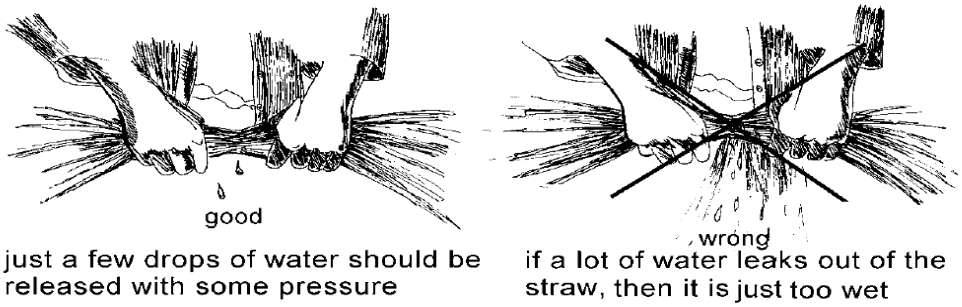

Figure 17: Squeeze test

4. **Pack it up.** Put the coffee grounds or straw into a container. Container options include clear plastic bags, plastic tubs or buckets or various types of boxes (ie. wax cartons!). Punch or drill a few

small holes in for air exchange evenly dispersed along the bottom, middle and top of the container.

5. **Add some spawn** and mix it in, or add a layer of substrate and top it with some spawn, layer by layer. **Roughly one part source spawn to every five to ten parts substrate is a good starting ratio.** Larger concentrations will result in faster growth and a decreased risk of it getting moldy.

6. **Put it inside your house-** a warmish, not too dry place should be fine. You will also want to place the fungus out of direct sunlight but with enough ambient light to be able to read a book comfortably. I put my buckets on top of my fridge where its warm and out of the way.

7. **Watch** for any signs of discoloration from competitor molds (e.g. blue, green, or gray patches). If you see green or colored molds growing, this is a mold. If it is just a small patch, scoop it off, or you can try adding a little salt or baking soda to the area which should kill it off and still allow the mushroom to grow. Or spray with diluted hydrogen peroxide (1:10 peroxide to water). But if mold takes over, you can dump it in the compost and try again.

8. **Wait.** This is the best part. In the coming weeks you will want to check it often. In the ideal situation you will begin to see white threads of mycelium radiating out from each patch of source mycelium. These patches will expand over several weeks to encompass the whole bucket. The spawn run time is different for each species and depends on the size of the bag, amount of spawn, and the temperature, but should take about 3-6 weeks.

9. **Increase air and light.** Once the mycelium has run all the way through the bucket (look in the top and in the air holes on the sides) and is totally white on top it should be moved to a place with more sunlight, and the lid fully or partially removed. Best is to remove the lid and cover with saran wrap or a plastic bag with many holes punched in- this will be your 'humidity tent'.

10. **Start misting it with water.** Mushrooms won't grow unless there is steady moisture flow, so make sure to mist inside your bucket or bag with **un-chlorinated water** (spring, well or rain water) every day and don't let it dry out. I like to use a spray bottle for this. *I usually wait until baby mushrooms begin to form to begin misting

Troubleshooting:

Long stems, small caps: too much carbon dioxide, increase the air by taking off the lid or punching more holes in. The stems elongate as they search for oxygen; same if there isn't enough light.

Cracked caps: too dry vs. slimy caps: too much water! (mushrooms breath through their skin). Water less if they are slimy or more if they are cracked.

Mushrooms form but dry up when small: this is normal. Mushrooms will start many little clusters and choose one or two to focus energy on growing. If all the clusters are drying up, mist more often and for longer and make sure you have a 'humidity tent.'

Surface turns white or green and fuzzy: White growth indicates healthy, active mycelial growth… and often appears very fuzzy when it grows out on the surface of a substrate. Smelling it is the best way to tell if it is mycelium or mold: mold smells dank while mycelium smells sweet.

Green growth is trichoderma, green mold and can mess up your oyster mushroom growth and contaminate your whole kit if not dealt with. This is why you need to check your bucket often to catch the first signs of mold growth. Maybe you can just scoop it off. An easy way to treat it is to spray it with hydrogen peroxide (3% in a ratio of 1:10 peroxide to water) and spray the affected area regularly. If the mold is concentrated, do not dilute and add directly with a cotton ball. Or add salt, or baking soda. Worst case scenario, if the whole thing gets contaminated, it is a dreamy soil or compost amendment- just add it to your compost and try again.

It doesn't fruit but looks healthy: wait longer! Or, Oyster mushrooms (including *Pleurotus ostreatus* that we are growing) will fruit reliably when, after mycelial growth, they experience a cold shock (a difference of 5 °C to 10 °C). To mimic this, try putting it outside for 24 hours.

11. **Harvest.** The mushrooms will grow bigger and bigger if you keep misting inside the bag/bucket. The ideal stage for harvesting oyster mushrooms is when the caps are still slightly convex, folding down. When the caps begin to flatten and uplift, they are approaching over-maturity. Harvest by cutting or twisting them off the substrate as close to the base as possible. They grow in shelf like clusters, so you will need to harvest the whole cluster at the same time or the remaining tissue can lead to contamination as it decays.

12. **Enjoy eating them!!** Add them to soups, stir-fries, or fry and use as toppings for burgers- yum! All mushrooms have very tough cell walls made of chitin, so need to be well cooked before being eaten. Otherwise the nutrients remain locked inside the cells and are not available for our bodies to absorb. Oyster mushrooms are delicious stir fried with butter and garlic until golden brown- 15-20 minutes.

13. **Let it rest, then…harvest again!** After each harvest, let the bucket or bag rest and dry out for a few days, then begin misting again. Harvesting can continue as long as the mycelium remains white and firm. In total, 2-5 flushes can be harvested (probably at least one week apart, depending on conditions). The yield is about 20% of the weight of the wet substrate of fresh oyster mushrooms. Typically 5 gallon buckets produce 5 harvests in total, and each were between 1-2 lbs of mushrooms (total of about 8lbs of mushrooms) over 3 months. Bags can be similar.

14. **Add spent substrate to your compost.** When the substrate becomes soft and colourless, it is time to add it to your compost! Or, use the mycelium in the bucket as spawn, and divide it up into 2-3 new buckets of spent coffee grounds or cold-pasteurized straw.

For more information and resources:
Blog: http://diyfungi.blog