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A Simple Device for Drawing and Photomicrographing Small Living Spores of Fungi.[1)]

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Photomicrographing fungus-spores and any other small bodies mounted in water, or drawing them with an aid of a camera lucida is necessary in many cases for those who are engaged in the plant pathology and microbiology. Small fungus-spores or such small bodies show Brownian movement besides the movement due to the gravity and the water current, when they are mounted in water, so that it is very difficult to take their photomicrograph. To overcome the difficulity, a device had been tried by sealing the margin of cover glass with vaseline or paraffin.

In 1927 Sherbakoff (1927) proposed a new method for photographing the preparations of living spores using a thin layer of plain agar. The Sherbakoff's method was so good to get rids of the great parts of the troubles in photomicrographing the living spores, and the present writer (Nisikado, 1927) has introduced this method with his modifications. The method was cited by Takimoto (1930) in his "Methods in Microbiology and Plant Pathology".

1) This is an English translation of the writer's paper written in Japanese, in "Nôgaku-Kenkyû" (Agricultural Research), Vol. 19, pp. 359—360 published from the Ōhara Institute, Sept. 1, 1932.

Although SHERBAKOFF's method gives a pretty good result for the photomicrographing or drawing small living spores, the practice is somewhat tedious. Namely by this method, the tubes of carefully filtered clear agar must be always available, since the method requires a thin layer of agar every time. An old agar layer may become dry or contaminated, although the agar layer on the slide may be good for some days if they are preserved well. Moreover it is also troublesome to get the agar layer completely even.

To eliminate these troubles, the present writer has tried a collodion film in place of the thin layer of agar, and obtained pretty good results. This new method is very simple and convenient for photomicrographing or for camera-lucida-drawing of small living spores mounted in water. The manipulation of this method is as follows :

1) Dilute collodion solution (commercial) to 4 to 5 times with the mixture of 1 part of absolute alcohol and 2 parts of ether.

2) Dip a cleanly wiped and dried cover glass in the above collodion solution with an aid of forceps, and then drain off the surplus of solution as complete as possible.

3) Put the cover glass on blotting paper, evaporate ether and alcohol so that the thin collodium film adheres to the cover glass.

4) Remove the collodion film on one side of the cover glass with a preparation needle or a knife.

5) Put a small drop of water on the center of collodion layer on the cover glass thus prepared. Mix the spores to be observed in the drop to make the spore suspension ; keep the suspension nearly dry.

6) Transfer the cover glass on a drop of water on a slide glass, of course, the film side of the cover glass vis-a-vis the slide ; press it properly. Blot off the surplus of water.

7) Seal the margin of the cover glass with melted paraffin. The preparation is now ready for the photomicrographing or for the camera-lucida-drawing.

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