

Faculty Research Assistant Position at Oregon State University

The Department of Botany and Plant Pathology invites applications for a Faculty Research Assistant.

This is a full-time (1.0 FTE), 12-month, fixed-term position with reappointments contingent on renewed funding and the discretion of the Department Chair.

A detailed description of job responsibilities for this position can be found on the Oregon State University employment web site under job posting # 0000418.

For questions regarding this posting please contact: Melodie Putnam, 541-737-3472 or e-mail putnamm@science.oregonstate.edu.

The closing date for this position is **April 16, 2007**.

Float Incubation Technique for Plant Disease Diagnostics

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Diagnosing plant problems requires excellent observation skills. However, in most cases, initial observations require additional investigation in order to make a more accurate diagnosis of the causal agent(s) responsible.

Using a float incubation technique is an excellent way to induce the production of sporangia as well as mycelial growth from herbaceous tissue. There are many

different float solutions used by labs, including tap water, deionized water ([Brock, J.H. and G.H. Beard, A Simplified Technique for Recovering Pythium and Phytophthora from Infected Plant Tissue](#)) and Chen-Zentmeyer salt solution (D. Chen and G. A.Zentmeyer. *Mycologia* 62:397, 1970).

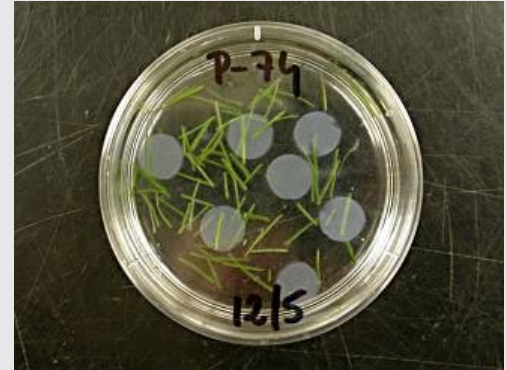
Some diagnosticians surface disinfect the tissue prior to float incubation and others do not. Some labs use sterile grass blades in water as 'bait'; wait for a 'goodish' amount of mycelium and sporangia (2-4 days); put the grass culture in the refrigerator overnight; remove from refrigerator and approximately 20 minutes later observe sporangia for zoospore production characteristic of a *Pythium* or *Phytophthora*. (Shishkoff, MD).

In our lab, we find that a 1% unsterilized soil extract works well for stimulating sporangia production from *Phytophthora* infected tissue. This float technique may also be used to stimulate sporangia production from mycelium growing on agar plugs.

Ten grams of soil (chosen from ground not treated with chemicals) and 1 liter of deionized water are combined and swirled around in a flask.

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Diagnostic Tip of the Month



Sterile grass blades in water used as bait for the production of mycelium and sporangia of *Pythium* and *Phytophthora*. (Photo Margery Daughtrey, Cornell University).

Diagnostic Tip of the Month

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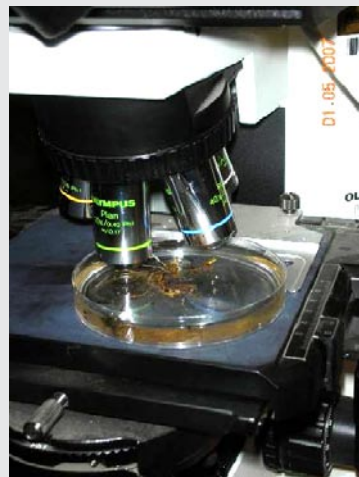
The solution is then poured slowly through a funnel lined with filter paper, into media bottles that are then stored in the refrigerator. When needed, the bottles are removed from the refrigerator and solution is poured into Petri plates containing herbaceous roots, stems and leaves to a depth that just covers the plant material. Covered plates are incubated on the bench top for 24 hours and then examined with a compound microscope, while still floating in the soil extract solution.

One word of caution ... there are many protozoans that thrive on herbaceous plant material floating in unsterilized soil extract and to the untrained eye, may be confused with sporangia or zoospores.

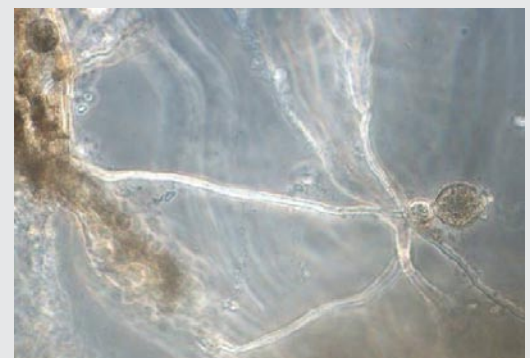
Flotation Technique for Plant Disease Diagnosis



Samples submitted for diagnosis are placed in 1% soil extract and incubated for 24 hours.



Examination of float-incubated plant material under compound scope.



Phytophthora sporangia observed on float-incubated herbaceous tissue.

Photos Gail Ruhl, Purdue University