

## A METHOD IN MICRO-TECHNIQUE

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It has long been recognized that in the preparation of many kinds of pathological plant tissue for microscopical study, the causal bacteria or the spores of the causal fungus are usually lost in the fixing, dehydrating or other processes. Therefore, the preparation usually shows nothing but the tissues of the host and some of the fungus mycelium. The writer presents a method which may be of value to his fellow workers. By this method it is possible to retain bacteria, spores of *Colletotrichum*, *Glocosporium*, the rusts and many other fungi in position.

The method consists in covering the surface with a very thin layer of agar made up at the rate of 15 or 20 grams to the 1,000 cc. of water. The agar should be heated to the melting point, poured over the surface of the material, then drained off and allowed to harden. Cut the material into pieces of the proper size and drop into the fixing fluid.

In the use of this method the following points must be taken into consideration:

- (1) A hard agar is more satisfactory than a soft agar.
- (2) Allow the agar to harden thoroughly before cutting.
- (3) A thin layer is more satisfactory than a thick layer. A thick layer frequently separates from the material, carrying some of the spores with it.
- (4) Cut with a sharp knife, so as not to break the film of agar from the surface of the material.
- (5) There must always be one or more freshly cut surfaces to permit the entrance of the killing fluid. These fluids do not penetrate the agar.
- (6) The pieces of material should be small, so as to permit quick penetration.
- (7) The heating of the paraffine will not melt the agar.
- (8) Cultures grown in petri dishes may be killed and fixed by this method by pouring a thin layer of agar on the surface. Very small pieces should be used for fixing.

The writer has used this method for some time with excellent results in the study of plant tissues infected with bacteria, and a number of parasitic fungi. The method has not been found satisfactory with *Cercospora* and only fairly satisfactory with *Septoria*.