

Feature focus: Going macro

Lachnella alboviolascens

Jens H. Petersen¹

Many fungi are small, and the attempt to document this tiny world is a constant challenge to many mycologists. Fortunately the techniques for macro photography have developed enormously through the years.

When I started photographing fungi in the late 1970s, my 'normal' lens had its closest focus at about 60 centimetres. To get closer I had to move the lens away from the film by means of a set of extension rings. This was difficult, and one never got particularly close. A dedicated macro lens made the photography easier but still only brought the photographer in to around 0.5× magnification. Experiments with bellows or multiple extension tubes yielded results with higher magnification, but sharpness – and especially depth of field – was poor. In practice, images at around 2× magnification were the most one could realistically hope for.

Out came the digital cameras! Initially, photographers benefitted from the small sensor size and the correspondingly short focal length of the lenses, which provided significantly better depth of field. Later, the possibility emerged of taking multiple images at different focus planes, which could then be stitched together using

software – allowing the final image to include all the sharp areas from the original photographs. Suddenly, depth of field was no longer a problem. If you had a sufficiently stable setup (including a fungus that didn't dry out), virtually infinite depth of field became a possibility. Today there are plenty of medium level digital cameras that can shoot a series of macro pictures for stacking and even some that can do the stacking in-camera.

If you need to get really close, however, you will have to build your own setup. This can range from a camera with a special macro lens and a lamp, to complex rigs involving even more specialised lenses, bellows, flash units, and motorised macro rails. An easy shortcut to try photographing extreme macro is to use your microscope with a camera. Just put your specimen on a slide and under the lowest magnification (often x4). No liquid, no coverslip. Light it up with a cheap LED lamp on a swan neck and make a series of pictures with slightly different focus planes for stacking. The result is probably not super high quality photos, but a good start and useful pictures for identification.

The images in this page spread illustrate some of the development over the last 40 years. The first



Fig. 1. *Lachnella alboviolascens* photographed in 1988 with an old 55 mm Micro-Nikkor objective on Ektachrome film. Photograph © Jens H. Petersen.



Fig. 2. *Lachnella alboviolascens* from 2025 with a 45 MP camera, flash and a specialised macro lens. This image resolution is absolute overkill in any normal context but is used here with the hope of a future exhibition somewhere in the world featuring metre-broad, supersharp pictures of fungi. Photograph © Jens H. Petersen.

shot (Fig. 1) was made back in the 1980s with a macro lens on Ektachrome 35 mm film. It's grainy, completely blocked up in the dark areas, and not particularly sharp. The large image (Fig. 2), on the other hand, was taken with a small, dedicated specialist lens with a 45 MP camera and flash. It's a stack of 22 images, post-processed in ZereneStacker and Photoshop – the full resolution picture is so sharp you can go exploring down between the hairs!

Not everything, however, is about technique – nature and the fungi have to play along too. The third photo (Fig. 3), from 2013, was taken with a 12 MP camera and a macroscope with a zoom lens. It's a very efficient setup because the zoom lens allows you to bring the fungus into focus quickly, but zoom lenses always produce slightly poorer results than so-called prime lenses (lenses with a fixed focal length). This is one reason why the image is less sharp. However, it shows something rarely seen in these tiny fungi: how the spores are formed. On the fungus's hymenium, small glowing dots appear in groups of four. These are the spores sitting atop the basidia. This shows that the little cup is not an ascomycete, as one might otherwise have expected, but a basidiomycete — specifically *Lachnella alboviolascens*.

You can collect many, many of these tiny cyphellaceous fungi without ever seeing basidia with spores – this is a lucky shot that in many ways outshines later technical superiority.



Fig. 3. *Lachnella alboviolascens* from 2013. Here in a lower technical quality, but of a super-fresh fungus. The condition of the material is paramount if you want great pictures. Spritzing with tap water, using a small spray bottle such as those used for cleaning glasses, can help to keep the specimens fresh. Photograph © Jens H. Petersen.

¹ Nøruplundvej 2, 8400 Ebeltøft, Denmark.
jenshp@icloud.com; websites: www.jenshpetersen.dk, www.mycoskey.com