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1 – PREPARE THE AGAR

Agar (LMEA, Light Malt Extract Agar) is a nutrient solution that will be used to germinate the spores so that they produce mycelium.
This step is optional but is considered best practice because it allows for the isolation of a fast-growing strain, time savings, and more consistent long-term results. There are other recipes for making Agar, but here uses the one that is generally recommended. This will allow us to create a dozen petri dishes.

- 8 grams of malt extract
- 8 grams of agar-agar powder
- 400ml hot water

Combine all the ingredients in a jar of at least 500 ml, shake them to mix them well.

Some put mason jar lids upside down to prevent them from sealing in the pressure cooker, so they will be easier to open after sterilization. Leave lids slightly loose.

Put a tray at the bottom of the casserole so that the jars are not in contact with the bottom, and pour enough water so that the level reaches the bottom of the jars.

Leave the pressure cooker at 15 PSI for 30 minutes. Or, when steam begins to escape from the casserole, lower the temperature from 9 to 6 (out of 10), and leave it that way for 30 minutes. Once done, let cool for at least 30 minutes in front of the laminar flow hood.

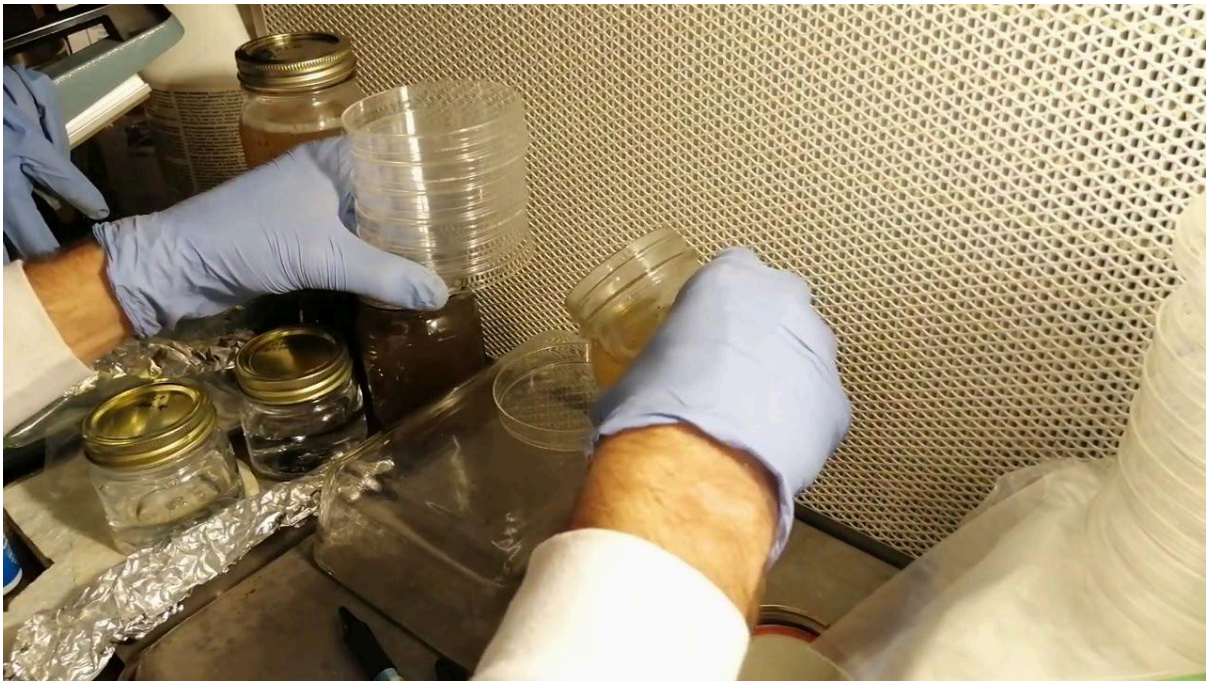
Spray 70% alcohol on the work surface, on the nitrile gloves, ensure that the air is not moving in the room, that there are no open windows, wear clean clothes, a mask, and be very careful to prevent any contamination.

Put the jars in front of the fume hood, clean them with 70% alcohol, shake them lightly to ensure that the contents are well mixed.

Work on a raised surface in front of the center of the hood, you can for example use a glass oven dish turned upside down, and make sure that it is clean and disinfected with 70% alcohol.

Single-use plastic petri dishes cannot be stewed and sterilized for multiple use, unlike glass ones which can be cleaned, sterilized, and used multiple times. Glass dishes can be difficult to clean and most people prefer to use single-use ones. Note that diehard scientists use Erlenmeyer flasks to pour the Agar, it's a little easier to pour, it avoids putting aside, and the smaller opening also leaves less chance for contamination .

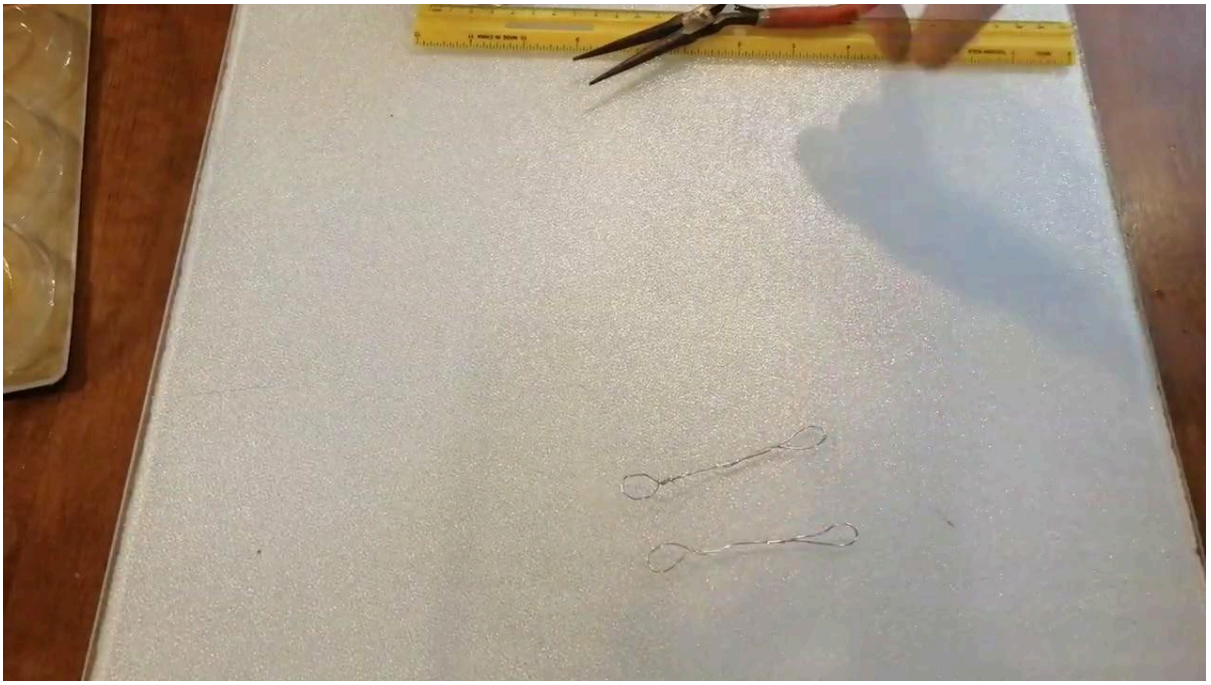
But mason jars are cheaper and it's not difficult to pour Agar into petri dishes, it just takes a little practice.



Pour the Agar into the petri dishes. If the dishes are stacked, start with the bottom of the pile, pour quickly, and just enough to cover the bottom of each dish. If a corner of the dish seems not to be filled, it does not matter, then spread the Agar over the entire surface by rotating the petri dish.

Write the date and the recipe used on the dishes with a permanent marker, then put them in zip-lock bags, here we put two stacked dishes in each zip-lock bag.

Many use Parafilm which they put around petri dishes, but it's easier to use clean zip-lock bags, which work very well, they're sterile and allow a bit of air exchange, which is required for crops.



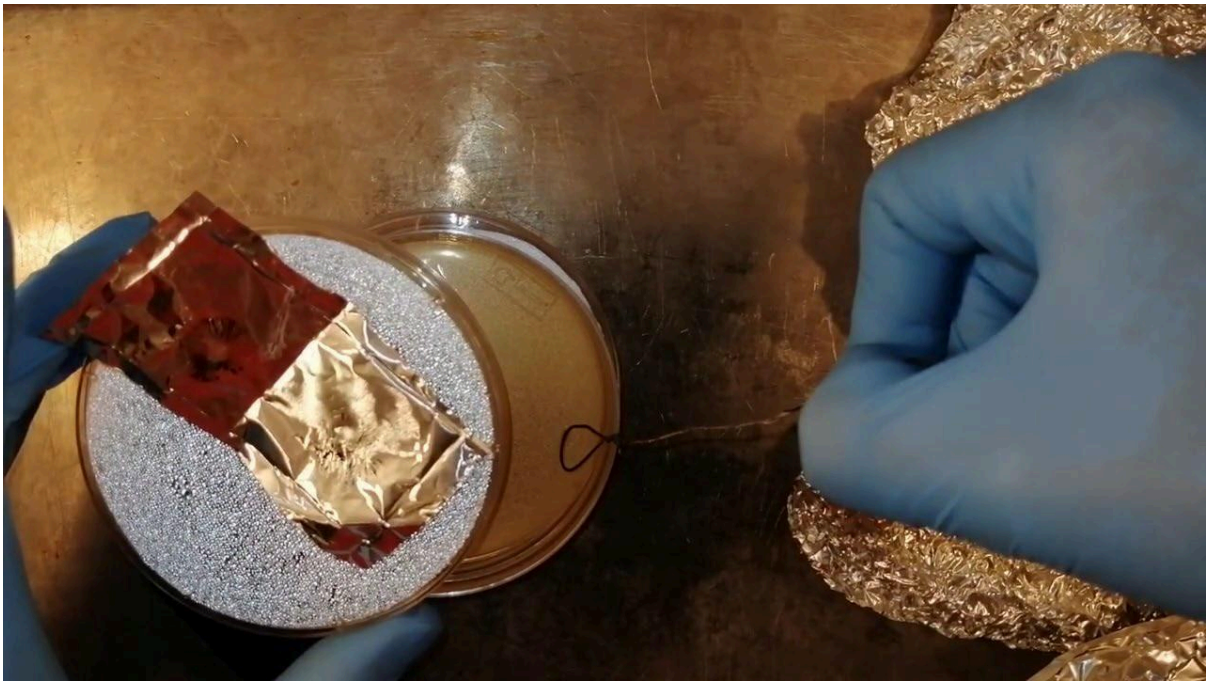
Make inoculation loops with a metal wire (stainless steel) about 15 cm long, making a loop on one side and a handle on the other, as above.

Put them in an aluminum foil with the scalpel and sterilize everything in the casserole. When the pressure builds up, start a timer for 30 minutes, once done put the aluminum foil with the sterilized tools in front of the laminar flow hood.

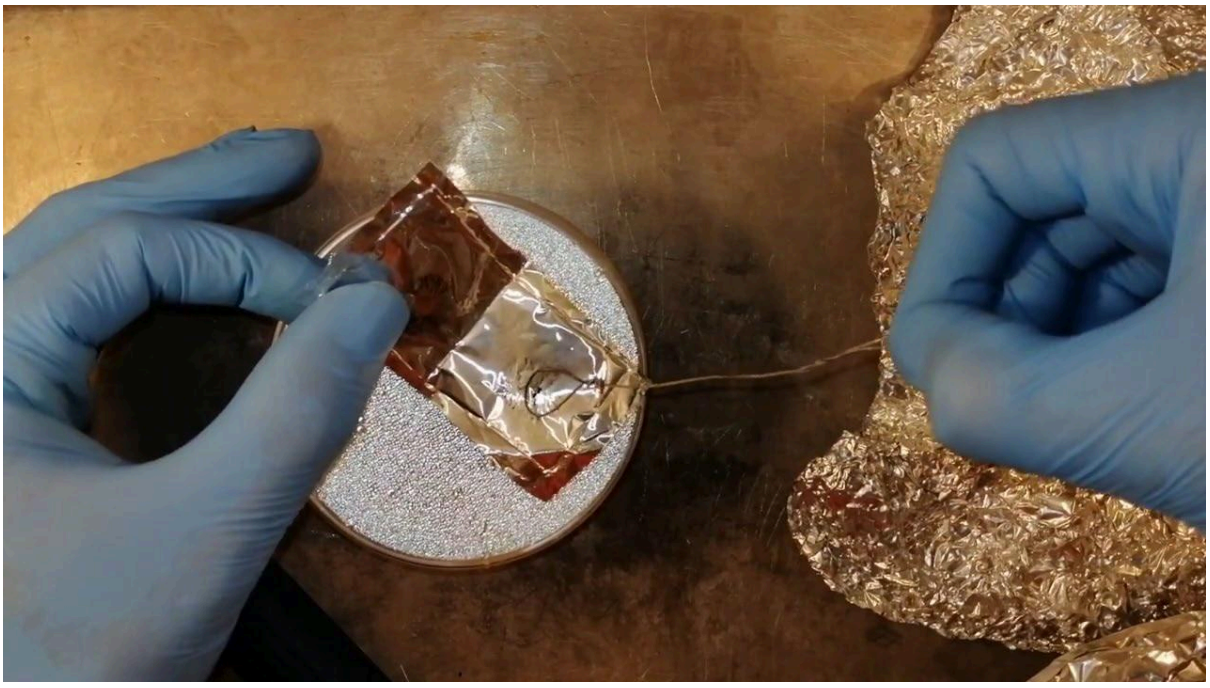
Clean the work surface with 70% alcohol and place the scalpel, inoculation loops and spore print on it.

Unfold the spore print only in front of the laminar flow hood, scrape them gently with the scalpel to make a pile of spores.

Take the inoculation loop and sterilize the loop with a blue flame until it turns orange.

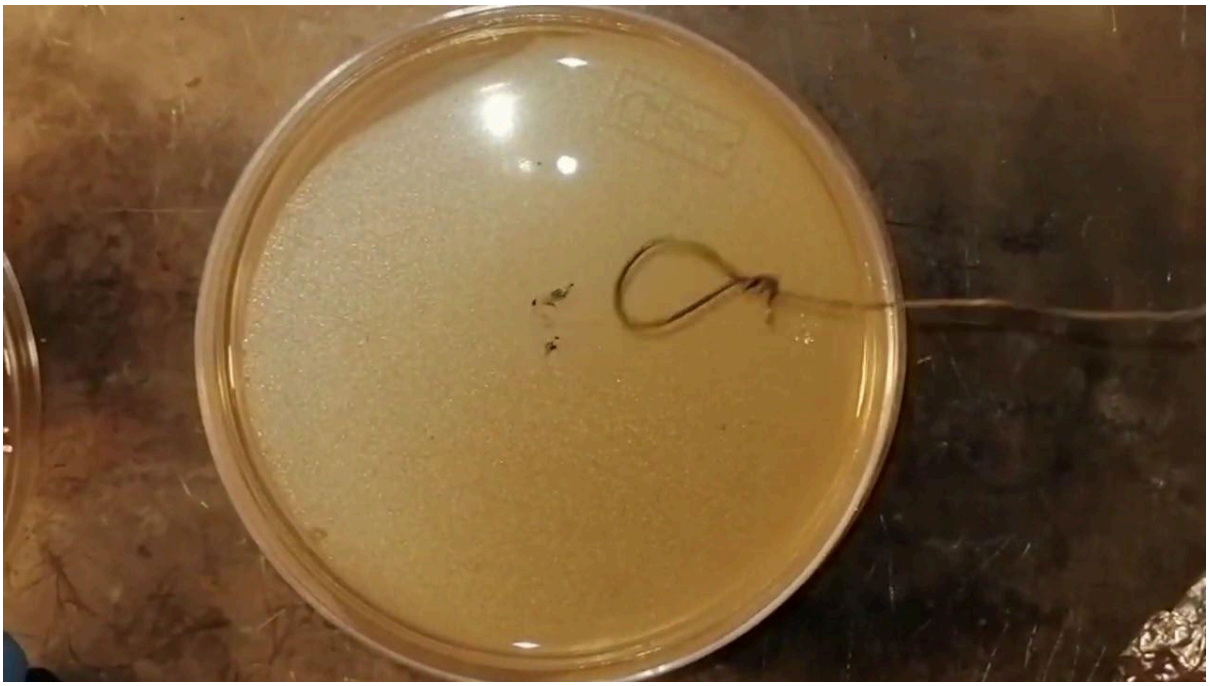


Take a Petri dish and briefly put our inoculation loop in the Agar, this will cool it a little and coat it with Agar, which will help the spores to adhere to it.



Carefully slide the inoculation magnifying glass over our spore stack.

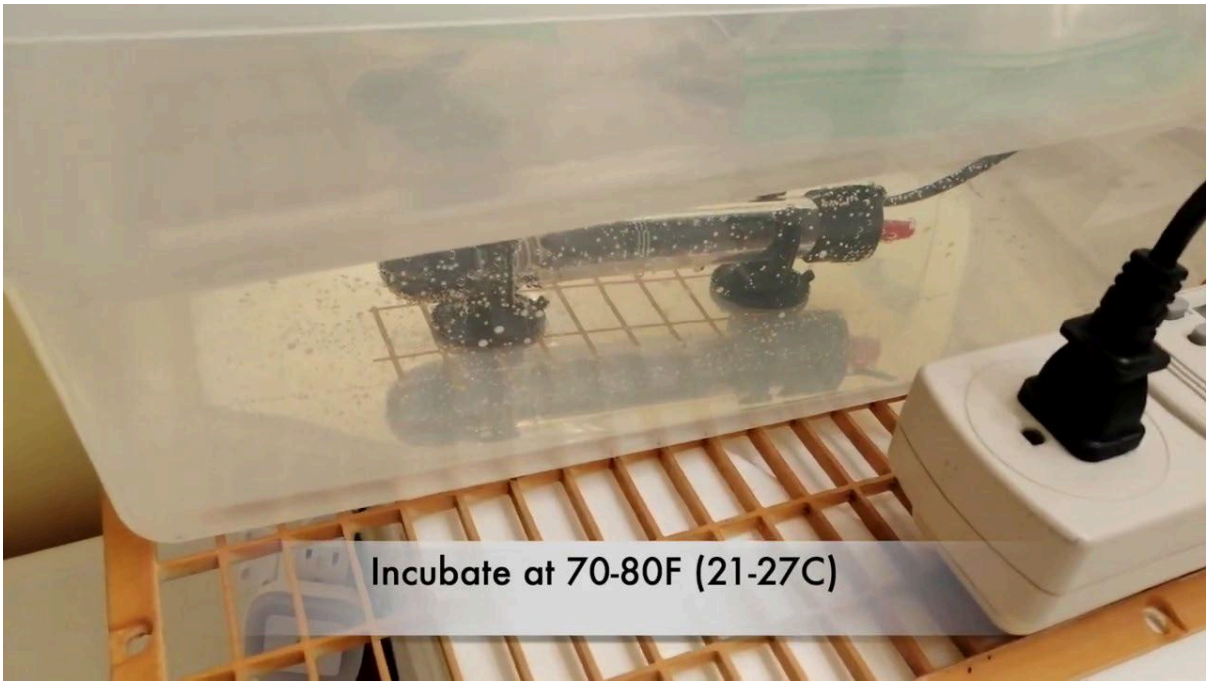
With the inoculation loop coated with spores, make an S or Z shape in the center of the Petri dish by touching the surface of the Agar. It is important that this is done in the center because the mycelium will then grow out from the center and a section of the mycelium closest to the edges of the petri dish will be used, before it touches the edge of the petri dish . We do this to isolate the healthiest and most vigorous mycelium.



Here is a closer look at the shape of an S on the surface of the Agar, in the middle of the petri dish.

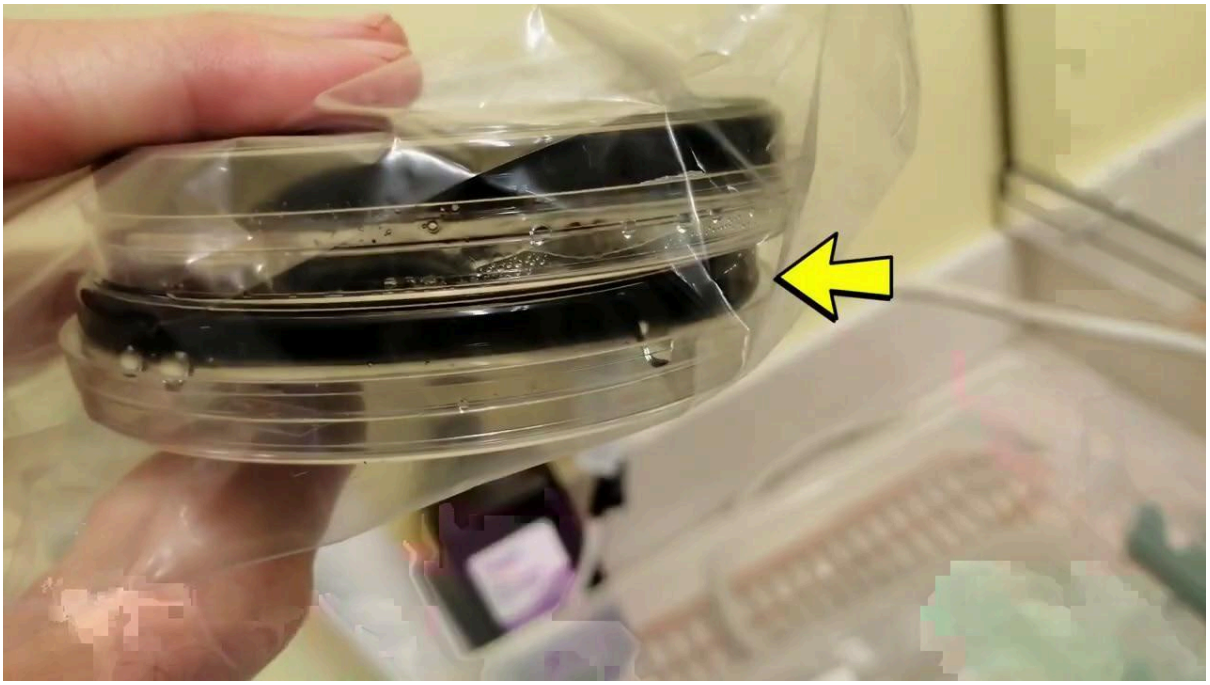
Put the petri dishes in zip-lock bags and write on them the species of fungus and the date when the spores were germinated in the Agar.

Clean and sterilize with the blue flame the inoculation magnifying glass between each series of petri dishes, a series being the number of petri dishes in a zip-lock bag. If we make a lot of petri dishes we change our inoculation magnifying glass from time to time instead of using the same one too many times.



Then incubate our petri dishes for 7 to 14 days in the dark between 21 and 27 degrees, until the dishes are largely colonized. As an incubator, plastic storage boxes can be used.

If the ambient temperature is too low, you can put two storage boxes inside each other, and put water with an aquarium heater in the one below. If the temperature is above 21 C, nothing special should be done. However, the mycelium will grow faster around 26-27 C.

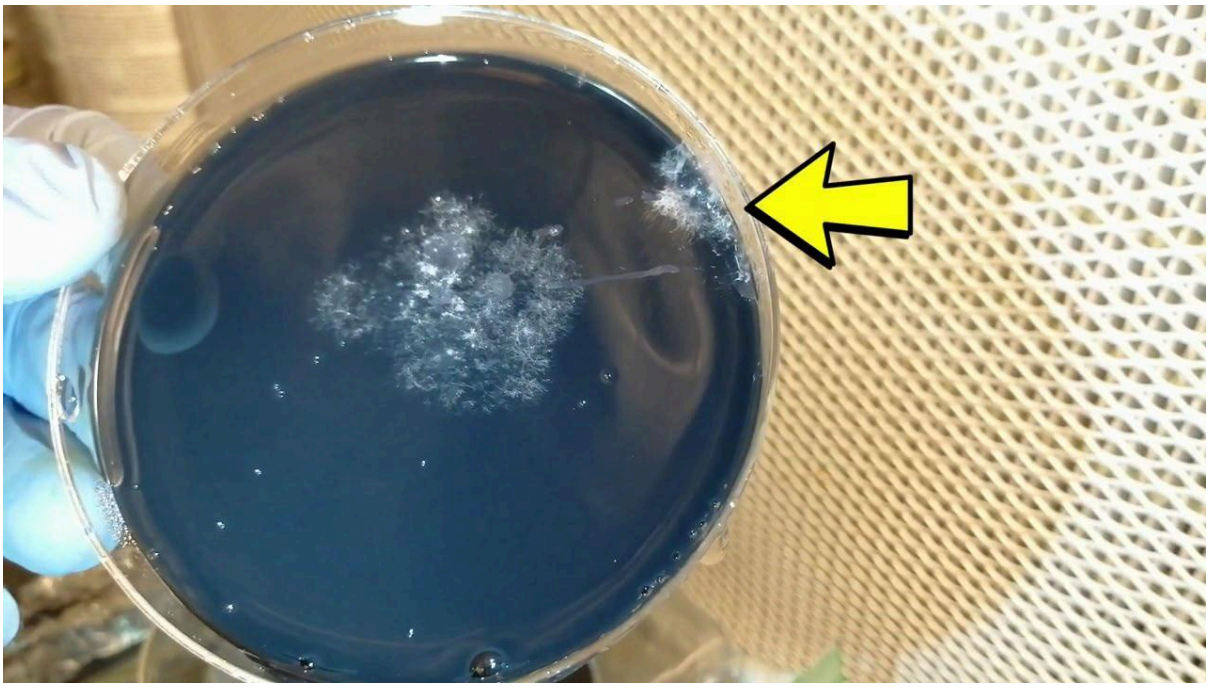


As soon as there is white in the petri dishes they are put upside down, with the Agar on the ceiling of the petri dish, not on the floor (in the photo the Agar is black because Gordo also used other recipes in her video). This reduces the chances of water condensing and falling on the Agar, which could disturb or even contaminate the growing mycelium.

Check petri dishes after a few days of incubation, spores usually germinate after 3-7 days. If the spores are old or the agar a bit dry it may take longer, up to 4 weeks.

This is what the spores look like five days after germinating them in Agar.

In this petri dish we can see a secondary colonization, probably coming from a yeast, it is preferable not to use a petri dish like this one, it is besides for that that we make several dishes of kneaded, to select those which have the best appearance and the best growth.



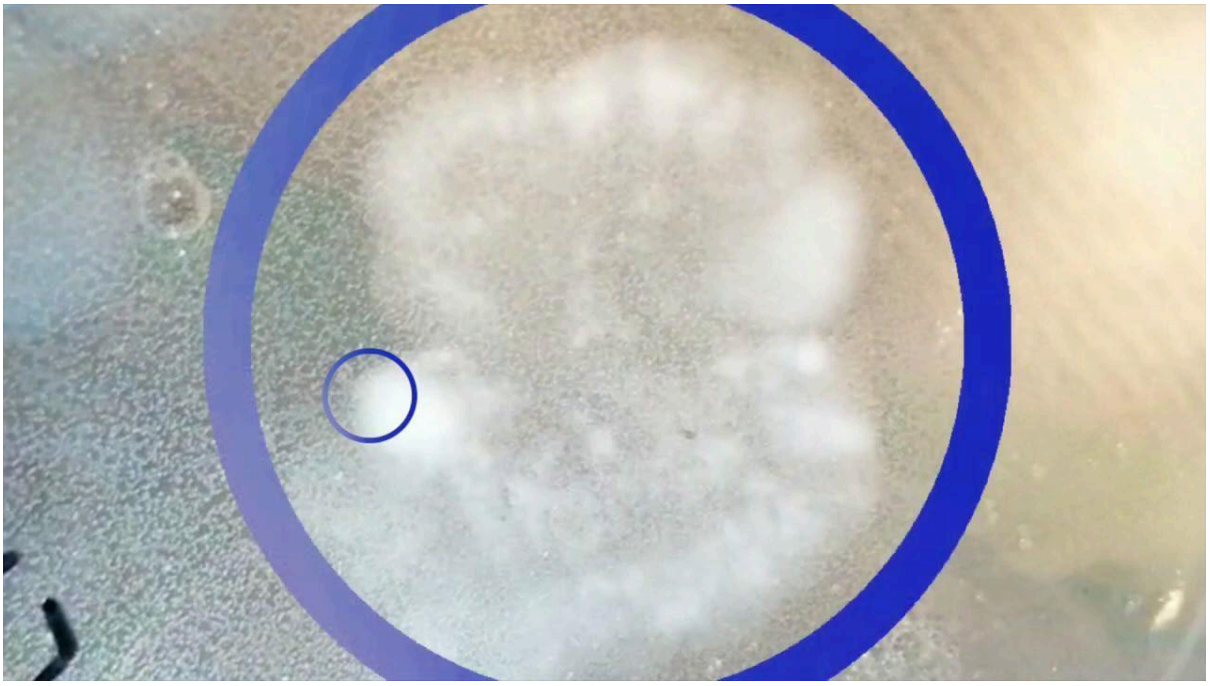
Here we see mycelium touching the end of the petri dish, it's not good, we spilled some spores on it during the inoculation (the Agar is black in this example because we used another recipe, which is worse than the LMEA used here).

Normally one waits until the mycelium grows to about 1 cm from the edge of the petri dish,

which gives it time to isolate itself and allow the most vigorous mycelium to take hold, prove its vigor.

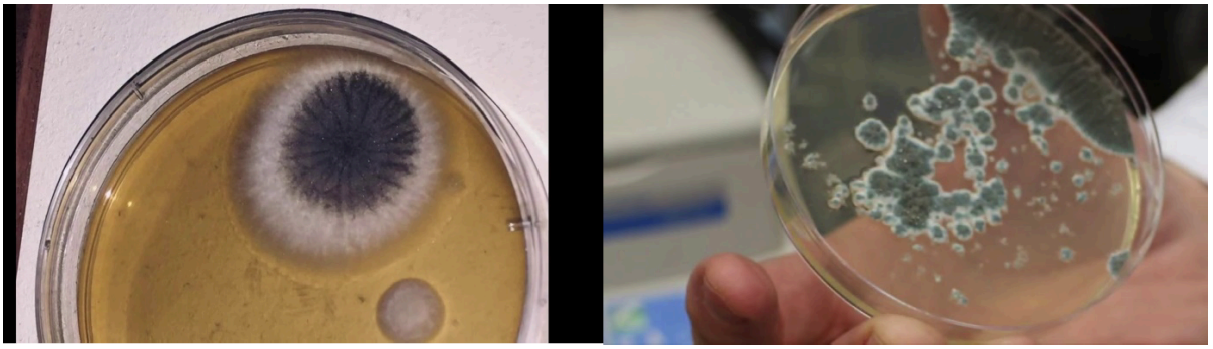
Some people take a section of mycelium and put it in another petri dish with Agar to grow it again, which further isolates a strain, and you can go on and on until you're satisfied. But this method is probably overvalued, you can obtain an isolated strain from a single dish and, moreover, doing all these transfers requires more time, which can also potentially leave more chances for contamination. Experience shows that this method does not make much difference in the end and it is not recommended to keep petri dishes because the mycelium loses vigor over time.

Spores are the ultimate storage solution, they remain active for years, if not a decade or more.



One might think that this part is the most vigorous, but it is not because it does not grow as quickly towards the edges of the dish as other parts, as we will see in the next photo.

The best cups of mycelium are these, closer to the edge.



Any color other than white is contamination. Some molds are first white and then change color, as soon as we see this we get rid of them immediately.

2 – PREPARING THE SEEDS

Good seeds can be found at a pet store, many use oat seeds, but other choices are possible such as sorghum, wheat, precooked rice, or corn seeds mixed with grass seeds.

Whole white bird millet is the best one can use to grow mushrooms. Look at its shape, small, round, hard, perfect characteristics for what we are trying to do. It does not retain excess water, has no irregularities that could favor contamination, and it easily disintegrates into thousands of inoculation points in our substrate, resulting in faster colonization than the other seeds.

If you can't find whole white bird seed millet, you can also buy a bird seed mix, the only thing you have to do is remove the few black sunflower seeds that are there.

Prepare the seeds you want to use, bring a pan half-filled with water to a strong boil, turn off the heat (set the pan aside if the plates remain hot), and put the seeds in the boiling water. Mix them a bit and remove any that float to the surface with a strainer, these are seeds that have not formed properly and are just full of air, which will not provide the nutrition the mycelium needs.

Put a lid on and leave the seeds in the water for an hour, it's no problem if they stay there longer. The seeds will thus absorb water and be more tender, which is perfect for the growth of the mycelium.

Pass everything through a sieve fine enough to keep the seeds and remove the water.

Rinse the seeds thoroughly to remove any traces of fungicides.

Let the water drain well (you can also cover the seeds during this time to protect them).

Then fill the mason jars, most use quart jars with a wide mouth. Fill them halfway, maximum three-quarters. You have to leave space to be able to shake the seeds later, and also because they will expand a little more when you put them in the casserole.

Note that the mason jars here have a hole on the lid in which we will stuff polyfill (you can use a knife or a tool to pass the polyfill through the hole), which allows an exchange of air between the growing mycelium and the external environment, while preventing contamination.

Do not tighten the lid completely, leave a little slack, when you pull the polyfill from bottom to top the lid should move a little.

Then put the lid on the casserole, here an All American brand, and light the fire after checking that everything is working well.

When the air begins to purge you see a large continuous stream of steam, let the steam out for about three minutes before closing the valve to allow pressure to build up.

Put a timer on one hour, but for a standard pressure cooker at 15 PSI we put the timer on 90 minutes. Here we are at 19 PSI, when we are in the right pressure margin, in the green, between 17 and 20 PSI, we lower the fire (from 9 to 6, out of 10). Monitor the pressure for a few minutes to make sure it stays in the green.

Then bring the casserole to cool in front of the laminar flow hood. If the pressure cooker is vacuum-sealed, do not forget to open the valve little by little so that the pressure is equalized.

After the seeds have completely cooled, clean our hands and anything we're going to touch with 70% alcohol. Do not forget that one must be dressed as a surgeon, shower, clean clothes, hair net, dust mask on the face and nitrile gloves. No singing, talking or sneezing while doing this job, no open windows or drafts either.

You can check the temperature of the seeds if you have an infrared thermometer or wait until they are cool to the touch, here they are still warm.

This sterilized millet looks good, not excessively wet, almost no seeds that have exploded, this is exactly the result you want to achieve.

The jars are now at room temperature and it's time to move on to the next step, inoculation.

Again we clean our gloves with 70% alcohol, and we wait for the alcohol to evaporate before using an alcohol burner or a Sterno box, which we will use to sterilize our equipment. .

We can inoculate our jars with a spore syringe by sticking the syringe through the polyfill until we see the syringe, and then we inject a tiny bit of spore solution in three different places, against the glass if we can. . Then put the aluminum foil back on the jar and shake it a little to spread the spores.

We favor the Agar method here, without syringes, so take our petri dishes and watch which one is the most vigorous, putting the others aside. Prepare the work surface in front of our laminar flow hood, clean the surface and what we are going to touch with 70% alcohol. Remember that petri dishes have Agar on top, not on the bottom.

After the lid of the petri dish has been opened we work as quickly as possible, to minimize the time during which our seeds and mycelium are exposed to the open air. We make careful and precise movements so as not to create turbulence in the air.

One cuts small pieces of Agar with the mycelium above, and one puts them in the jar, piece by piece.

Cut pieces (1-2 cm in diameter) away from the center of the dish, but not too close to the ends of the dish either, in order to select the most vigorous mycelium.

One by one, 3 to 4 pieces of mycelium are transferred to each jar. As a precaution, it is better to sterilize our scalpel with a flame between each jar.

Once this is done, shake each jar carefully so that the mycelium does not just stay on the surface, and bring them to the middle of the jar. It takes some effort but it's worth it.

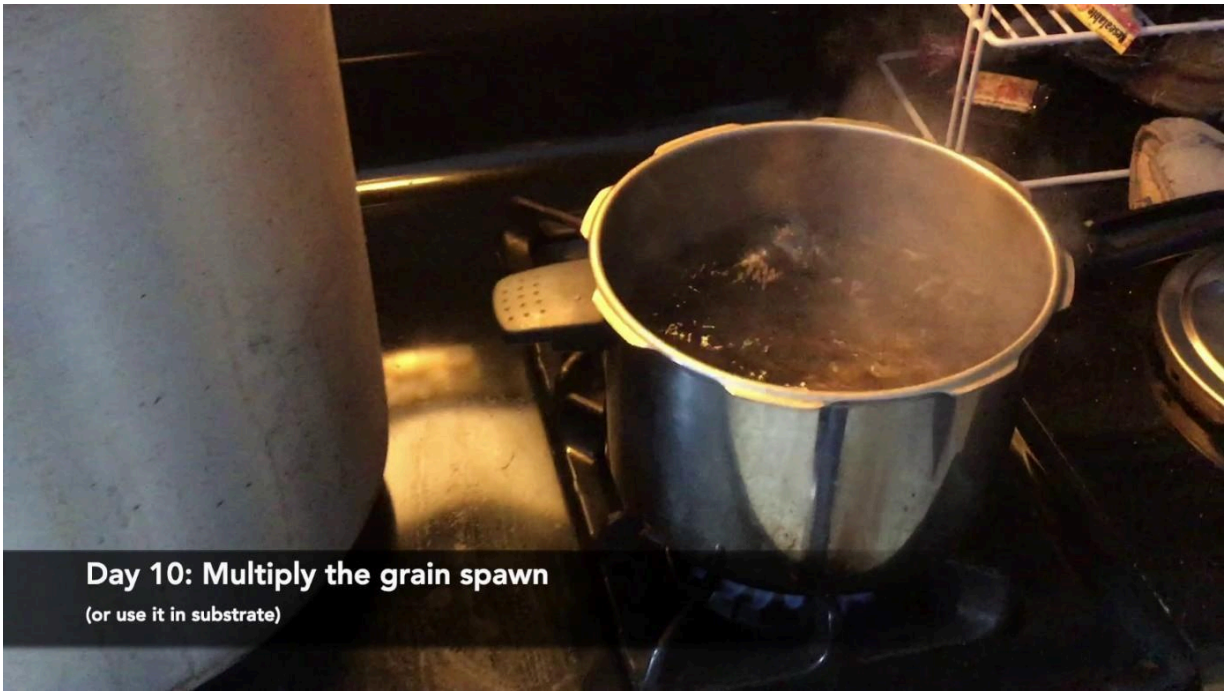
Put the jars to incubate, if our ambient temperature is above 21 C we do not need an additional heat source, but if we put them to incubate around 27 C (82 F), the incubation will be faster.

For information, everything that has been done in front of a laminar flow hood can be done with a storage box like this one, in which we make holes to pass our hands through and in which we disinfect everything with alcohol at 70%. Another possibility is to turn an aquarium on its side and put a transparent plastic sheet in front with notches in which we will pass our hands.

This is what a jar looks like three and a half days after inoculation.

On the sixth day, the jar is about three quarters colonized, this is when it is shaken vigorously to accelerate its complete colonization. Tap a little on the bottom too, break up the mycelium well so that it spreads everywhere, and the tapping also helps to dislodge any seeds that are stuck to the polyfill at the top of the jar.

On the ninth day we approach complete colonization, this is the typical result obtained three days after having shaken a jar colonized to a third.



The decision we have to make here is whether we are going to produce large quantities of mushrooms or not, if so we have to multiply the seeds. The advantage of having several containers is that if some are contaminated, others will not. This technique is to be used if you want to do this job once and have a large quantity of mushrooms for several years. If not, you can go directly to the preparation of the fruiting substrate.

This is optional but 60 ml (1/4 cup) of soil conditioner in the form of gypsum in granules can be added to hot water to speed up colonization by 10 to 20%. Gypsum also nourishes the mycelium by providing it with calcium and sulphide in particular, it does not change the PH of the water or the substrate.

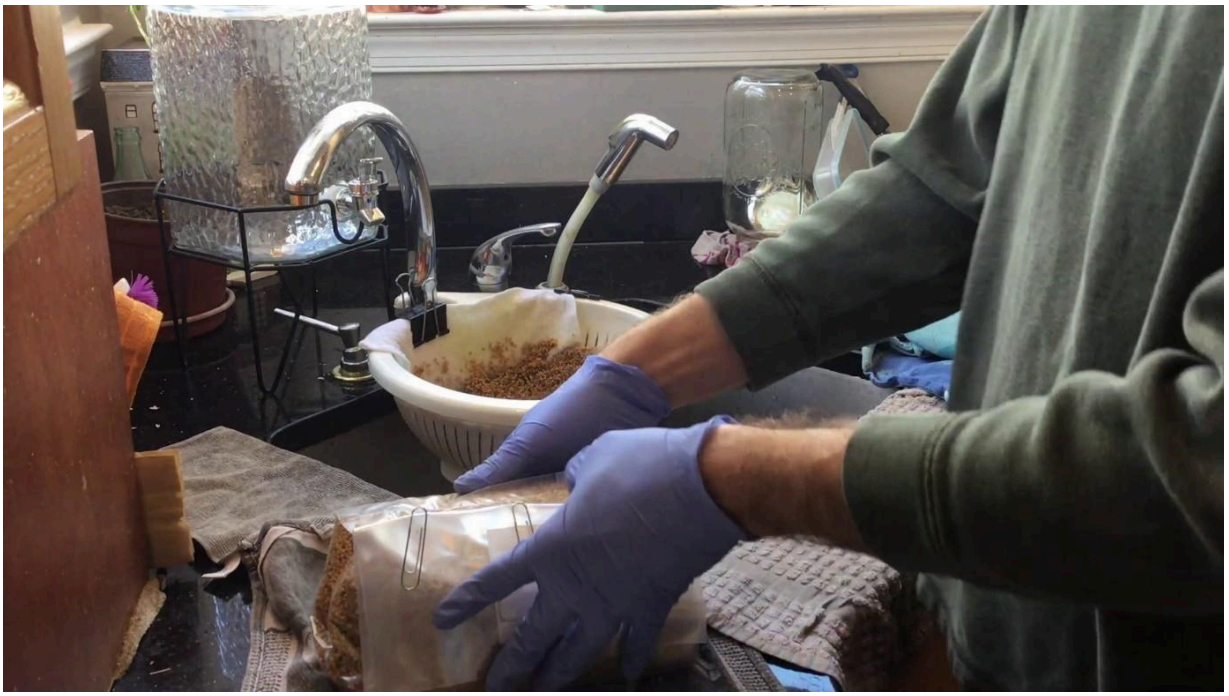
For now we have enough seeds for a large container of substrate. You need about 2 kg of dry millet for each bin. We use a two-kilo jar, but as we do not fill it completely (only half or three quarters maximum) we will use additional jars according to our needs.

Put everything in a large saucepan after bringing it to a boil and after turning off the heat, if our plate remains hot we move the pan so that the water does not continue to heat.

Mix the seeds, remove any that float, put a lid on and let sit for at least an hour.

Pass the seeds through a colander, to remove the water and rinse them thoroughly. The gypsum will also come off a bit but it has also been absorbed by the seeds, and some will also be added later directly into the substrate, but, again, this is optional.

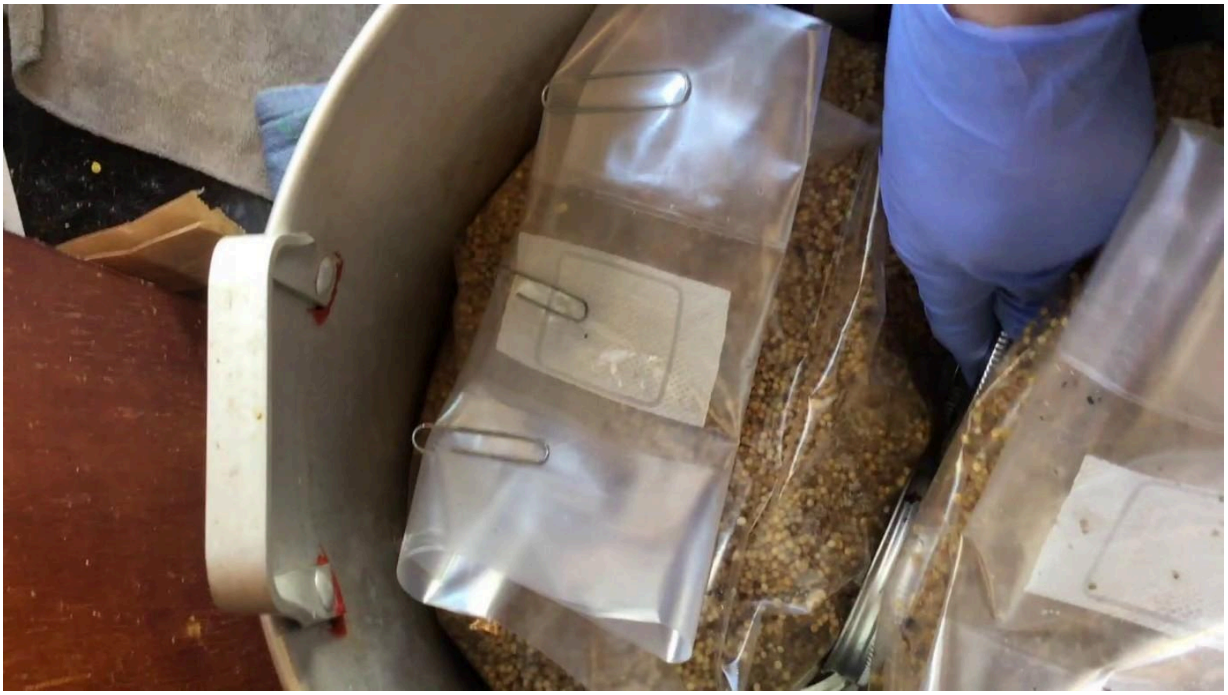
The water is allowed to drain from the seeds, and they can also be shaken vigorously to help the water leave.



Then put our seeds in jars or filter bags (mycobags). The advantage of the bags is that you can put more seeds in them and the contents are easier to mix. In addition these bags come with integrated filters.

We fill these bags about one-fifth full, because the seeds will still grow, and we will also add our other colonized seeds to these bags.

Secure the opening of the bags with paper clips, for example, or spring clips.



When you put the bags in the casserole dish, make sure there is space between them so that the steam can circulate well, you can use the jar lids and put them between the bags for example, as on the picture above.

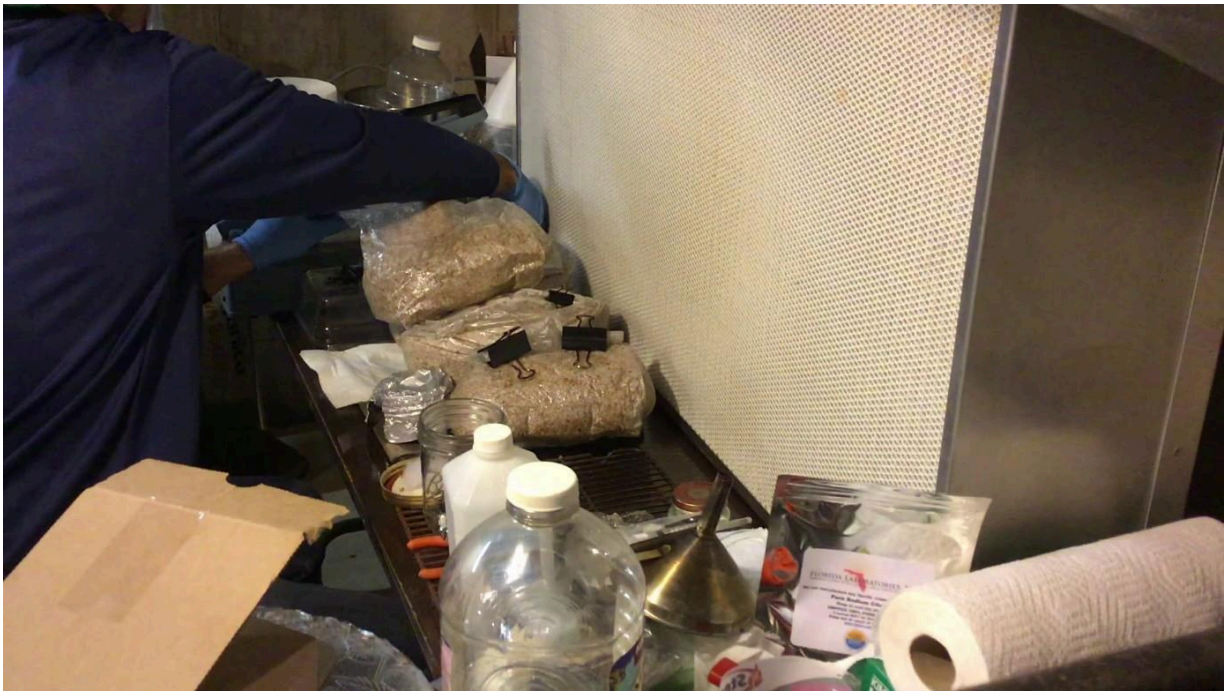
And even vertically, if we stack the bags, we put lids on the bags below to leave space between the bottom bags and the top ones.

Put everything in the casserole, let the air purge for about three minutes, close the valve, let the pressure rise between 17 and 20 PSI and, for such a quantity of seeds, put a timer on 90 minutes instead of 60.

Once done, bring our casserole in front of our laminar flow hood, let it cool, and depressurize it by turning the valve little by little. Have a strict hygiene clean our hands well (nitrile gloves) and all the objects that we will touch with 70% alcohol.

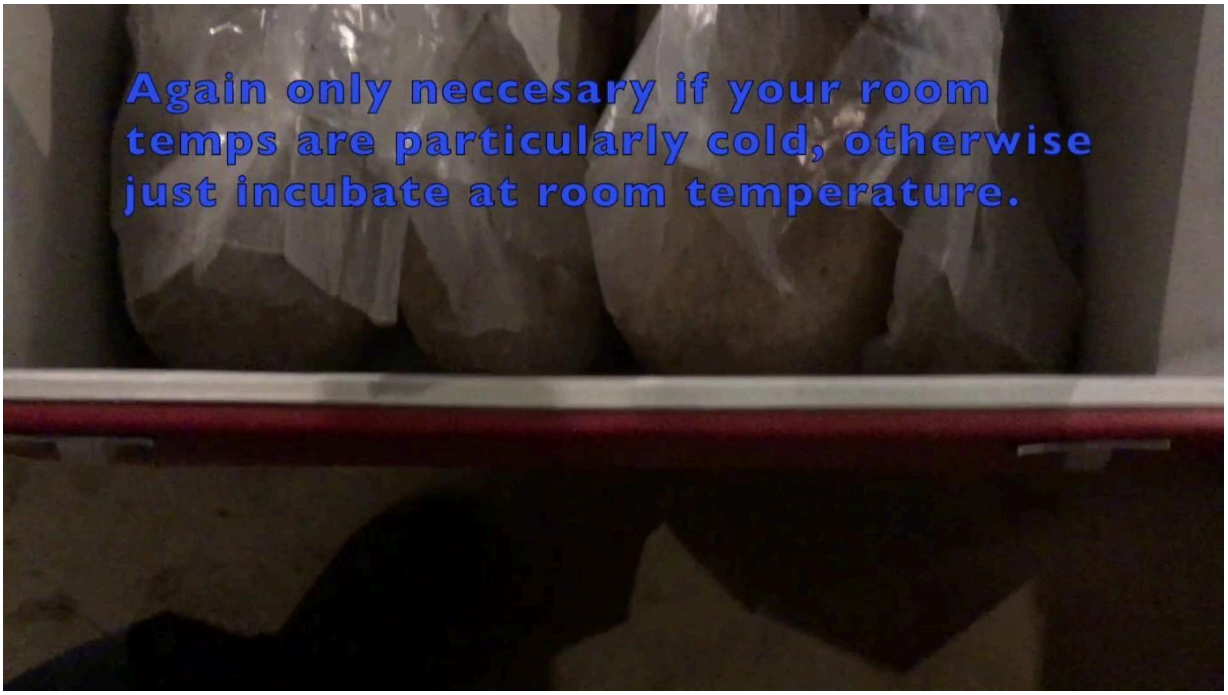
We take our bags out in front of the hood and let them cool to room temperature, we can also check their temperature with an infrared thermometer.

To multiply the seeds, we carefully put the contents of our colonized seed jars in the bags of seeds that we have just prepared.



If we use filter bags, we will seal the opening with a machine, but make sure before the surface is flat, that there are no deformations or material where we are going to seal. Once a bag is sealed, take a good look at where we sealed it.

Then mix the colonized seeds with the seeds that you have just prepared, mix as needed to distribute the colonized seeds well throughout the filter bag, the same if you use jars.



Put the seeds to incubate, as there are a lot of seeds this time we set the temperature to 26.5 C (80 F) instead of 27.7 C because this quantity of seeds will generate more heat.

One day later we can already see a good growth of mycelium, we do not take the filter bags out of the container so as not to disturb the process.

A smell test is done by sniffing to see if there is an odor similar to the smell of sweat or sewage, which would be a sign of contamination.

Six days after mixing the seeds we can take the opportunity to control the temperature if we have an infrared thermometer. We check that our bags are in good health, that the mycelium is growing properly.

Eight days after the contents of these bags are ready to go into the fruiting medium.

3 – PREPARE THE FRUCTIFICATION SUBSTRATE

- cut straw (or coconut fiber, coco coir in English) – 2 bins
- composted horse (or cow) manure – 1 bin
- vermiculite – ½ tub
- 60 ml (one quart) gypsum (optional)
- 2500ml of water

For this recipe we will measure the ingredients by volume and not by weight, and to measure the necessary ingredients we use here an aluminum tray that we can for example find at the Coop, its size is 33 x 23 x 5 cm .

The straw must be cut between 2.5 and 7.5 cm, we do not use hay, but yellow straw, pale yellow. There is twice as much straw as horse manure because the Copelandia is primarily a grass lover.

Horse manure must be composted, i.e. left to air for months or years, fresh manure is not used. Composted manure has little to no odor and looks like dirt, when added to the recipe make sure to remove stones and any other foreign matter. Manure could not be used but it promotes faster colonization and more abundant harvests.

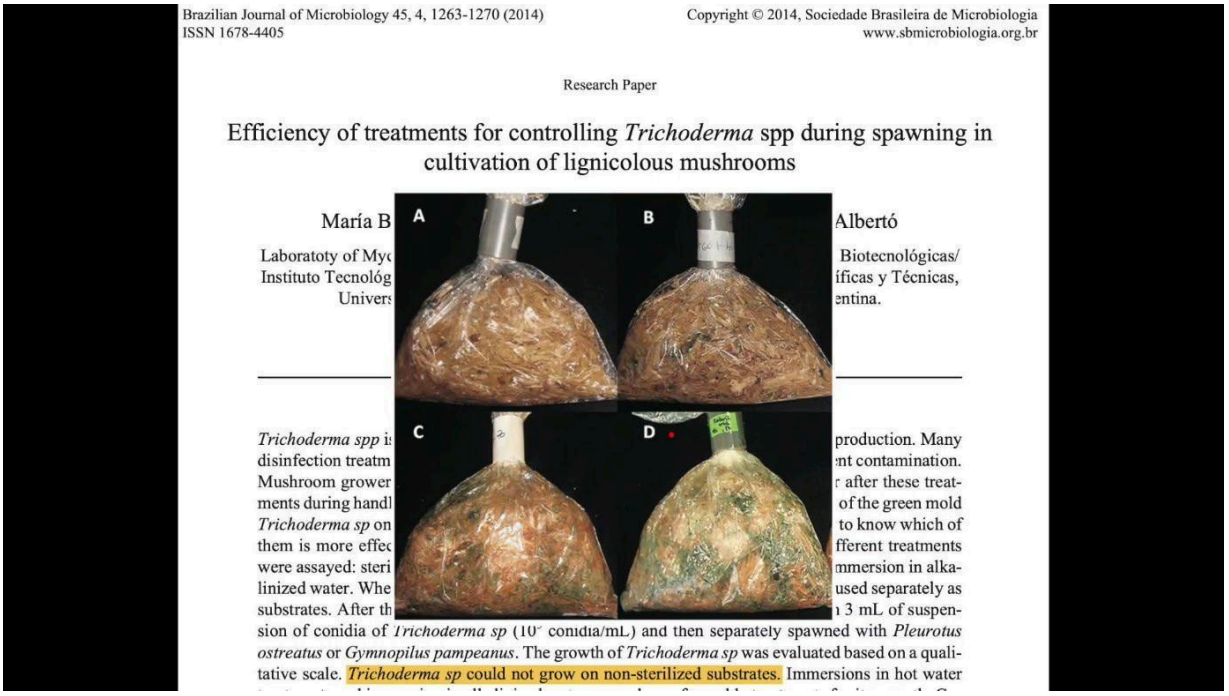
The vermiculite will help the mushroom block stay well hydrated.

Gypsum is optional but helps the growth of most mushrooms. It provides important nutrients for the growth of the mycelium and helps maintain an ideal pH in the substrate.

Mix everything well in a container, and make sure that the water is well distributed.

Take a handful of the mixture and squeeze hard, if a few drops run out it's perfect, if the water runs you need to add a little more straw or vermiculite, if it's too dry add a little water .

Put the substrate in filter bags or in jars, usually we do not fill them above the air filters, but in this case it does not matter because we are not going to use them to grow mushrooms but to contain the substrate.



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Research Paper

Efficiency of treatments for controlling *Trichoderma* spp during spawning in cultivation of lignicolous mushrooms

María B Albertó

Laboratoty of Myc Biotecnológicas/
Instituto Tecnológ ificas y Técnicas,
Univers entina.

Trichoderma spp i production. Many
disinfection treatm nt contamination.
Mushroom grower after these treat-
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them is more effec fferent treatments
were assayed: steri mmersion in alka-
linized water. Whe used separately as
substrates. After th 3 mL of suspen-
sion of conidia of *Trichoderma sp* (10^{7} conidia/mL) and then separately spawned with *Pleurotus ostreatus* or *Gymnopilus pampeanus*. The growth of *Trichoderma sp* was evaluated based on a qualitative scale. *Trichoderma sp* could not grow on non-sterilized substrates. Immersions in hot water

The straw-based substrate is more subject to contamination than that based on coconut fiber, which is why we will pasteurize it instead of sterilizing it. By pasteurizing it, we do not kill the beneficial bacteria which prevent contamination, unlike sterilization which kills all organisms.

Clean the outside of our bags, close them with tongs, put them in the casserole dish and pour water up to the support.

To check the temperature, you can put a meat thermometer in one of the bags with the temperature sensor in the middle of the substrate and the thermometer cable coming out of one side at the top of the bag, then you put the lid on without closing it to steam escapes easily without creating pressure.

If you don't have a meat thermometer or a sous vide cooker, you can estimate the pasteurization temperature by leaving the substrate in the pan with the heat on for about 45

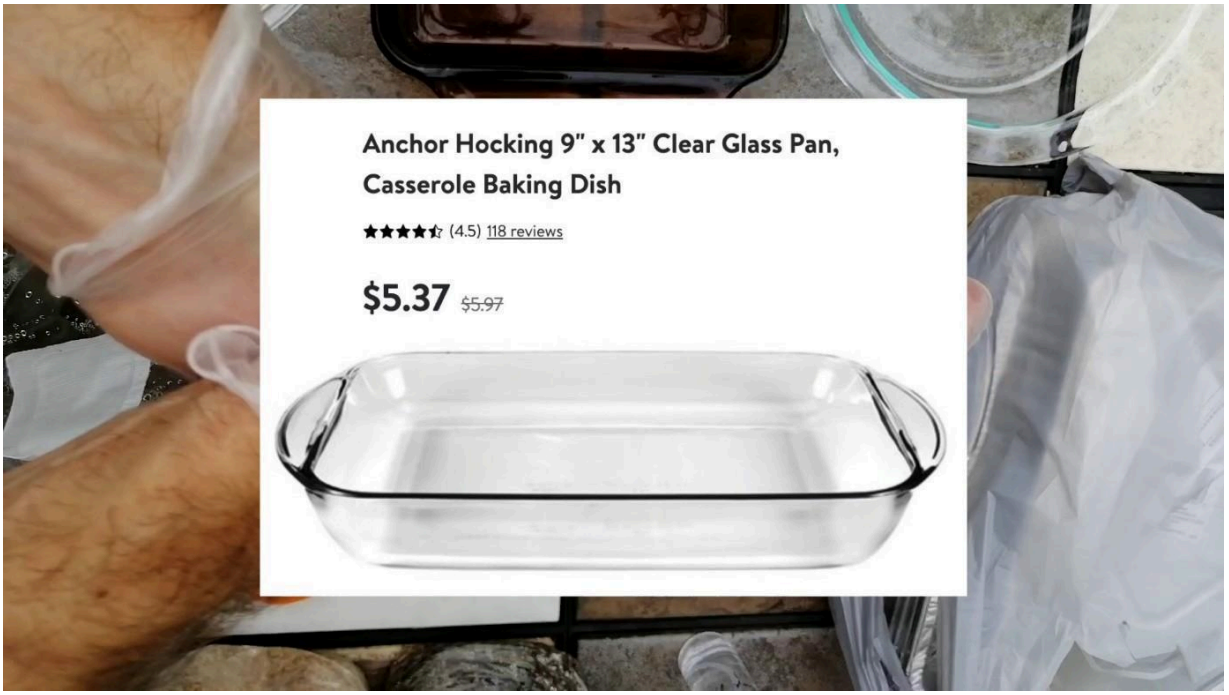
minutes before turning off the heat.

Put the pan on the stove and turn the temperature to the maximum. Again, the lid is not closed and the meat thermometer cable sticks out on one side, as in the photo above. If you have an exhaust fan, put it on the high position.

If our meat thermometer has an alarm function, set it to alert us at 62 C (145 F). When you see steam coming out of the pan you can turn the temperature to medium high (here it is set to 8 out of 10). When the temperature reaches 62 C, we turn off the heat completely and put a timer on 60 minutes, if our plates are those that continue to heat we move the pan elsewhere where it does not heat. Then wait for the temperature of the substrate to drop to room temperature, it can take a few hours, you can even leave it there overnight.

Take our colonized seeds, our substrate, and some containers.

You can use containers like these, with clear lids, but some say the mycelium could eat the aluminum. Clear lids are good for viewing mycelium growth.



Or glass containers in which you can see the growth of the mycelium below the surface. This one is 23 x 33 cm.

In all containers should not be deeper than 5 cm ideally, 7.5 cm maximum. It is also better to have several containers than one or two too big, because if one is contaminated you always have the others.

Make sure everything is clean and disinfected with 70% alcohol, put the substrate in a container at a time and quickly to avoid too much exposure to air, this in front of the flow hood laminar. Doing this job in front of a laminar flow hood will guarantee us the most success.

Do not completely fill the containers, they are filled to ¾ to leave room for the colonized seeds and the casing layer that will be put on it later (0.6 cm maximum thickness for the casing layer).

When adding the colonized seeds (grain spawn) you just need to put a thin layer on top of the substrate.

Mix everything using clean and sterilized gloves with 70% alcohol, ensuring that the colonized seeds are well distributed throughout the substrate. You can put the alcohol on the gloves just before mixing, that's not a problem.

There should be about a little more than 0.5 cm between the substrate mixed with the colonized seeds and the top of the container, to add the casing layer later.

Then tap your preparation (without packing) so that everything is well equalized and balanced.

If our container does not have a lid, we put an aluminum foil over it and drill a few very small holes here and there to allow some air exchange.

It is advisable to use at least one container with a transparent lid to monitor the colonization of the substrate.

Put our containers in a warm place, the closer to 27 degrees Celsius the better. But a temperature above 21 C will do.

Fifteen hours after fertilizing the substrate you can already see some white traces of mycelium on the surface, it's a good sign, everything is going well. It is normal if there is a little condensation on the lids. The container with a transparent lid also serves as a witness, when it is colonized we can assume that the others are too, no need to touch them.

Three days after fertilizing the substrate you can see that almost the entire surface has been colonized by the mycelium, it must be white and fluffy.

On the fifth day the surface is completely colonized, although there are still some corners that are not completely white. It will be ready for the casing layer in another day or two.

4 – PREPARING THE CASING LAYER

- 50% vermiculite
- 50% sphagnum peat moss or cactus soil, or soil for carnivorous plants, which have few nutrients.
- calcium hydroxide (picking lime) or calcium carbonate (which will be used to balance the PH because sphagnum peat moss is slightly acidic)
- 1000ml hot water

We will put the casing layer over the completely colonized substrate.

The main purpose of the casing layer is to keep the colonized substrate moist and to provide a humid microclimate where primordia (small mushrooms) can form and grow. It also creates a water reservoir for growing and maturing fungi and promotes beneficial microorganisms.

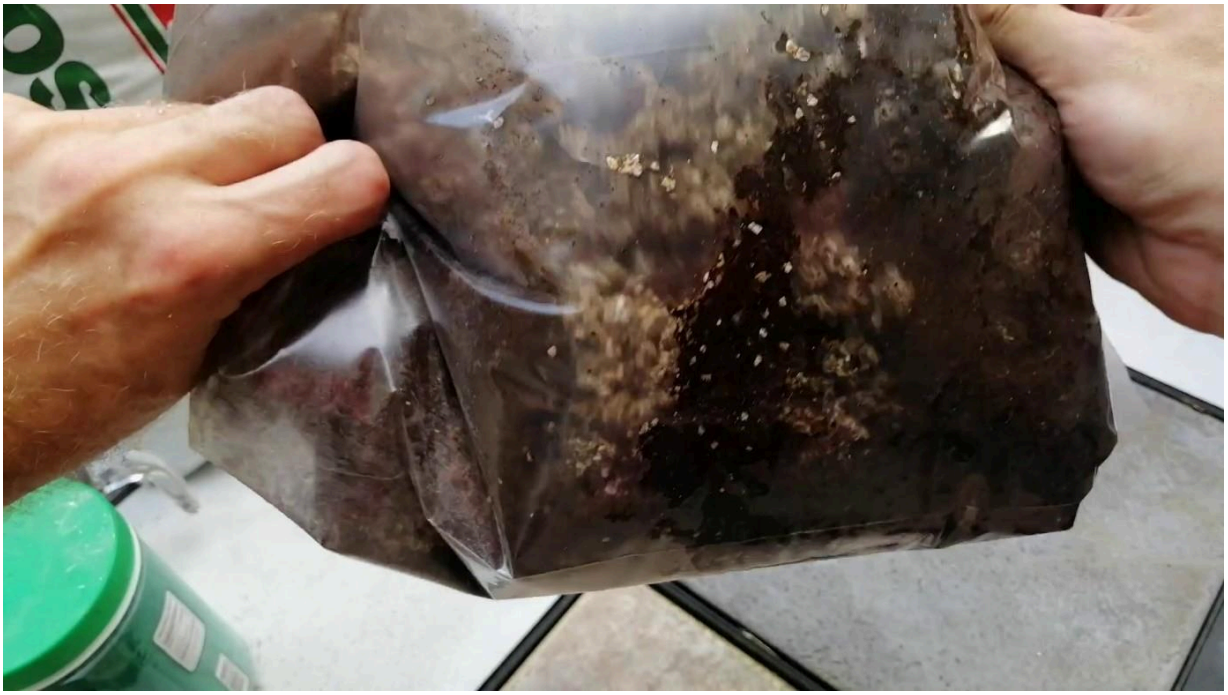
Copelandia Cyanescens will not fruit without a casing layer, this is not optional.

Do not use anything nutritious for the casing layer otherwise the mycelium will colonize it and will not form fruits.

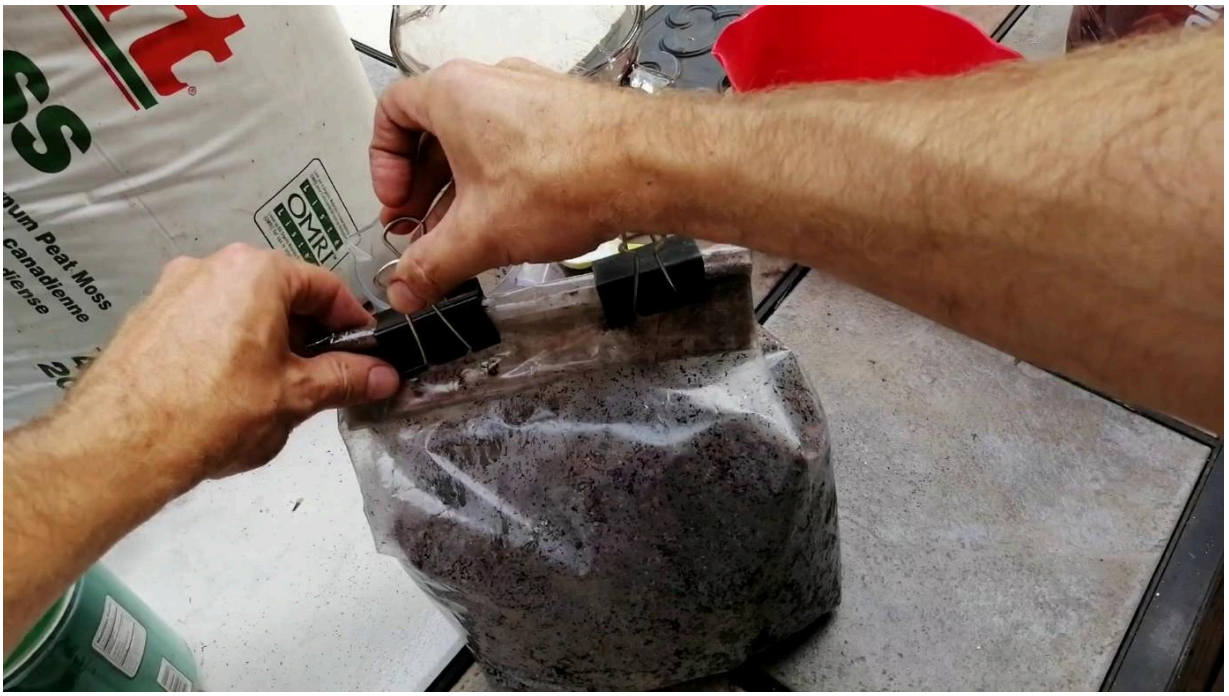
For this recipe we will use 2000 ml of peat moss and 2000 ml of vermiculite. We also add 15 grams of calcium hydroxide (about 2 tablespoons) or 40 grams of calcium carbonate (about 5 tablespoons), this is used to balance the PH.

If you can't find peat moss, you can also double the amount of vermiculite.

We put everything in filter bags (mycobags) and add 1000 ml of hot water.



Mix everything well



Squeeze the air out of the bags and close them with spring clips.

Put the bag with the casing layer in the casserole, you can pasteurize or sterilize it if you want. When pressure builds lower the temperature from 9 to 6 (out of 10), and set a timer for 30 minutes.

We are now 6 days after fertilizing the substrate, and we want to put the casing layer on the substrate as soon as the substrate is completely colonized (it should be completely white). We will put the casing layer on the colonized substrate in front of the laminar flow hood, in front of which we will have cleaned everything well and sterilized at 70%, the surface, our hands (nitrile gloves) or the objects we use, do not Don't forget to wear a mask.

Cut the top of the bags that contain the casing layer if we have previously sealed them instead of putting clamps.

Optional but you can use a roller to level the casing layer, if you do it it must be cleaned and disinfected.

Pour a thin layer (0.6 cm maximum) of the casing layer on the colonized substrate.

Carefully spread the casing layer all over, including the edges of the container.

If we see agglomerates we break them up or take them out of the casing layer if they are too hard.

You can also use the roller to level everything, roller that we will clean and disinfect between each container.

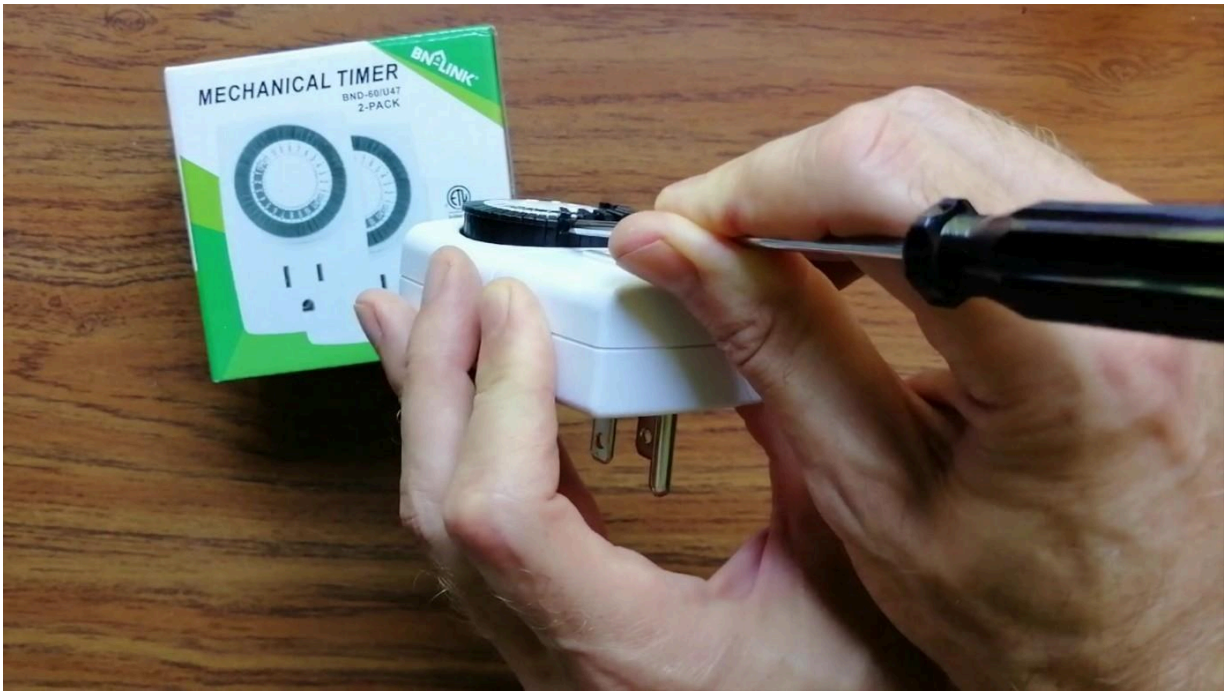
Before putting the lid back on the container, spray the casing layer well with water, about 2-3 spray strokes all over. This will allow the mycelium to show a little before producing mushrooms. Put the lid on and let it sit for 24 hours.

During these 24 hours we can carefully clean our fruiting chamber with a diluted solution of bleach (one part bleach to 9 parts water).

Also prepare our fogger, our thermometer and our hygrometer.

Copelandia Cyanescens thrive when in the presence of plenty of fresh air, mushroom pickers say it appears when there is high humidity or after 3 or 4 days of rain. It is often found in wide open fields where there is a breeze. This mushroom therefore likes a lot of humidity and a lot of air.

Here we will simply use an open space and a humidifier with a timer so that the humidifier runs for 30 minutes and stops for 30 minutes continuously.



Set up the mechanical timer by raising every other box (each box represents 30 minutes, so it will be 30 minutes on and 30 minutes off).

Use an ultrasonic humidifier such as this one, which will produce steam. This model also allows us to put PVC pipes on the steam outlet to direct it where we want in the room. Another advantage is that it has a large capacity of 4.5 liters.

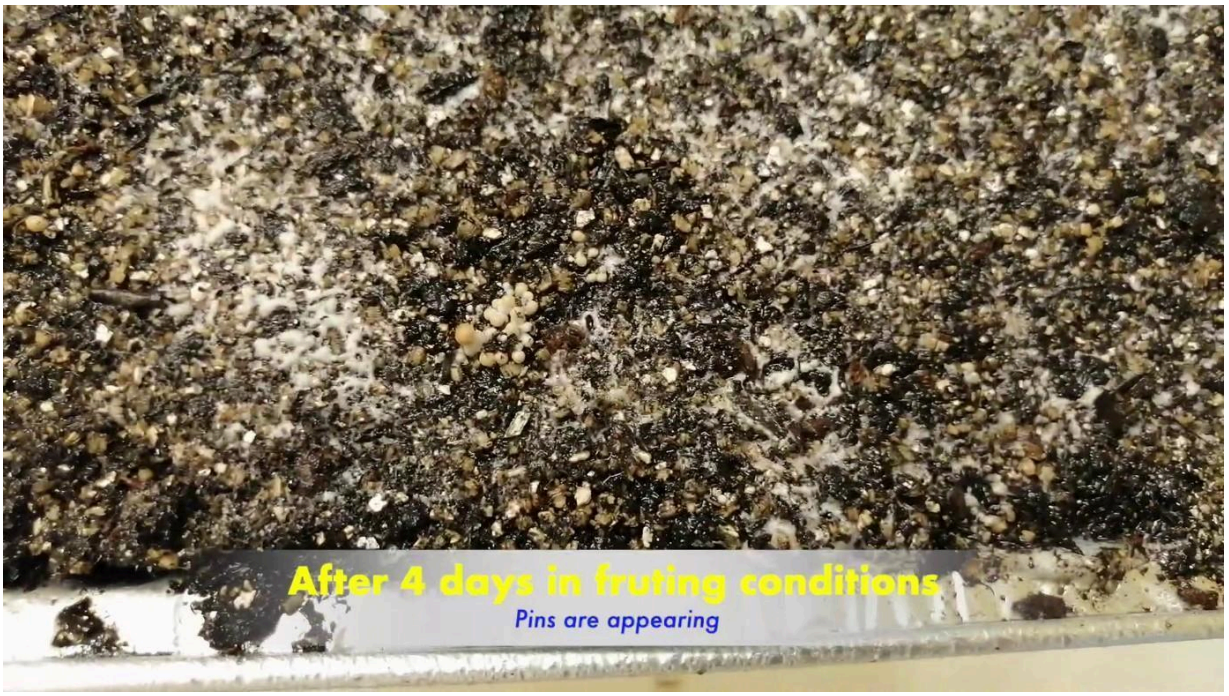
One person has had success putting the containers on the table and steaming them as above.

When the containers are put into the fruiting chamber after 24 hours they are sprayed again with water.

This is what it finally looks like, the steam is sent every 30 minutes thanks to the ultrasonic humidifier and the timer, this will generate gentle air currents and humidity, precisely what the Copelandia Cyanescens likes.

We put the humidifier in height, we do not want the whole room to be covered with mist, we set the humidifier for this a little below the average. If we measure the humidity near the containers, it should be around 100%. The ideal temperature is between 21 and 27 C.

After two days in the fruiting chamber.

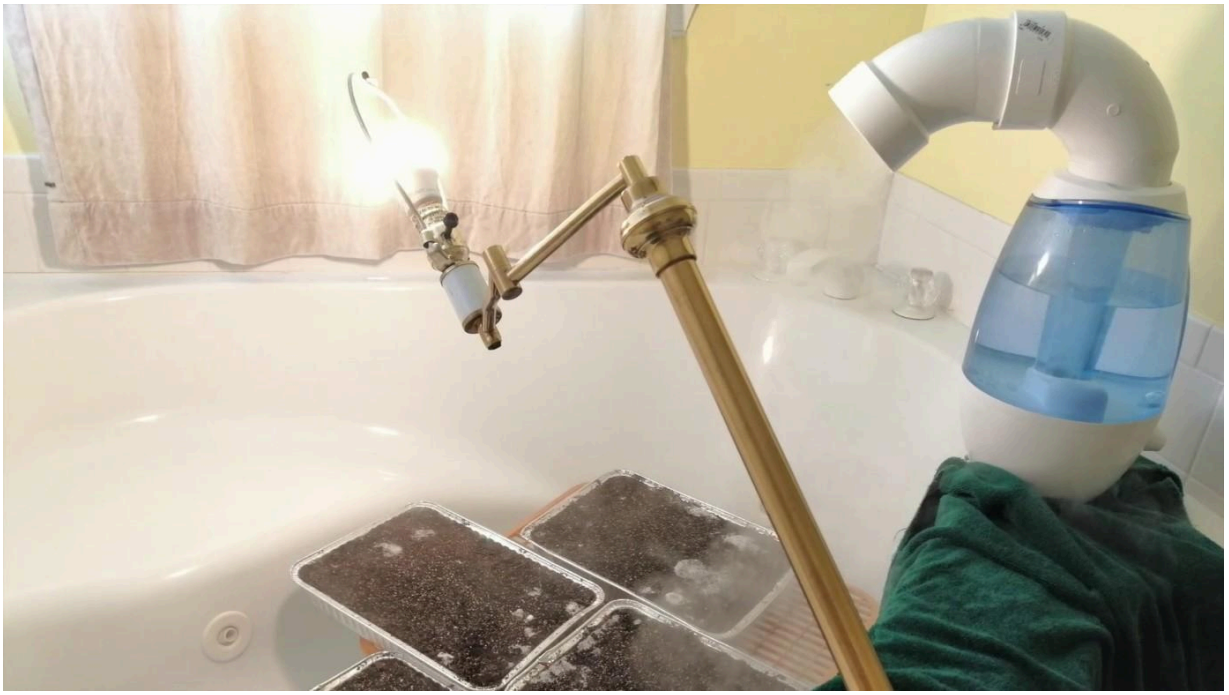


Four days later we can see primordia (pins, or small mushrooms) appear.

To check if we put too much humidity or not, we tilt the containers, if water flows, it is that we put too much water. No problem, just remove the water as above and lower our humidity settings.

Nothing else to do, just fill the humidifier tank if it is empty.

You should see small mushrooms within the first four days and harvest them after seven to eight days.



If our room has light, the mushrooms should receive all the indirect light they need (be careful that they do not receive direct sunlight). If they do not have enough light, you can use an LED lamp as in the photo above, turn it on in the morning and turn it off in the evening when you go to bed.

After five days you should see mushrooms springing up everywhere.

Six days later.

If our block seems a little dry or if we notice places where there are no mushrooms, we can gently pour a little water on these places.

Seven days later these mushrooms can be collected, but if you want to make spore prints it is better to wait another day.

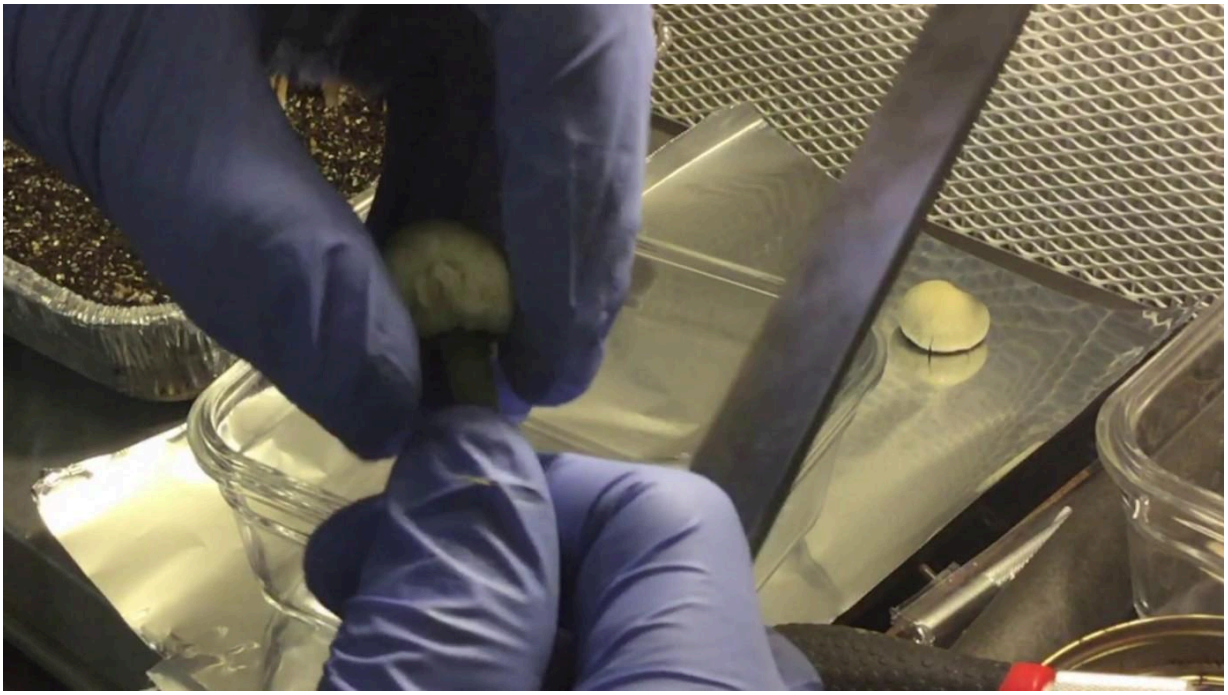
A successful grow should produce a nice carpet of mushrooms.

We're going to use the biggest hats to make spore prints.

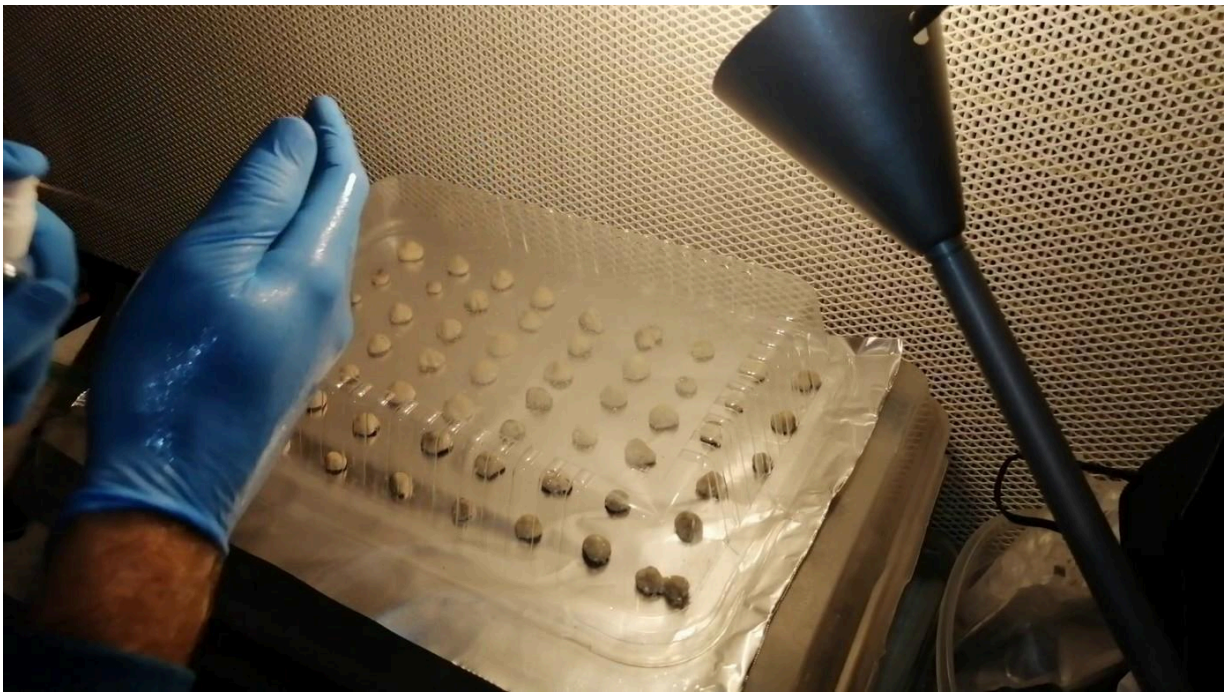
A good strain of Copelandia will produce thicker, meatier mushrooms which translates into a better harvest. These mushrooms above for example are strong enough to support a smartphone placed on them.

If you want to make spores, you have to harvest the mushrooms in front of a laminar flow hood.

To collect them some take them and twist them to remove them, but I prefer to use a good knife, while taking care not to damage the small mushrooms which are around and which will produce the next harvest.



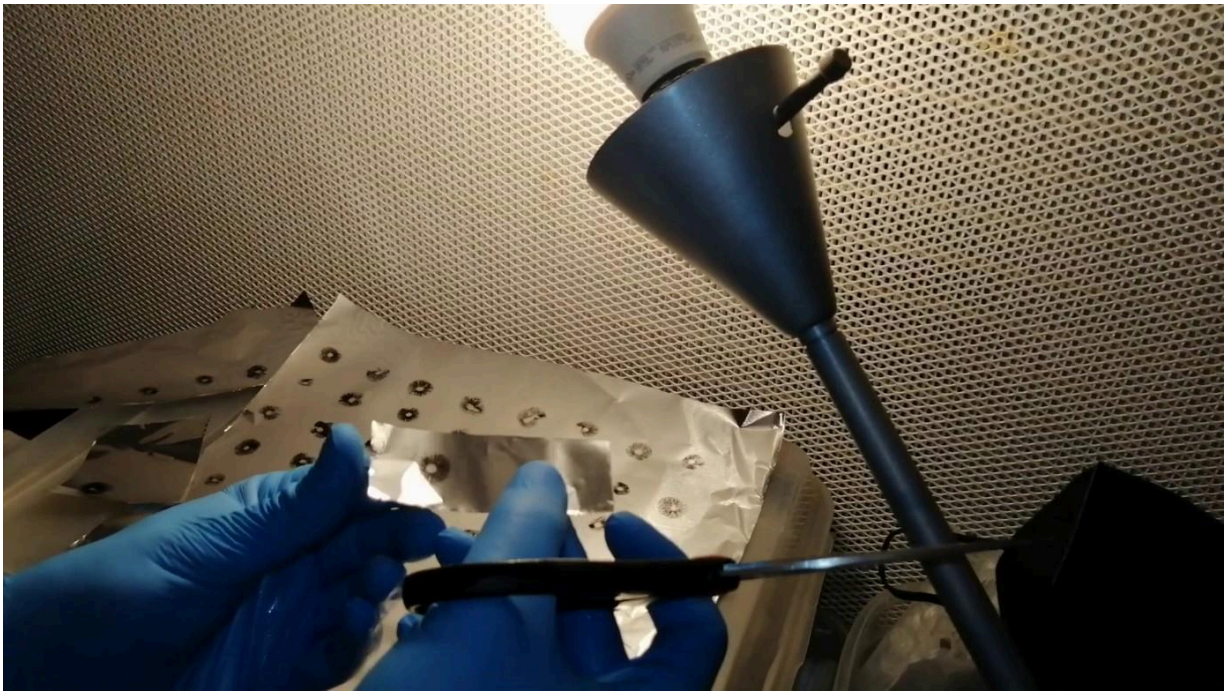
If you want to make prints, you twist the mushroom cap to remove it and place it on an aluminum sheet in front of the laminar flow hood.



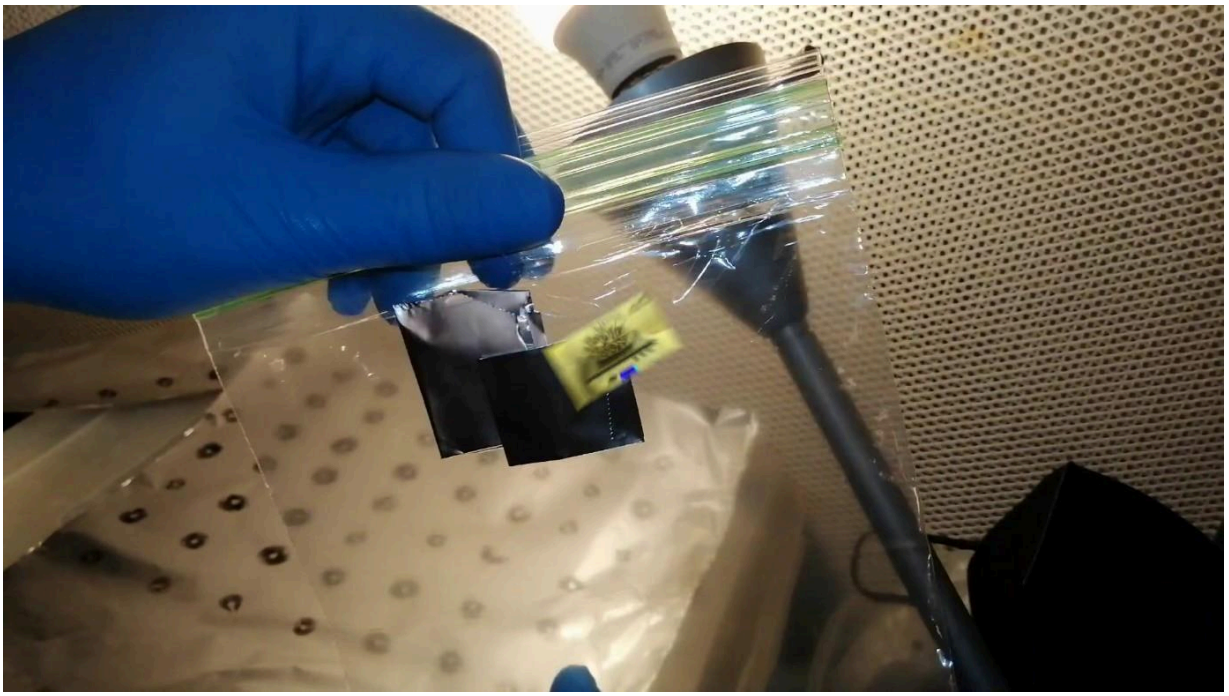
Put a lid on the hats when you are done. Leave them like this for 2 days

The spores are jet black and are clearly visible on aluminum foil.

The scissors are well disinfected with 70% alcohol before cutting the aluminum foil on which the spores are.



Fold the piece of aluminum with the spores on it to seal it, so they will be protected and active for years, if not a decade.



Put our foil-sealed spores in zip-lock bags.

The weight of each harvest will vary, between 100 and 200 grams, and these mushrooms can produce 5 or 6 harvests.

Five or six containers can produce enough mushrooms for a hundred deep experiments, which for some people is enough for a lifetime.

To dry them put our mushrooms directly after harvest on a dehydrator and dry them for 4 to 5 hours at 57 degrees, until they are very dry and crisp, it should produce a cracking sound when you break them in half , this is when they are removed from the dehydrator. Some say that such a temperature destroys the alkaloids, but experience shows the opposite, there is no significant loss.

This species loses about 93% of its water weight after dehydration.

After each harvest, pour about 230 ml onto the container evenly over the entire surface of the container.

The next mushrooms will appear after a day or two.

This species produces many crops, up to six crops, one crop every four to seven days. If places seem empty, spray or pour a little water on them.

The Copelandia will not always grow in synchrony, some will come before others, which will distribute the harvesting work. And even the latest harvests can still produce mushrooms strong enough to support the weight of a smartphone.

Above is an example of contamination (Trichoderma), where you can see green everywhere, whether on the surface of the casing layer or in the substrate.

If you see black mushrooms like in the photo above, it means that the mushroom block has been contaminated.

5 – FINAL STEP

Using a capsule machine and 00 capsules, separate the capsules in half, the smaller part in one bowl, the larger part in another bowl. Then put the capsules in the capsule machine.

Put the mushrooms in a blender, making sure to cover it with aluminum foil. Reduce the mushrooms to a powder to homogenize their power.

Put five to six spoonfuls of powder on the capsule machine, spread it with the tool. First just put some in the capsules and tamp it down a little until it's fully tamped at the end.

A hundred capsules are ready, each capsule will be about 0.5 g.

Put the capsules in airtight jars away from light, jars in which we will also put oxygen and humidity absorbers, so that they can be kept for up to several years. Another possibility is to put Bloxygen in the jars (argon gas). Ideally store the capsules in the dark (alkaloids are sensitive to light) and at room temperature, no need to put them in the fridge or in the freezer.