Diagnostic Tip of the Month: Diagnostic Uses for the Inverted Microscope

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An inverted microscope is a helpful tool that can save diagnosticians time when looking at both nematology extraction samples and fungal cultures. An inverted microscope has a light source above the stage while the objectives are mounted on a nosepiece below the stage (Figure 1).

Firgure 1. An inverted microscope has a light source above the stage while the objectives are mounted on a nosepiece below the stag. (Photo Jan Byrne, Michigan State University)

The stage is large enough to easily hold a petri dish. This design allows the diagnostician to easily scan cultures/samples without having to make a slide mount. A range of magnifications are available, inverted microscopes in our lab have the capability to magnify from 40x to 400x.

Fungal cultures can be viewed without opening the petri dish. The culture is placed on the stage and scanned for signs of fungal growth. This is a great way to find fungal structures that may not be widely prevalent in the culture or that were formed only directly adjacent to the plant material.

For example, it is really useful to detect *Phytophthora* sp. in cultures from woody plants where there is not a lot of fungal growth. Cultures can be quickly scanned and if needed specific areas of the cultures can be marked for more detailed examination later on a traditional compound microscope. In some cases scanning cultures with the inverted scope is sufficient to make a diagnosis, eliminating the need to make a slide mount. Because you don't have to disturb the culture, it is also a nice way to capture great images of structures.

The inverted microscope is also helpful in evaluating nematology samples; it is an efficient way to count cyst nematode samples. The extracted sample should be poured into a 60mm x 15mm Petri dish. There is an attachment that fits on the stage of the microscope and holds a 60 mm Petri plate (Fig 2.). With the phase contrast on setting 3 and 40x magnification, the reader can readily differentiate between cysts and white females.

Continued on page 4...

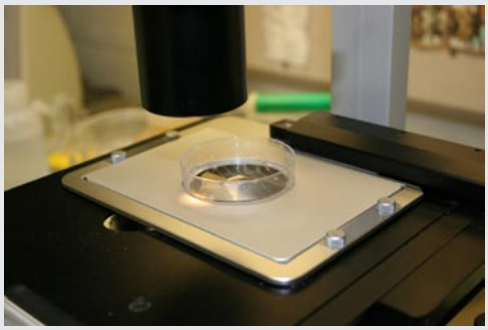

Figure 2. There is an attachment that fits on the stage of the microscope and holds a 60 mm Petri plate. (Photo Jan Byrne, Michigan State Universtiy)

Diagnostic Update

Continued from page 3...

Vermiform nematodes can also be viewed and evaluated with the microscope. In this instance, use no phase contrast and the light at a comfortable intensity. This will allow you to count the sample as if you were using a dissecting microscope. In order to view morphological characteristics, change your magnification as you would when looking at any other sample.

Mycotoxin Virtual Workshop Via Adobe Connect, November 6-8, 2007

You are invited to participate in a virtual workshop on "Mycotoxins and Mycotoxicosis" via Adobe Connect.

The workshop will be co-hosted by Nina Zidack (GPDN) and Gail Ruhl (NCPDN). Presenters for this workshop will be Dr. Barry Jacobsen (Montana State University) and Dr. Charles Woloshuk (Purdue University). The primary focus of the workshop will be to provide diagnosticians with sufficient background to determine if mycotoxin-producing fungi are present in a sample and if specific genera are observed, how and where to direct the sample to a lab for analytical testing.

The workshop will be delivered in 2 2hr sessions, November 6 and 8, mid-day (time to be announced later), so we may serve all time zones. In order to present this virtual workshop we will need a minimum of 10 confirmed participants (maximum 100). Please share this announcement with colleagues who might be interested. Details on last year's workshop and links to the recorded workshop are available at: http://diagnostics.montana.edu/GPDN/Mycotoxin/index.htm

To reserve a space in this upcoming E-workshop, please respond to ruhlg@purdue.edu and you will be added to our contact list of registrants.

National Database

4th Annual IT/Diagnostician's Meeting

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The 4th annual IT/Diagnostician's meeting will be held at the Adam's Mark hotel in St. Louis, MO on November 28-29, 2007. Members of the PDIS change management team will meet for a half day on the afternoon of Tuesday November 27th. The IT/Diagnostician's meeting will begin on Wednesday November 28th at 8:00am and conclude on Thursday November 29th at noon. PDIS users will meet for a half day in the afternoon on November 29th.

Continued on page 5...