

SIPHON TECHNIQUE FOR ISOLATING BUOYANT SPORES

A.A. BHUTTA

Department of Botany University of the Panjab, New Campus, Lahore.

A siphon technique has been developed to isolate petrified, spherical, uncompressed, buoyant spores dispersed in soil or embedded in mineral matter. Certain fossil spores and pollen grains can be separated from heavier mineral matter by suspending them in Thoulet's solution (Potassium iodide and Mercuric iodide: aqueous solution adjusted to sp. gr. 2.5) and in Bromoform 2.3 sp. gr. as recommended by Naumova and Tiniofeyev in Schopf (1962). There are some uncompressed spherical spores and pollen grains which contain air and are, therefore, buoyant. Certain *Endogone* spores have the same characteristics. In such cases specific gravity methods have been found to be unsatisfactory. Petrified, uncompressed spores of *Rhynia major* Kidston & Lang are buoyant and very fragile to handle (Bhutta, 1969). By the siphon technique buoyant spores of *Rhynia major* have been successfully isolated. The method has been experimented to isolate certain *Endogone* spores also and has proved to be quite useful.

A 1/2 cm. diameter glass tube was made into the shape shown in Figure 1. In the following description the long limb will be called as 'A' which is about 6 cm. long and the shorter limb with the drawn out tip, as 'B' having a length of about 3.5 cm. excluding the the narrow tip. Narrow tip end was drawn out over a flame, the diameter of the tip being not be less than 500 μ .

To the arm 'A', 1 ml. of the spore extract in 10% Glycerine solution in water was introduced. After about a minute, approximately 1 ml. of 30% glycerine was poured gently down the side of limb 'A' causing the 10% solution to rise in limb 'B'. Within the period of operation, little mixing of the Glycerine solutions appeared to occur and it was found that the spores tended to rise with 10% solution at the base of the limb 'c' (about 3.5 cm. long).

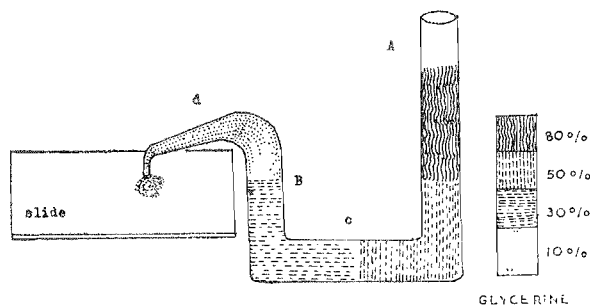


Fig. 1. Siphon Technique for Isolating Buoyant Spores.

Similar quantities of 50% Glycerine, followed by 80% Glycerine, were subsequently added slowly via limb 'A' until the liquid in limb 'B' reached the narrow end of bend 'd'. Thereafter, 80% Glycerine was added dropwise from a burette to limb 'A' causing displacement of 10% Glycerine containing spores onto the microscope slides successively positioned under the tapered tip of limb 'B'. The specimens were, subsequently, mounted in Glycerine jelly as recommended by Kissler in Erdtman (1954).

By this method, very fragile, badly preserved, petrified uncompressed and buoyant spores were successfully isolated and studied.

References

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