

## HOW TO LOOK AT SPORES WITH A MICROSCOPE

Examining spores is an important part of mycology but it can be tricky to do. Spores are usually very small, typically about 5 to 15  $\mu\text{m}$ , so they are easily missed whilst focussing the microscope. The following procedure should make it a bit easier to do. We'll assume you have a spore print to work with.

The first thing to do is forget the spores! Set up your 'scope with a slide that has an easily seen object on it. I've been using a prepared insect leg slide for years. Get this slide in focus with the 10X objective. Usually 'scopes have 10X eyepieces so that gives a total magnification of 100X.

Now take a clean slide and, with a dissecting needle or similar, scrape off a SMALL amount of the spore deposit and put it on the centre of the slide. Add one drop of water (water with a trace of detergent helps with wetting the spores) and give it a mix with the dissecting needle to ensure the spores are wetted. This stops them floating on the water and escaping sideways when the coverslip is applied.

Take a clean coverslip (Always as well to check before use, sometimes even a new one can be smeary. Especially if you've got a fingerprint on it!) Carefully lower the coverslip on to the drop of water. Holding one edge up with your needle and putting the other edge down first, a bit like a hinge, allows the water to spread evenly across the coverslip. This takes practice. Bubbles are your enemy here! Angled coverslip forceps make the job a bit easier. Blot off any excess water. It's OK to have some around the edge of the coverslip but you don't want it running off.

Without changing any settings on the 'scope, swap your set up slide for the spores one. Now when you look with the 'scope you should be able to see the spores. Expect them to be very small, much like dust! They might not be perfectly in focus, so you may need to adjust the fine focus slightly. Now swop to the X40 objective so you can see more detail. (*The X100 objective gives even more detail but requires oil immersion, which is too complex for beginners.*)

Water shows the natural colour of the spores but other stains or reagents might be needed to bring out specific features.

*"I can see the spores! Now what?"*

Spores come in a variety of shapes and sizes. With experience, you can sometimes identify the genus of a fungus just from the spores. Spore size can be measured too, but that's another story!

A very useful book is "The Mushrooms and Toadstools of Britain and North-western Europe" by the now deceased French mycologist, Marcel Bon. I know, he sounds like a hairdresser! Long out of print, it has spore drawings for each fungus. Second hand copies are available and if you can get one at a reasonable price, it's well worth it.

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