Cultivation of *Panaeolus cyanescens* and *Panaeolus tropicalis* on sterilised substrate

Substrate preparation

Substrate for the cultivation of *Panaeolus cyanescens* and *Panaeolus tropicalis* can be prepared in the following manner:

Ingredients: Dried cow dung, vermiculite and soaked straw (submerged in water for 12 hours)

For 4 standard spawn bags we use: 1/2 kilogram dry straw, 4 liters of dried dung, 3 liters of vermiculite and 3-4 liters of water

The dung and vermiculite in dry form are mixed

Water is added and the mixture is stirred

(Make sure that the mixture is not too wet as loose water will often result in bacterial contamination later)

This mixture will look something like this:

The straw is added...

and mixed in thoroughly

Close up (looks nice doesn't it ;-)

The substrate is divided over four autoclavable spawnbags (with a filter patch)

The flaps are folded and the bags are put into the pressure cooker. A lid is put on top to prevent the bags from blocking the steam valve

After sterilisation (2 full hours!) the bags are allowed to cool down in the flowcabinet.

Two jars with *Panaeolus cyanescens* spawn on rye to be used for the inoculation of the substrate. Note that *Panaeolus* species do not colonise grain as densely as for instance *Psilocybe cubensis*.

The bags are opened in the flowcabinet (only touch the outside of the bags!) and each bag is spawned with 300 ml of spawn by means of free pouring.

The bags are sealed with an impulse sealer.

The bags are shaken to mix the spawn with the substrate.

Substrate Colonisation

The mycelium will now start to colonise the substrate. Depending on the temperature and the frequency of shaking the substrate will be fully colonised in 5-10 days.

A bag of substrate after 3 days. Note the white mycelium

After some days and regular shaking the substrate is fully colonised.

Close up

Casing the substrate

A plastic bin is cleaned with alcohol (note the holes plugged with polyfill).

The bags are cut open with scissors.

The fully colonised substrate is put into the bin.

Two bags are used for one bin.

The substrate is levelled by hand (wear gloves!)

A thin layer (1-1.5cm) of sterilised casing soil is put on.

This too is levelled by hand.

The bin is covered with polyethylene wrap to prevent contamination and moisture loss.

Side view

The bins are now put in a warm place for the casing layer to colonise. After 5 or 6 days the mycelium will show up on the casing layer.

At this moment another bin is put on top (upside down) to create sort of a 'mini-greenhouse'. Note the mesh covered holes in the top bin.

Fruiting

After some days the first mushrooms will appear. The casing soil must be kept moist (use a spray bottle).

Close up

The mushrooms will mature in a couple of days.

Fully mature and ready to be picked!

Cultivation notes

Paneolus cyanescens and *tropicalis* are much more sensitive to high CO2 concentrations. We believe the most important reason for people to fail in their research with *Paneolus* species is that they do not expose their cultures to enough fresh air. When air exchange is insuffcient many mushrooms will form but only a few will mature, the rest will abort. Also the mushrooms appearance is influenced. Improper air exchange will result in tall spindly mushrooms with small caps.

These species will grow in a wide range of temperatures but they really flourish when temperatures are around 25°C or a little higher.

Because not all substrains from a multispore germination seem all to viable it is wise to start with a multispore culture and clone the best looking mushrooms for your further investigations into these two species.