HOYER'S SOLUTION AS A RAPID PERMANENT MOUNTING MEDIUM FOR BRYOPHYTES

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Hoyer's solution is a rapid-permanent mounting medium which has been in general use for many years by entomologists and more especially acarologists. It has been found to be quite satisfactory for mounting small insects and mites, specimens of which have been preserved for more than twenty years at the U. S. National Museum without deterioration. It is also used extensively by mycologists who have employed it in making permanent whole mounts of fungi. Several years ago I mentioned the problem of making permanent mounts of mosses and liverworts to Dr. Leland Shanon, a distinguished mycologist of the University of Illinois, and he suggested that Hoyer's might prove satisfactory as a mounting medium for bryophytes. Since then the solution has been tested on a considerable variety of mosses and liverworts by myself as well as some of my colleagues and the results to date have been particularly encouraging. Inasmuch as I have seen no mention of Hoyer's solution in bryological literature it seems desirable to call attention to its usefulness for bryophytes.

The formula for Hoyer's solution is as follows:

- Distilled water
- Gum arabic (U. S. P. Flake) 30 grams
- Chloral hydrate 200 grams
- Glycerin 20 cc.

The ingredients should be mixed in the above order at room temperature. The mixture should not be heated during the mixing operation. Gum arabic goes into solution slowly and for that reason U. S. P. flake is specified. In this state it enters solution much more readily and with a minimum of bubbles. The product marketed as "crystals" is satisfactory, although it requires considerably longer to go into solution. Powdered gum arabic should be scrupulously avoided as it is extremely difficult and messy to work with. I prefer to mix the flaked gum arabic in an electric rotary magnetic mixer. It requires a relatively longer time but reduces the volume of air bubbles. Any mechanical means of stirring is satisfactory, however. It is not necessary to filter the final mixture in spite of the fact that it may appear to need it. The solution can be allowed to stand for several hours and the seemingly large number of

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as peristone teeth, exothelial cells of the capsule, densely papillose cells, stems, etc., where a clear sharp image of cellular detail and outline is ordinarily difficult to obtain. It is an extremely satisfactory medium for mounting material that is to be drawn or photographed.

Perhaps this is the place to express a note of caution concerning a rapid permanent mounting medium that in recent years has been recommended and used successfully for many plants and plant parts as well as certain insects. This medium utilizes polyvinyl alcohol (PVA) in combination with generous portions of lactic acid. PVA is marketed in powder form by Du Pont under the trade name “Elvanol.” I have tried this mounting medium on a fairly large scale for bryophytes and it is completely unsatisfactory for either mosses or liverworts. After a few months plants mounted in PVA gradually begin to shrink and distort and in time they become virtually unrecognizable.

FIRST REPORT ON LICHEN GROWTH RATE AND SUCCESSION AT ATON FOREST, CONNECTICUT

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As part of a broad program of lichen studies, a number of permanent stations have been set up in Aton Forest, a research area in northwestern Connecticut. The lichen flora of this area has already been published upon (Hale, 1950) along with descriptions of the Forest. The object of the present investigation is to determine the growth rates of some common lichens and at the same time trace the development of various lichen communities. This report presents the basic methods of study and significant results over a period of three years.

ROCK STATIONS.—The extensive gneiss outcrops at “The Ledges” and at “Hickory Hill” provided excellent undisturbed locations. Seven quadrats, each 21 × 27 cm. (567 cm²) with drilled holes at the corners, were established in September, 1949. In 1949 and in August, 1952, outlines of the thalli were traced directly on thin plastic sheets, from which growth and coverage were measured in the laboratory. Although all stations were photographed in 1952, main reliance is being placed on the tracings. Some of the results for the period 1949–1952 are given in table 1. The measurements of radial growth were far more difficult than anticipated since every portion of a thallus margin appeared to

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