

## **Frontier Analysis, Ltd**

### **TECHNICAL SERVICE RESPONSE NO.: UT067**

**Subject:** Analysis of Samples Related to an Unknown Light Source (Long Island, NY August 2, 2009)

**Date:** October 7, 2009

**Requested By:** James Bouck  
MUFON State Director

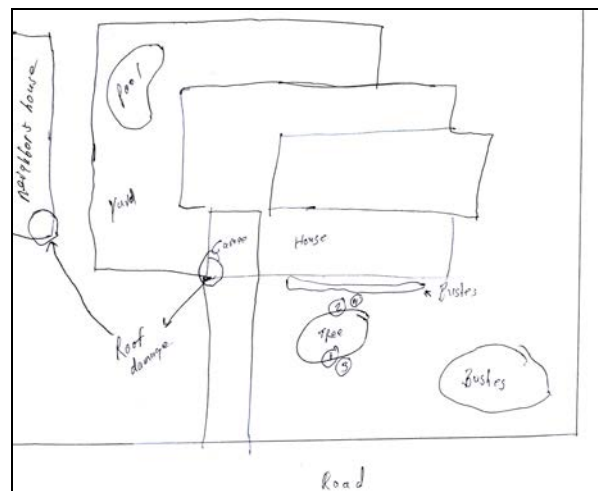
**Reported By:** P. A. Budinger  
Analytical Scientist

### **Background/Objective:**

The background as stated by the witness follows:

*"I was in bed, all of a sudden my bedroom lite up like a major size spot lite. I put my hand in front of my eyes to block the lite, a few seconds later it vanished. No noise. I didn't pay much attention to this until a few days later, outside of my house, I have a beautiful tree and the grass is fine, my shrubs are fine, but the soil around the tree is very dry, and every leaf on the tree is burnt to a crisp, not one branch is broken. No burn marks. The tree is perfectly shaped, but every single leaf is burnt. I pick up a leaf and crush it in my hand to dust."*

Following is a hand-drawn map of the site.<sup>1</sup>



<sup>1</sup> Note: Roof damage occurred prior to the event.

Leaves, grass and bark samples were submitted to determine whether there are any anomalies that may be related to the event.

### **Conclusions:**

- The leaf samples from both samplings (#1 leaves from top of the tree, #2 leaves from backside of tree) visually and spectroscopically show with no unusual anomalies. Clearly there is no evidence for heat exposure. Detected are typical cellulose and natural ester. Also, there is some protein material which may be from mold or fungus. There appears to be more mold or fungal material on the leaves from the top of the tree, compared to those from the backside.
- Dead insect remains were found on the #1 leaves from the top of the tree. These included two exoskeletons from apparent ladybugs which adhered to the leaves. There was also a more intact bee or fly which fell out of the leaves. It is unknown if these insects were a result of the unusual light event, or dead before the event. It is known that internal parasitic fungi attack of the ladybugs could result in leaving the ladybugs exoskeleton along with securing it to the leaf.<sup>2</sup> I would recommend that an entomologist examine the insects.
- Typical insect web material was found on a #2 leaf from the tree backside. The web looked normal.
- Grass from both samplings (#3 grass sample taken from the area below #1, #4 Grass sample taken from the area below #2) also appear normal. Typical cellulose and natural ester were detected, along with mold or fungal material.
- The bark contains typical cellulose and lignin material. Mold or fungal material is detected on the exterior of the sample. None is present in the interior.
- Based on the above conclusions, one highly probable speculation offered is that the tree may have been subjected to a fungal attack. Maples in the New England area have been noted to suffer this fate recently. See selected websites discussing maple tree blights.<sup>3</sup> It is possible the fungal attack was in process before the event and only noticed a few days after. It would be wise to more accurately pin down a more precise timing between the noted good health of the tree versus the time the brown dead leaves were observed. If the time between the observation of live healthy green leaves to dead brown leaves was only a few days (two?), as indicated by the witness, then perhaps the light event may have been the cause.

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<sup>2</sup> Personal phone communication, Dr. Charles Leitzau, on October 7, 2009

<sup>3</sup> [Fungus Attacks Region's Maple Trees - wbztv.com](#); [Verticillium Wilt](#); [Maple Tree Diseases - LoveToKnow Garden](#); [Maple Tree Diseases](#)

### **Procedure:**

The following samples were submitted in plastic Ziplock™ baggies and received on August 29, 2009.

- 1.) Leaves from top of the maple tree.
- 2.) Leaves from the backside of the Maple tree near the house.
- 3.) Grass sample taken from the area below #1.
- 4.) Grass sample taken from the area below #2.
- 5.) Bark taken from the tree at 4' from ground level.

Grass samples were taken from a controlled area 20' from the tree. However, due to distraction the Field Investigator inadvertently forgot them.

Multiple infrared spectra were obtained from the sample 'as received'. All spectra were taken on the Thermo Electron Avatar 360 spectrometer using the Smart Herrick diamond sampling accessory. Photographs were taken with a Kodak EasyShare CX7430. Microphotographs were taken with a Canon PowerShot A520 digital camera interfaced to Leika GZ6 microscope.

All samples were tested with a SE International Radiation Alert™ Monitor 5 radiation meter and an Optical Engineering Model 22-U UV light.

### **Results:**

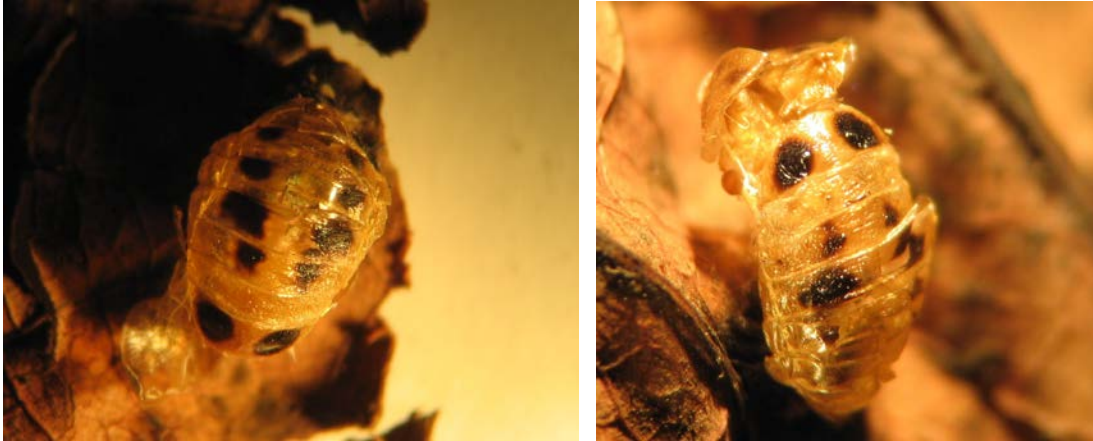
The results of the individual tests done on the samples follow. These results are summarized in the conclusions section on page two of this report. It should be noted here that none of the samples were found to emit radiation, nor were any fluorescing materials detected on any of the samples.

### **Analysis of the Leaves Sample #1**

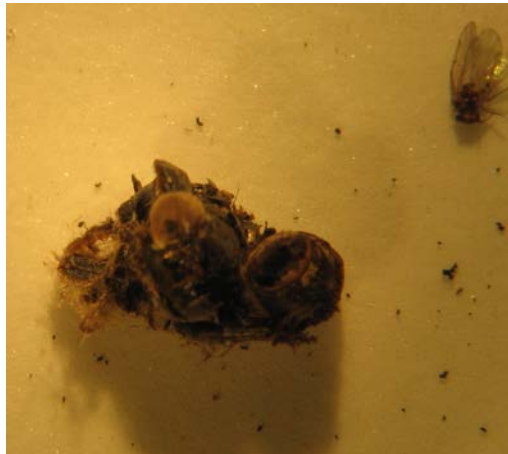


Leaves from top of the maple tree.

Visually the leaves look like normal dead (brown) leaves. There is no evidence for exposure to excessive heat. For example, there is no charring due to burning. Additionally, these leaves have three dead insects. While this analyst is not an entomologist, I would venture that two insects appear to be a variety of ladybug. They adhere to the leaves, and only the exoskeletons remain. Also another type of unidentified insect (a bee or fly?) fell out of these leaves. This one has more than the exoskeleton. Attached are microscope photographs of the insects.



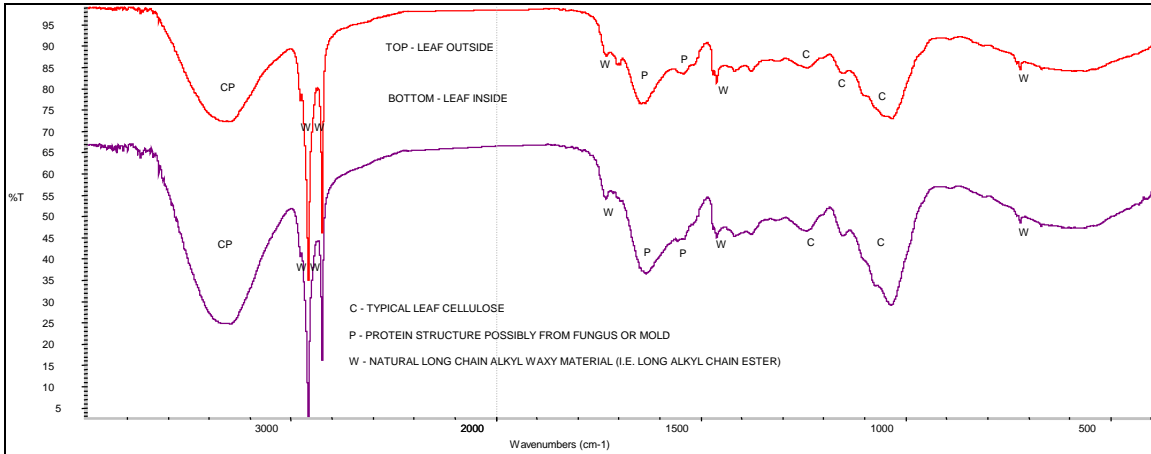
Insects 1 and 2 - exoskeletons of a variety of lady bug.



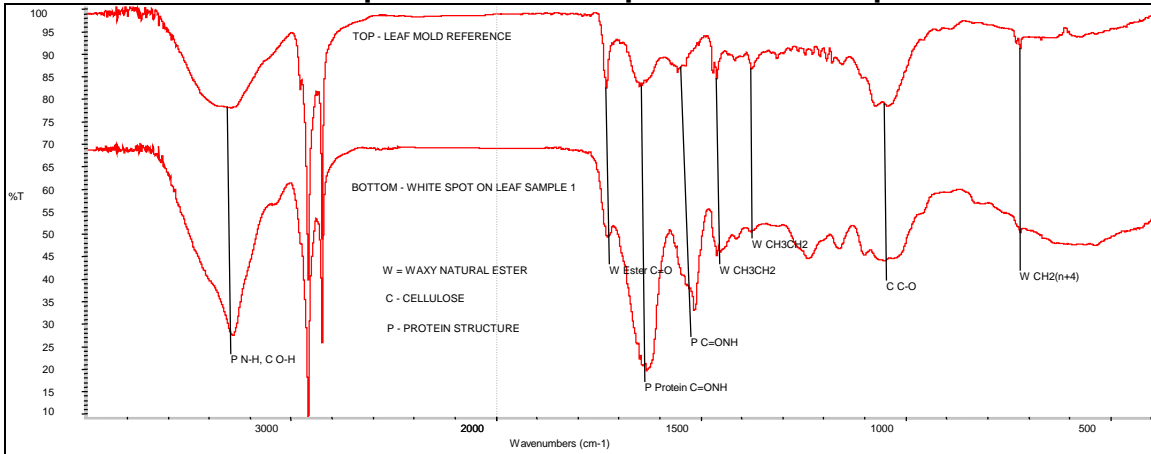
Insect 3 – bee or fly?

Infrared spectra of the leaves were compared to references of brown dead maple leaves and other leaves. No unusual contaminants are detected. The spectra show typical components expected for leaves (waxy ester material and cellulose), and in addition, show a protein containing material which may be from mold or fungus. The protein structure is more obvious in the spectrum of a white spot on the leaf. Again, this suggests the source is mold or fungus. The spectra follow.

#### **Infrared Spectra of Leaf Sample 1 - Outside and Inside Leaf**



### Infrared Spectra of White Spot on Leaf Sample 1



### Analysis of the Leaves Sample #2



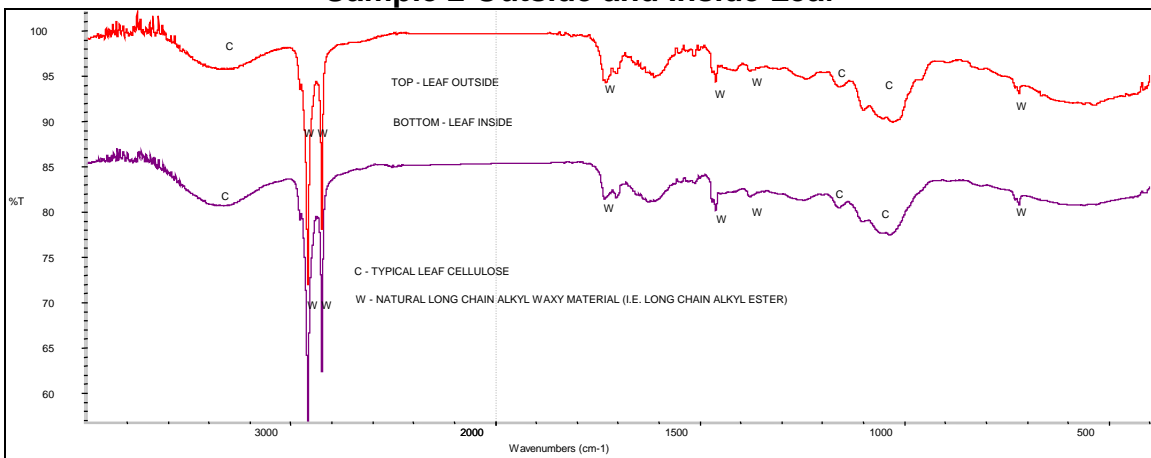
Leaves from the backside of the Maple tree near the house. (Right: close up photograph of one leaf shows insect web)

The leaves from sampling 2 are much the same in appearance as those examined above. No unusual anomalies are observed. There is no evidence for

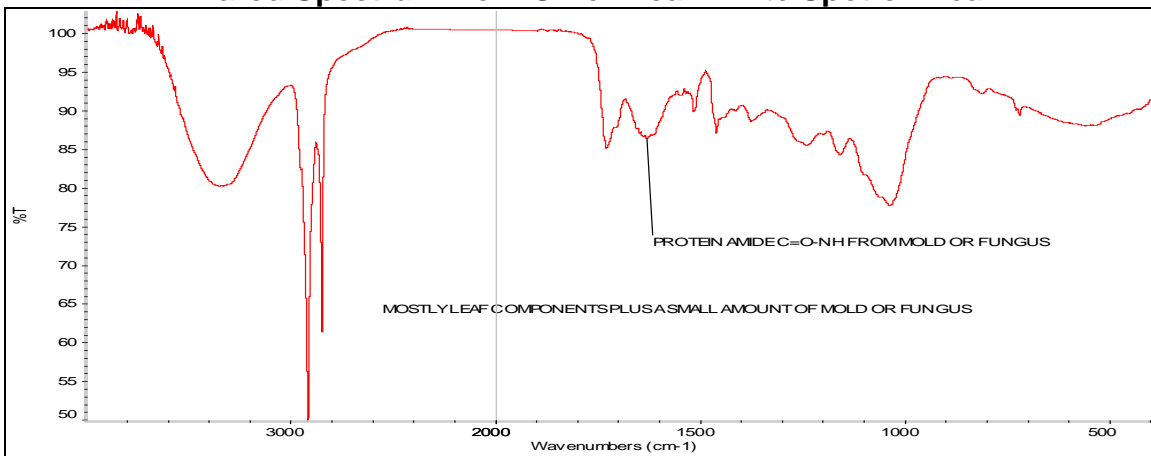
heat exposure. There are no insects on these leaves, though one leaf has some insect 'web'.

Infrared spectra of the front and back of the leaves compare to each other. They show typical components such as cellulose and natural ester. A protein structure, possibly due to mold or fungus, is not as apparent in these spectra as in those from sampling 1. However, the spectrum of a white spot on the leaves does show the protein (mold or fungus indication). A spectrum of the web material on one leaf confirms the presence of insect web. The bands compare to a reference of spider web. Following are the spectra with pertinent peaks labeled.

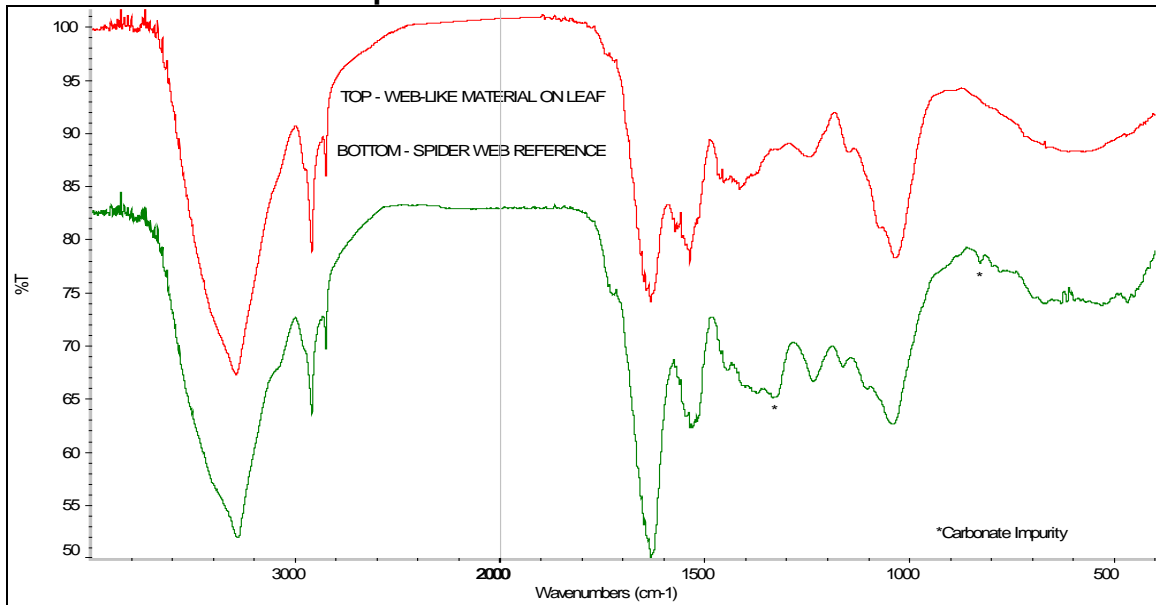
### Sample 2 Outside and Inside Leaf



### Infrared Spectrum from On or Near White Spot on Leaf



### Infrared Spectrum of Web-Like Material on Leaf



### Analysis of the Grass Sample #3

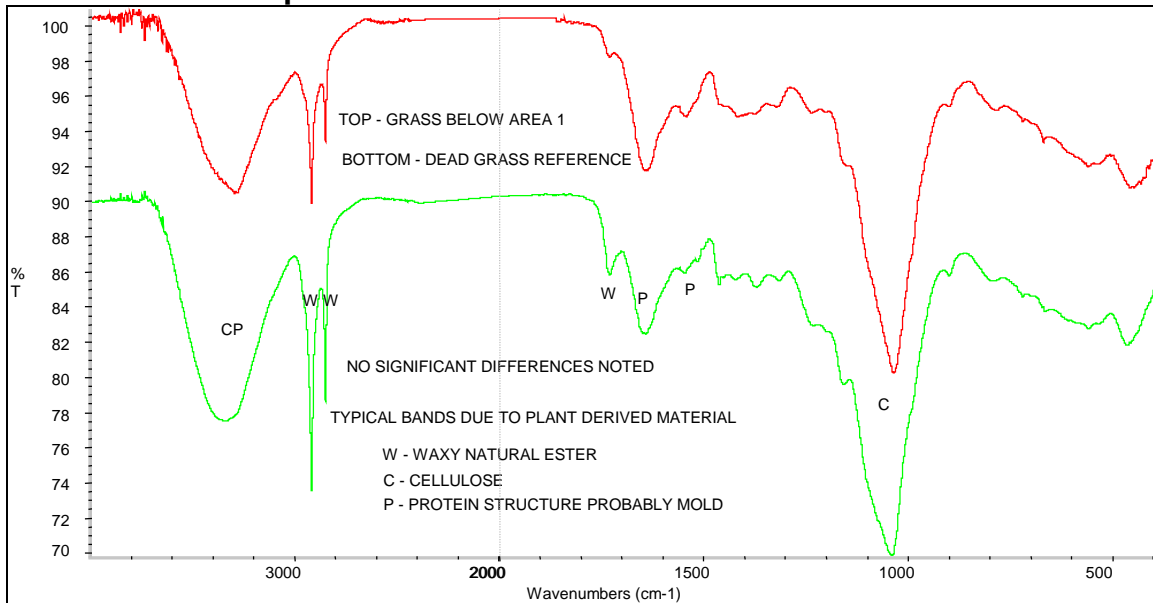


Grass taken from the area below #1

The grass appears normal with no unusual effects. Clearly it has not been exposed to heat.

Infrared analysis shows typical plant derived components such as cellulose, natural ester, and some protein derived material. The spectrum compares to a reference of grass. However, there appears to be more protein in grass #3 than the reference. The protein source is possibly mold or fungus. Spectra of the grass and a reference of dead grass for comparison follow.

### Infrared Spectra of Grass #3 and Reference of Dead Grass\*



\*Dead grass for reference obtained from outside the Frontier Laboratory, Auburn Township, Ohio.

### Analysis of the Grass Sample #4



Grass samples taken from the area below #2.

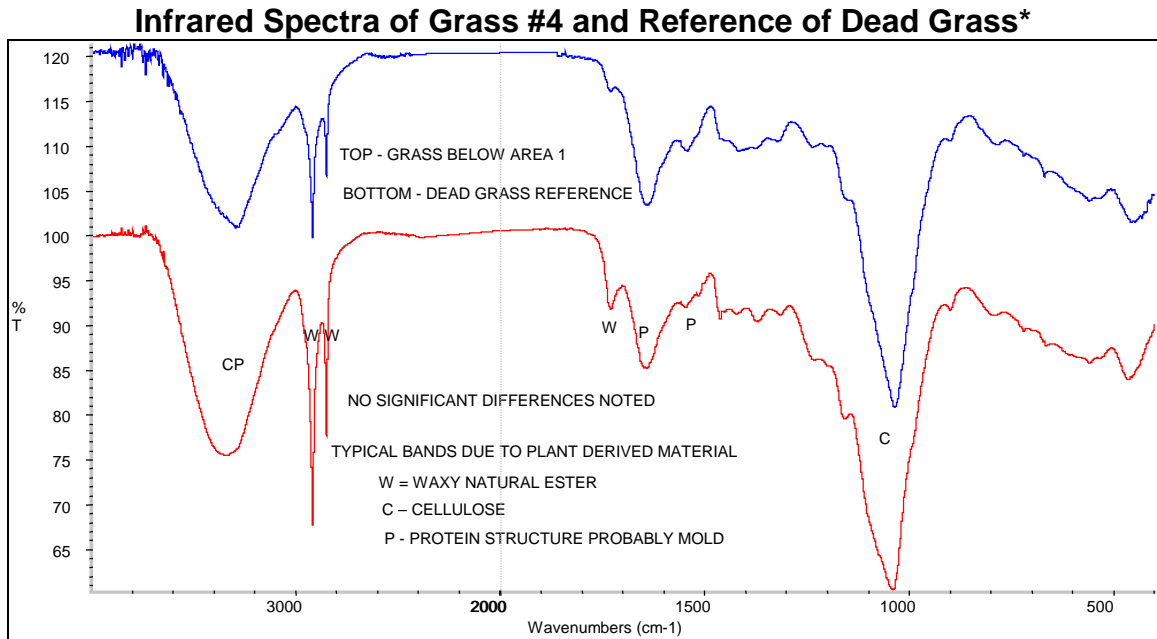
This grass sample appeared normal on receipt. It had more of a greenish color to it than the above photograph indicates. This particular photograph was taken much later after receipt, due to an oversight.<sup>4</sup>

Infrared analysis shows this grass sample is the same as the above #3 sample. The spectrum shows plant-derived components: cellulose, natural ester, and some protein derived material. It compares to a grass reference. There also appears to be more protein containing substance (possible mold or fungus) than

<sup>4</sup> Photographs of the other samples were taken as soon as they were received.



the reference (like the above sample). Following are spectra of the #4 grass sample and a reference of grass.



\*Dead grass for reference obtained from outside the Frontier Laboratory, Auburn Township, Ohio.

### Analysis of the Bark Sample #5

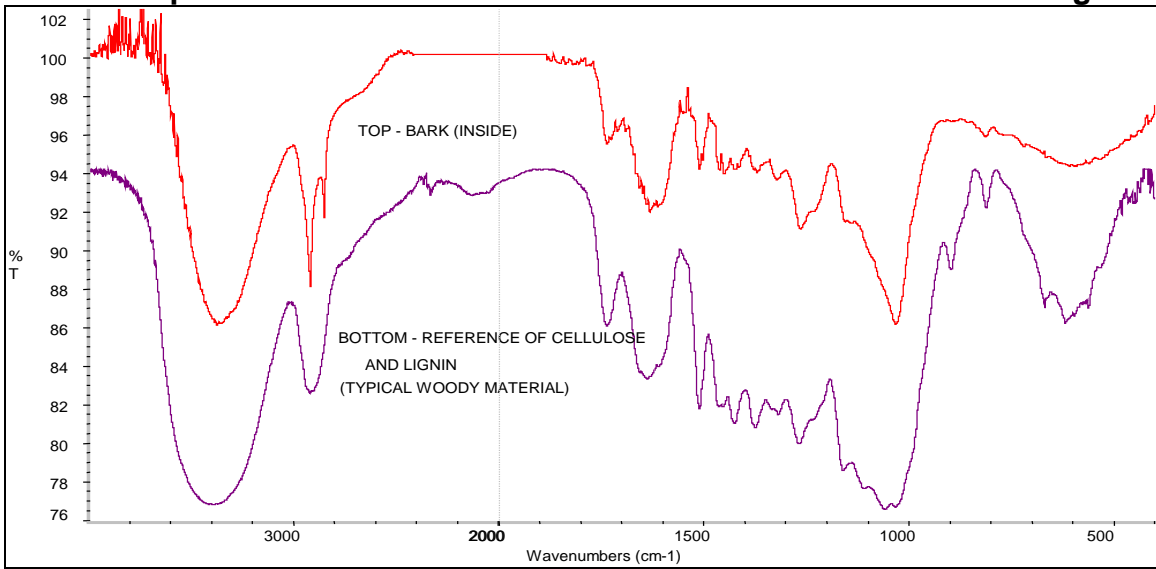


Bark taken from the tree at 4' from ground level.

The visual appearance of this sample looks normal.

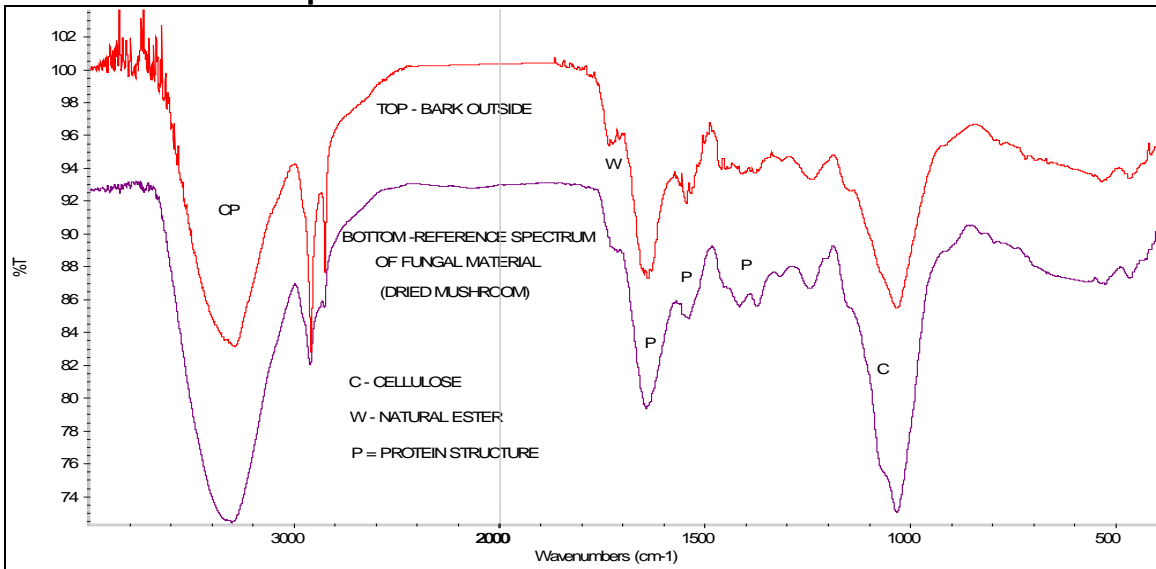
Infrared analysis of the bark interior shows typical woody materials of lignin and cellulose. No other components or anomalies are detected. Spectra of the bark interior and a reference of cellulose + lignin follow for comparison.

### Infrared Spectra of the Bark Interior and a Reference of Cellulose + Lignin



The infrared spectrum of the bark exterior shows cellulose and a protein structure which is either from mold or fungus. (Mold and fungus have similar spectral bands.) There is also a small amount of natural ester. It is interesting to note that the mold/fungus is not detected in the interior of the bark. Following are spectra of the bark exterior and a reference of fungal material for comparison. (These spectra almost match.)

### Infrared Spectra of the Bark Exterior and a Reference of



File: UT067