Introducing The Moksha Method

by Yachaj Paye

Let us declare nature to be legitimate.
All plants should be declared legal,
and all animals for that matter.
The notion of illegal plants and animals
is obnoxious and ridiculous.

If the words
"life, liberty, and the pursuit of happiness"
don't include the right to experiment
with your own consciousness,
then the Declaration of Independence
isn't worth the hemp it was written on.
— Terence McKenna

The availability of the spore syringe as a tool that can be bought and sold and sent through the mail may be in jeopardy in the United States, thanks to the spotlight shown on this item during the recent legal actions taken against the vendor Psylocybe Fanaticus (see side-bar on page 88). While no precedent was set in that case which specifically labels the spore syringe as "paraphernalia" (and hence, illegal by federal standards), it is clear that many vendors of such syringes (as well as easy grow kits geared toward psilocybin-containing mushrooms) have self-censored their businesses and shut down sales in anticipation of a potential crackdown. It has never seemed hard to believe that the spore syringe easily *could* be considered paraphernalia. There are still quite a number of vendors that offer spore syringes, but it is hard to say for how long this will be the case.

If the spore syringe becomes officially restricted, availability of psilocybin-containing mushrooms in the United States may decline, black market prices may increase, and—most seriously—the legal safety of psilonauts could be jeopardized. Therefore, an alternative to the classic Psylocybe Fanaticus Technique (PF TEK), one which can do without ready-made spore syringes, is urgently needed.

Writing from the Netherlands, where I don't need a PF TEK replacement, I am nevertheless happy to present one in this issue of *The Entheogen Review*. With the following method even newbie cultivators can directly grow their own mushrooms and even isolate the alkaloids by starting with a spore print, which is much more convenient to send by mail in an envelope than a syringe (and cheaper to mail as well). Depending on the context in which they are advertised, spore prints may also be considered "paraphernalia" at some point by United States. (The safest way to offer these prints for sale would be to provide them within a context of many non-psychoactive mushroom spore prints, sold for microscopic identification purposes, without any mention of growing them to produce drug-containing mushrooms.) If the United States did crack down on spore print sales within its own borders, it seems likely that companies in other countries could easily fill the void. If the most draconian laws came to pass worldwide, and the availability of spore prints from foreign markets was also restricted, this new method can be adapted for use with mushrooms collected from the wild. (For example, *Panaeolus subbalteatus* is a good choice for those wishing to collect starting material from the wild.)

As the case was with the original PF TEK, the new method is constructed from several older existing methods. Some of these are actually patented, which means they can not be used for commercial purposes without contacting the original authors. None of the techniques that are presented in this article are original or new inventions. But the combination of such building blocks in one overview, and especially the application of "McAlpine's Medium" for soft agar cultures, has never published before. While I like to think that I am the first person who proposed that idea, because of the lack (or, depending on how you look at it, the surplus) of people who can call themselves the primary contributors to this collection of existing techniques, my proposal is to call it the "Moksha Method." Moksha was the name of the cultivated visionary mushroom employed in rites of passage by the residents of the fictitious island Pala, in Aldous Huxley's 1962 novel *Island*, one of the first Western books which described entheogenic mushroom rituals applied to meditation techniques. The Moksha Method accomplishes:

1. Cultivation of mycelium and mushrooms with ingredients and utensils obtainable from any supermarket.

2. Preparation of *Psilocybe cubensis* fruiting substrate without vermiculite (an essential ingredient in the classic PF TEK).

3. Preparation of cultivation media with no autoclave, pressure canner, or other specialized sterilization equipment.

4. Germination of spores without a glove-box or HEPA flow-hood.

5. Collection of viable spores from wild-collected mushrooms (without the need of making a spore print).

6. Direct isolation of psilocybin from semi-liquid (kombucha tea-like) mycelial cultures, i.e. without the need to grow mushrooms.

7. Complete independence from commercial spore vendors.

With the Moksha Method it is no longer necessary to use the *Psilocybe cubensis* for table top production of psilocybin. You can use any psilocybin-containing mushroom which is collected locally. There is no need to order anything of questionable legality by mail or otherwise. While this article is focused on psilocybin production, this method can also be used for organic table top biosynthesis of other interesting mycelium metabolites. Examples are the blood-pressure-stabilizing and cholesterol-lowering compounds in oyster and shiitake mushrooms, asthma-combating and cardiovascular health-boosting medicinal compounds in *Cordyceps* (caterpillar fungus) and *Hericium* (lion's mane) and flavor-enhancing compounds from morels.

The downsides of the Moksha Method are that it requires more utensils, more work, and a longer incubation time than the classic PF TEK for *Psilocybe cubensis*. Also, the yield measured in weight of biomass or alkaloid production per jar is much lower compared to the performance of PF Substrate jars. As well, "backpack cultivation" (an attractive option of the "Hippie" variation on the PF TEK), is not possible (yet?). The Moksha Method is *not* an advancement in psilocybian microculture; when good spore syringes are available, they are a better route to use. But if the availability of spore syringes becomes scant, I hope this article helps in boosting access to quality entheogens (and perhaps induces lower prices for fungal medicines in general). The goal of this text is to show how individual mycophiles, patients, and psychonauts can be self-sufficient—independent of any market and protected (as much as possible) against the legal risks of being a psilonaut in a country with a repressive regime. But please remember that this article is not an inducement to break laws! I write this from the Netherlands where the cultivation of psilocybin-containing mushrooms is legal. It is your responsibility to stay on the right side of the law in your country, whatever that may be.

STEP 1-A:

Preparation of one jar of solid agar for spore germination.

Fill a 100–250 ml clear glass screw-cap jar with half a teaspoon of powdered brown rice (or some other grain such as flour), half a teaspoon of powdered agar agar (a vegetarian and heat-resistent alternative to gelatin, sold in most health food stores), and a tablespoon of water. Screw on the lid, boil the jar for 30 minutes in a pot filled with water, take the jar out of the water, open the lid and add a few drops of 3% hydrogen peroxide. (The details about this "McAlpine's Medium," and the uses of hydrogen peroxide are discussed in my article "Mushroom Cultivation: From Falconer to Fanaticus and Beyond" in the Winter Solstice 2001 issue of *The Entheogen Review*). Swirl the contents around so the hydrogen peroxide is distributed evenly throughout the medium. Swirl again when the agar is solidifying so a thin film of agar clings about half-way up the vertical sides of the jar. Close the lid and store the jar—it should be good for many months.

STEP 1-B:

Preparation of many jars of solid agar for spore germination.

Spore germination is not a totally foolproof step. Contamination is common. Rather than making a single jar, as described above, many will find it to be more useful to create a dozen or more germination jars at once. Here is a recipe for my favorite nutrient agar—selected for a luxuriant mycelium growth—which I call "redgar."

Fill a dozen or so 100–250 ml clear glass screw-cap jars with boiling water. Put the lids on and set the jars upside down. Then turn them straight up again after a minute or so. This is to kill any micro-organisms that may be present in them. Fill a small pot with:

1) 500 ml cold tap water.

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2) One tablespoon (= 20 grams) of maltose (malt sugar, used in beer brewing).

3) 1 gram British Marmite yeast extract. (This is optional for spore germination, but the mycelium looks much healthier when Marmite is present in the medium. Note that there are several different brands of Marmite. Only the British original is a mixture of yeast and vegetable extracts without added sugar. This is the one I prefer to use in all my experiments.)

4) One tablespoon (= 7.5 grams) of powdered agar agar.

Heat the ingredients until the water begins to boil, stir during heating. Take the pan off the heat source, then add 5 ml of 3% hydrogen peroxide and 1 ml of red food dye, and stir again. (The food dye is optional, but the reason for it will be discussed later on.)

Empty water from the jars and fill each of them with a 15–25 ml layer of the liquid "redgar" that you have produced following the instructions above. A turkey baster, balloon pipette, or syringe is useful during this process, to prevent spoilage for the transfer of the liquid medium from the milk-pan to the jars. Do this all in a "still air" environment (closed windows and doors), which is as dust-, kid-, pet- and smoke-free as possible. Wipe the floor and table top before hand, wear short sleeves, and wash your hands first.

Allow the jars to cool down well, while creating a vertical film of nutrient by swirling, as described in Step 1-A.

The red food dye has four functions. First, it is added as the last ingredient. Therefore you can always be sure that red media are peroxide protected; this prevents mistakes. Second, when the medium is evenly the same color of red, the peroxide is also mixed well. Third, this allows me to refer to the complete recipe above as "redgar." The fourth and most important function of the food dye is that it is eaten by the mycelium: regions that become depleted of nutrients (and peroxide) will turn yellow.

STEP 2:

Collection and germination of a culture starter.

Most cultivation manuals describe how to make a spore print from a mushroom. However, in order to collect spores, the mushroom caps need to be harvested at the time during

spore release. A useful alternative is to harvest a mature gilled cap (or at least a part of a gill), which contains mature spores. Dry it at room temperature. With a pair of flame-sterilized tweezers, you can cut a tiny part from a gill and stick it onto the vertical agar film of the inside of a redgar jar. Use one gill piece per jar. Screw on the jar lid.

You can monitor the germination process by looking at the side of the jars. At normal room temperature, any sign of growth visible with the naked eye within 100 hours is a bad sign. The same is true for any growth that is not white, or if a slimy residue begins to leak from the gill. White cottony fuzz growing from the gill piece up (in the direction of the lid of the jar) is a good sign. After a few days, when a lot of white fuzz is growing on the vertical agar film, it is advisable to cut a bit of "fuzz" off, using a flame-sterilized pair of tweezers (or a needle or a knife), and place it in the middle of the horizontal layer of solid agar in a fresh 250 ml jar. After three or four weeks of growth the layer should be completely colonized with white mycelium. Instead of a solid agar jar, the bit of white mycelium can also be placed in the middle of a jar of sterile grains (as described in the Winter Solstice 2001 issue of *The Entheogen Review* on page 130). It is advisable to have at least two dozen perfectly white colonized culture jars before proceeding to the next step.

STEP 3-A

The small-scale preparation of five soft redgar cultures.

This step is similar to Step 1-B. The only difference is the lower amount of agar. For 500 ml of nutrient, use 1 gram of agar, which is equal to 2 ml of agar powder when it is loaded into the back of a syringe with the plunger removed (measurement of agar powder by volume is often easier than by weight). Also different is the amount of liquid. Add 100 ml per 250 ml jar. Inoculate as described under step 3-B.

STEP 3-B:

Large-scale preparation of the soft redgar cultures.

For optimum results, make sure that you have 250 jars ready of 250 ml each. These do not need to be screw cap jars (and plastic is also okay, rather than glass), but they must be clean. It is best to use new jars for this purpose. Transparent lids are ideal. Large boxes of plastic jars can be obtained cheaply from companies that sell packaging materials.

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Place a 125-gram jar of British Marmite yeast/vegetable extract in a large soup pan (25 liters or more). Remove the lid from the Marmite jar. Add enough water to cover the jar, bring it to a boil and wait until all the Marmite is dissolved. Remove the Marmite jar. Add a few more liters of water to the pan and fifty grams of agar agar powder. While stirring, bring the water to a boil and slowly add one kilogram of malt sugar and more water. In the end, the pan should contain twenty-five liters of liquid nutrients. Take the pan away from the heat as soon as the content begins to boil to prevent the malt sugar from caramelizing.

Have your jars ready. Fill one 250 ml jar with 3% hydrogen peroxide. Empty it into the pan of nutrients. Add about 50 ml of food dye. Mix the ingredients until the entire "soup" is evenly colored. Using a turkey baster or a large syringe, fill every jar with 100 ml of hot nutrient. Allow the jars to cool down, without the lids (!), in a clean "still air" environment. After an hour or so the liquid is solid and cool enough to be inoculated. By using a pair of flamed tweezers or a sterile scalpel, transfer a tiny fragment of white colonized solid agar (or a colonized grain kernel) to the middle of each soft redgar jar. The transferred pieces should not be wet, nor should they sink. Loosely replace the lid. Transparent lids are very handy at this point because they enable monitoring of the colonization process. Discard every culture which becomes slimy and replace it with a new one. Psilocybian cultures are generally more potent at lower temperatures, but the colonization time takes longer at lower temperatures.

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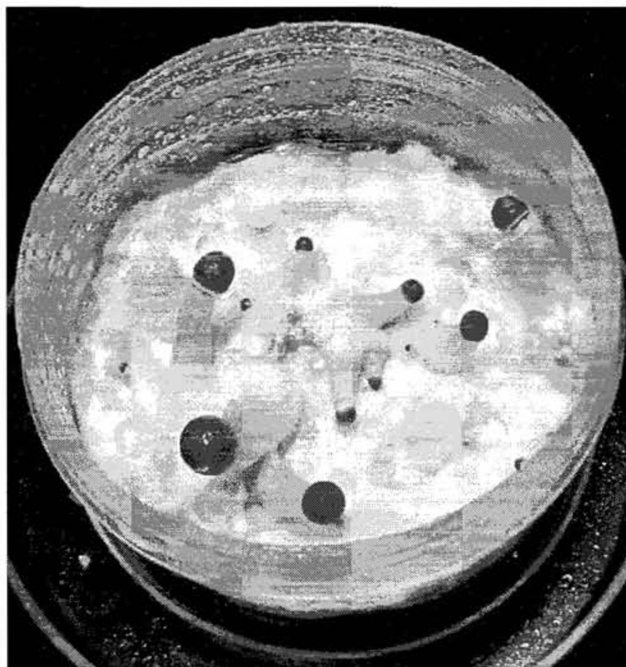
STEP 4:

Harvesting and beyond.

As soon as the surfaces of the cultures are covered with fungus, the mycelial mats can be lifted from the medium. With some species—such as *Psilocybe mexicana, P. semilanceata* and *P. tampanensis*—you can wait until the mycelium forms sclerotia. Others, like the "PF Stropharia" variety of *P. cubensis*, may even form mushrooms. Harvest those mycelia when the sclerotia begin to blue or when the mushrooms are just opening their caps. To stop post-harvest blueing (oxidation) of alkaloids, the mycelia can be washed in a solution of vitamin C and water, as I described in my article "Cookbooks and *Cubensis*" in the Vernal Equinox 2002 issue of *The Entheogen Review*. Mycelia can be converted into psilopunch juice with the methods described in that article for mushrooms.



Psilocybe cubensis var. PF Stropharia fruiting in a 250 ml jar containing 100 ml of redgar

EXAMPLE

On October 25, 2001 a 250 ml jar, containing 100 ml of soft redgar (4 grams of maltose, 500 mg of British Marmite, 200 mg of agar, and 0.2 ml of red food dye) was inoculated with a piece of mycelium of *Psilocybe cubensis* var. PF Stropharia. The jar was kept at a temperature that alternated between 15° and 20° centigrade. On December 12th, 28 grams of fresh

Redgar harvest of one ounce (28 grams) of fresh *Psilocybe cubensis* var. PF Stropharia mycelium + mushrooms.

mycelium plus mushrooms (see photo) were harvested. After blowing the culture with a table fan for 48 hours, 2.2 grams of dried fungus was obtained. A staggering 49% of the dry weight of the nutrients was converted into dry fungus.

EXTRACTING PURE ALKALOID

If using denatured solvents for extractions, one should first evaporate a few drops on a clear glass plate and then check this for residue by holding it over both a white and a black background. If any residue remains, one should choose a different solvent.

One hundred grams of dry *Psilocybe cubensis* was put in a kitchen blender, powdered and spooned into a quart jar. 635 ml 140 proof ethanol (acetone-denatured 70% ethyl alcohol) was added. (In the Netherlands, alcohol is available denatured with acetone, and cheaper when purchased this way. Regular 140 proof drinking alcohol can probably also be used. In the United States, one could try using EverClear grain alcohol of 190 proof, and add about 25% water to it. Some other denatured alcohols—such as those containing methanol or isoproyl alcohol—might also work, by watering them down to 70%, and this would be less expensive. When considering issues of "proof," keep in mind that this is not standardized between England and America; 100 proof under the British system is 114.2 proof under the American system.) The quart jar was placed in the refrigerator at 4° centigrade for 24 hours. The contents were poured through and then scooped into a white T-shirt, which was squeezed. 290 ml of greenish liquid was collected into a measuring cylinder. The cylinder was placed in the refrigerator and the fine mushroom dust was allowed to settle. This process was repeated a second time, the liquids drawn up with a pipette (leaving the mushroom dust on the bottom of the cylinder). The liquids were combined and poured into a tall bottle, which was placed in the freezer. A thick layer of fine white dust formed on the bottom of the bottle in 24 hours. The liquid was removed with a pipette. The white dust quickly became bluish-green upon contact with ambient air. Conclusion: this cold extraction and precipitation method may be the simplest isolation technique for psilocybin powder that has ever been published. But why bother? The mycelium can be used "as is."

MOKSHA / PF TEK CONNECTION

One kilogram of malt sugar and 125 grams of Marmite can be converted into half a kilogram of mycelial powder, which should contain about one gram of psilocybin. But despite this superb conversion ratio—almost three times that of the "Hippie" variation of the PF TEK—the harvest in biomass per half-pint jar was merely one third of what the PF TEK provides. And as said, the alkaloid harvest of the Moksha Method per half-pint jar may even be only one sixth of that obtained using the straight PF TEK.

This weakness can be doctored however. The Moksha Method can be used to prepare liquid inoculants for PF Substrate jars. Just pour 50 ml of a freshly prepared 0.06% concentration of hydrogen peroxide in non-chlorinated tap water (or bottled water, if your non-chlorinated tap water is not available) into a colonized solid agar jar, close the lid, shake vigorously for 60 seconds, and add another 50 ml of tap water without hydrogen peroxide. Then draw up the contents with a syringe or pipette (through a pinhole in the lid) and inoculate a series of PF Substrate jars with it. Perhaps this can even be done with a turkey baster. Colonized PF Substrate jars can be multiplied by using "CountZero's" method, which I reproduced in Winter Solstice 2001 issue of *The Entheogen Review*. It is also possible to inoculate new redgar cultures with a piece of a colonized PF Substrate cake—mushroom or sclerotium. When doing so it is unadvisable to take a shortcut and directly place a piece of cake on a soft agar surface. Always put a tiny fragment of the to-be-cloned fungus on a vertical film of solid agar first and check for fast growing non-white mycelium (which indicates a mold infection) or slime that drops down from the fragment to the solid agar layer on the bottom of the jar (which

indicates a bacterial or yeast infection). Only the desired mycelium is pure white, never slimy and slow-growing from the fragment up towards the lid of the jar.

INCREASING THE YIELD

It is known that mushrooms are clearly more potent than mycelia. For example, the mushrooms from *Psilocybe semilanceata* (the liberty cap) usually contains about 1% psilocybin (1 dried gram = 10 mg alkaloid) on average, with the mycelium of this mushroom containing about 2.5 mg of alkaloid per dried gram. Still, there may be a way to increase one's yield of psilocybin when using the approach of growing mycelium.

Published in August of 2003, ARNO ADELAARS' German book *Alles über Psilos: Handbuch der Zauberpilze* included a chapter titled "Psilocybin-Pilzkultur ganzjährig zu Hause." Writen pseudonymously by F. SPITZKEGULUS and B. PARAMYCELIUS, these researchers used 60 grams of malt sugar per litre and found that mycelium from *Panaeolus cyanescens* (also known as *Copelandia* and "blue meanie") and mycelium from *Psilocybe azurescens* (the "flying saucer mushroom") were both more potent than mycelium from *P. cubensis*. Mycelia from *P. cyanescens* and *P. azurescens* contained about 5 mg of alkaloid per dried gram, whereas mycelia from *P. cubensis* contained about 2.5 mg of alkaloid per dried gram. In the end, the best way to generate more psilocybin when growing mycelium may be to switch from *P. cubensis* to one of the more potent species. ⊕

YACHJ PAY ewishes to thank FUNGALKEL for her help in editing this article. Photos © PERFECT FUNGI EUROPE 2001.

PSYLOCYBE FANATICUS BUST RESOLUTION

The bust of Robert McPherson a.k.a. Professor Fanaticus, the owner of the company Psylocybe Fanaticus and inventor of the "PF TEK" for cultivating psilocybin-containing mushrooms, has been resolved. In 1991, McPherson's company was the first to promote the use of the "spore syringe," which made cultivation much easier in a non-sterile environment. As such, it caught on like wildfire.

McPherson and other defendants were arrested in February of 2003 on several charges, including the conspiracy to distribute a controlled substance. On October 31, 2003, McPherson was sentenced to six months of home detention, three years of felony probation, and some forfeitures, based on a plea agreement (which allowed the conspiracy charges to be dropped).

One of the most disturbing bits of data revealed was the fact that McPherson had been told by a U.S. postal employee that "Seattle Narcotics officers [had] presented him with a warrant" for McPherson's POB details, only two months after he started up his business. (A "mail cover" operation, collecting the names and addresses of all of those who ordered from him could have been in place for the past twelve years, and McPherson knew that his POB was being watched!)

Another bit of interesting data was that McPherson blamed his misunderstanding of the laws involved on what he stated was incorrect information presented in the book *Sacred Mushrooms and the Law* by attorney Richard Glen Boire.

More details about the case and the plea agreement can be found on-line at www.fanaticus.com. Because of the plea, no precedent was set with regard to spore syringes being specifically determined to be paraphernalia. Similarly, the threat to declare mere instructions on how to grow mushrooms as being paraphernalia, which was suggested as a possible outcome, has also been avoided for the time being. Overall, the outcome in this case was fairly positive, considering the prison time that McPherson might have been facing, and the implications that could have occurred for the scene in general.