

## THE ISOLATION OF A DAMPING-OFF INHIBITOR FROM SPHAGNUM MOSS

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Sphagnum moss is used extensively as a medium for seed germination because of its ability to prevent damping off. Up to a few months ago, it had not been established whether the fungistatic activity of the sphagnum moss was due to environmental conditions, such as a low pH value, or that it contained a specific fungistatic substance. During the past summer it has been possible to demonstrate that the activity is due to a specific fungistatic substance or substances.

Aqueous, alcoholic, and acetone extracts were prepared from ground sphagnum moss. A highly active substance(s) was extracted with 50% ethanol or with acetone. The substance(s) was partially purified by paper and thin layer chromatography. *Pythium ultimum* was used as the test organism to locate the fungistatic substance on the chromatogram.

During the extraction studies, bacteria were isolated from the water extract which produced a very powerful fungistatic substance. All growth of *Pythium* was blocked for several centimeters around the colony. The bacteria were grown in a broth and a cell free extract was prepared. Preliminary results indicate that the fungistatic substance(s) produced by the



Figure 1. Tomato seedlings germinated with and without sphagnum moss. The flat containing sphagnum moss is on the right.

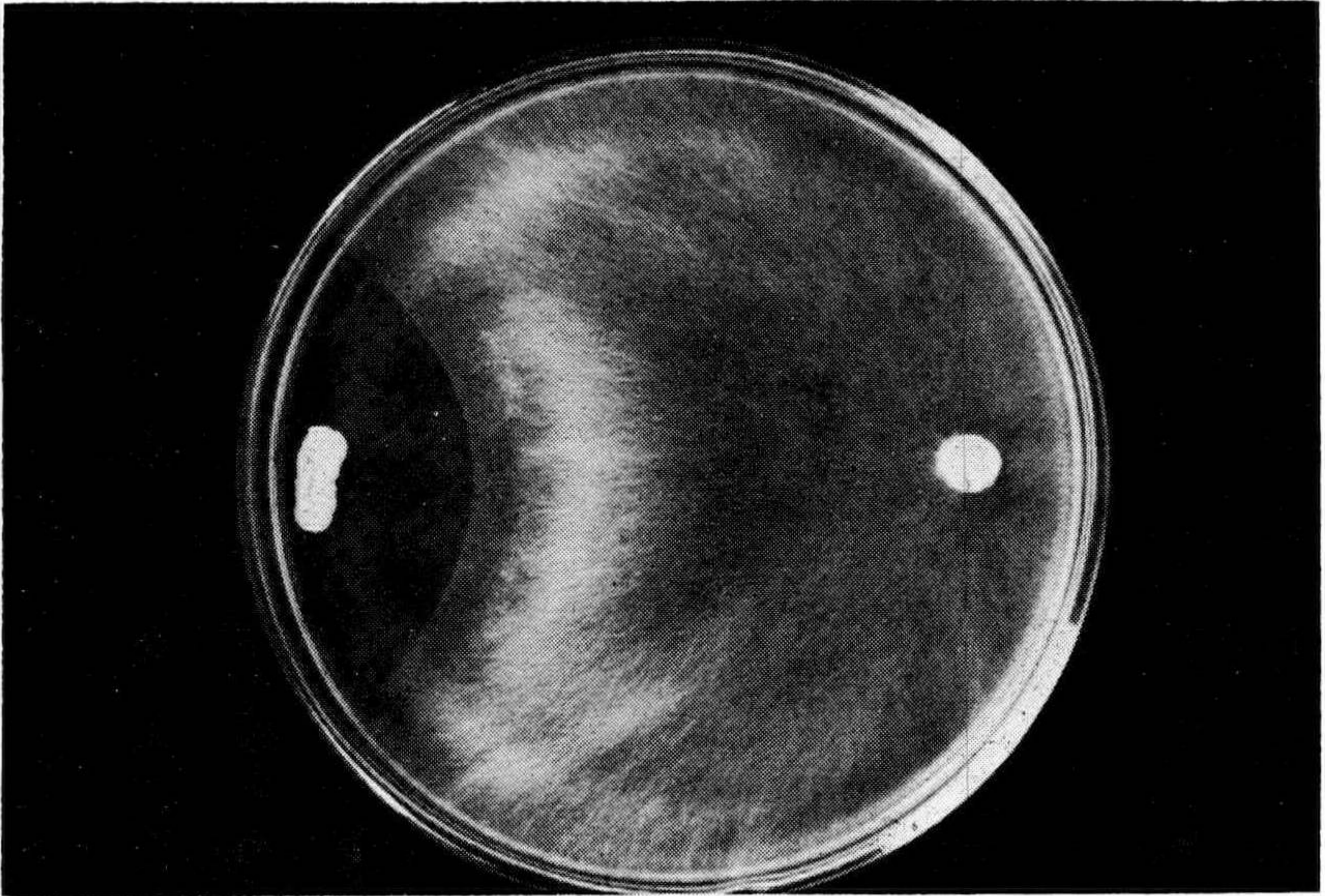


Figure 2. The fungistatic activity of bacteria isolated from sphagnum moss.

bacteria is identical to the substance(s) extracted from the sphagnum moss. The bacteria may in fact be the source of the fungistatic material(s) found in sphagnum moss. The substances from both sources control the growth of *Rhizoctonia* and *Fusarium* as well as *Pythium*.

MODERATOR SHUGERT: Thank you, Charley, very well done. Our next speaker on this part of the program with the very intriguing title "From Near Laboratory Propagation Conditions on to the Average Commercial Situation," Frank Turner, Berryhill Nurseries, Springfield, Ohio.

#### **FROM THE NEAR LABORATORY PROPAGATION CONDITIONS TO THE AVERAGE COMMERCIAL SITUATION**

FRANK TURNER  
*Berryhill Nursery*  
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This is an examination of at least two sets of working arrangements and aims for results that propagators have. Some of us are connected with commercial establishments, where factors of quantity and costs are paramount. Others are members of institutional type staffs. These latter often represent the more altruistic value of the search of knowledge for its own sake and the value of teaching others.

This comparison is made, not for presenting one of these types of endeavor as either inferior or superior to the other, but