

Frontier Analysis, Ltd

TECHNICAL SERVICE RESPONSE NO.: UT081

Subject: Analysis of Black and White Substances on the Surfaces of Bark involved in a Close Encounter with an Unknown Circular Craft (Monroe, New York, Early 1980s)

Date: January 23, 2014

Requested By: Linda Zimmerman
UFO Author/Researcher

Reported By: P. A. Budinger
Analytical Scientist

Background/Objective:

In the early 1980s a witness observed the landing of an unknown circular craft. It landed next to a tree which resulted in broken limbs. The witness removed bark from the tree in the early 1990s. It had been sitting in his garage ever since. The object is to identify black and white substances on the bark.

Conclusions:

- The white substance on the bark is identified as calcium oxalate. This substance is often accumulated as a metabolic end-product in plant decay and in fungi.¹ So, it is not unusual for this to be present.
- The black substance is a common fungal material. There is no evidence for carbon, i.e. charred material.

¹ www.mu.edu.tr/private/nsahin2.html

Procedure:

Samples: Two samples of bark were received in reclosable plastic bags on January 14, 2014. They are identified as follows:

- 1 of 2, Bark with white substance on the surface.
- 2 of 2, Bark with black substance on the surface.

The white and black substances were each scraped from the surfaces of the bark samples. Several FT-IR (Fourier Transform – Infrared) spectra² were obtained. The data were acquired on the Thermo Electron Avatar 360 spectrometer using the Smart Herrick diamond sampling accessory. Microscope photographs were obtained using a Canon A520 digital camera interfaced to a Leica GZ6 stereomicroscope.

Following are microscopic photographs of the samples.



1 of 2: White Substance on Bark.



2 of 2: Black Substance from Bark

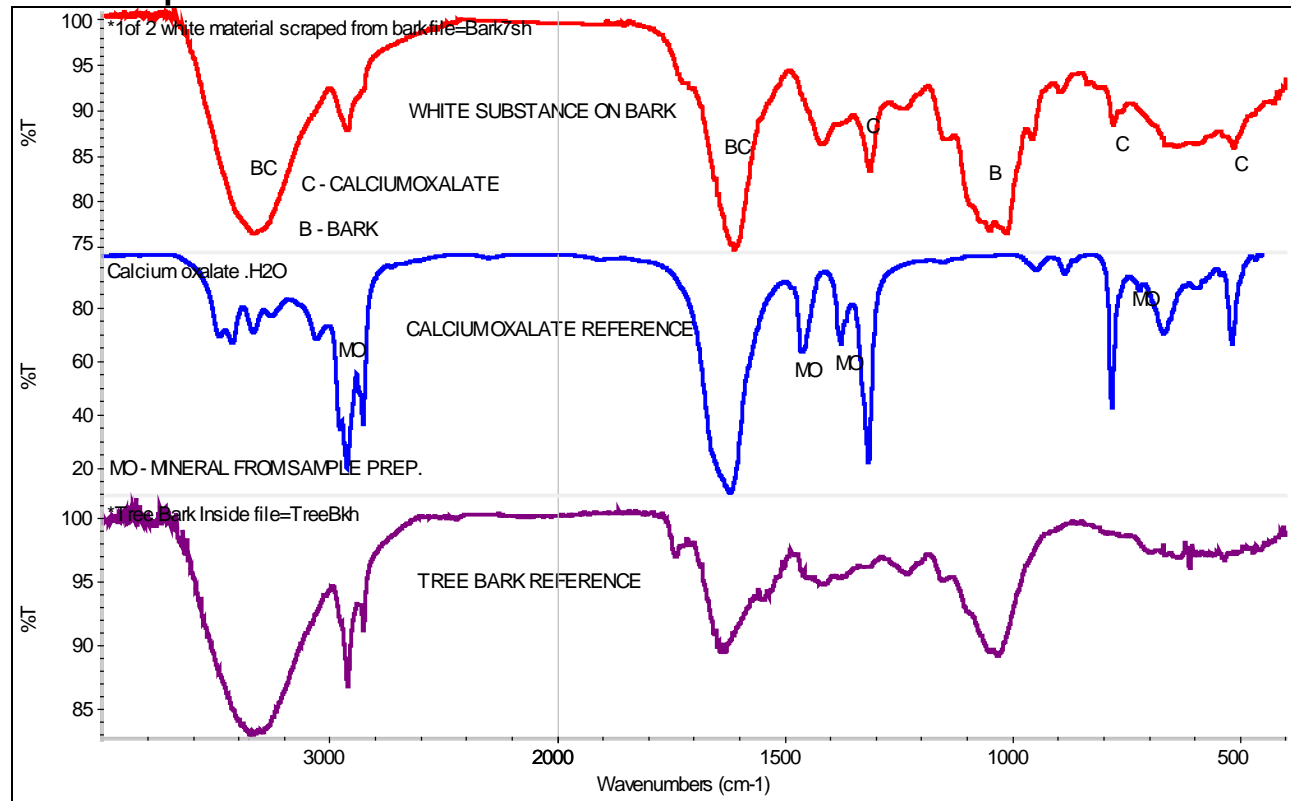
² **FT-IR (Fourier Transform Infrared Spectroscopy):** Infrared spectroscopy is used for the molecular structure identification and quantification of solids, liquids, and gases. An infrared spectrum is the result of light (in the 2 to 25 micron wavelength range) interacting with the vibrations of molecules. The particular set of vibrations of a molecule gives rise to specific spectral absorption bands, often referred to as the “fingerprint” spectrum.

Results:

Sample 1 of 2 with White Substance:

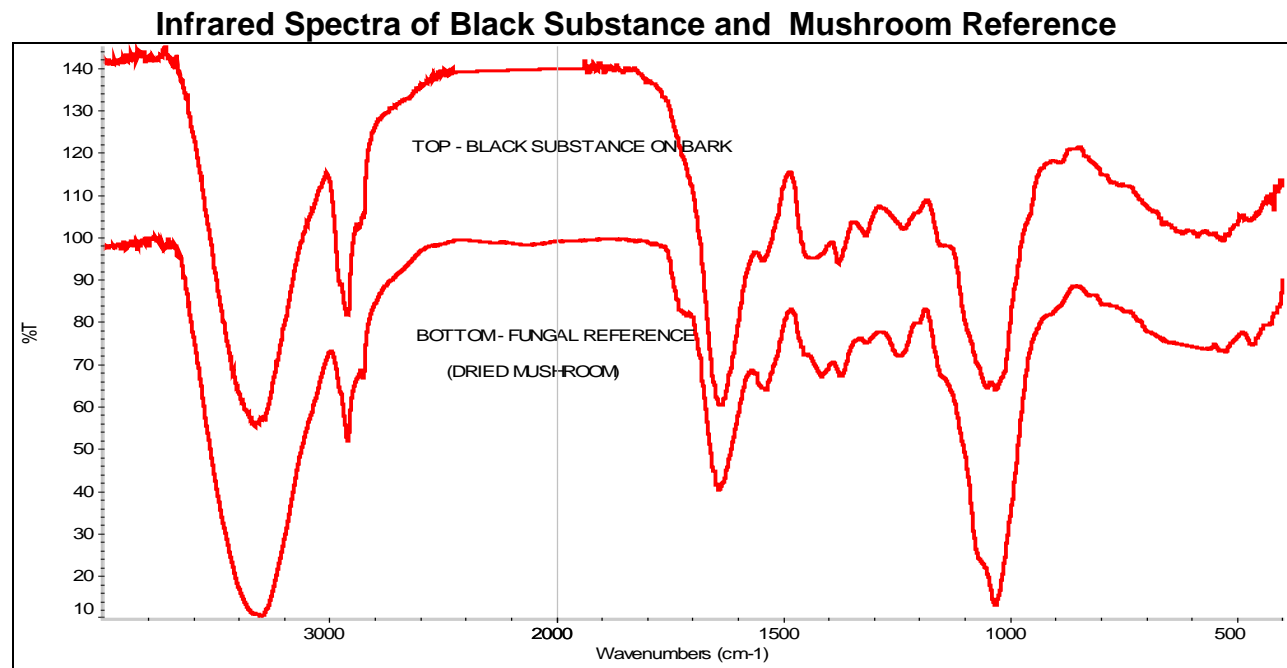
Infrared analysis of white material scraped from the surface of the bark identifies it as calcium oxalate. The spectrum also shows some of the bark particulates which were also included in the scrapings. Following are infrared spectra of the white scrapings along with references of calcium oxalate and tree bark for comparison.

Infrared Spectra of White Substance and References of Calcium Oxalate and Bark



Sample 2 of 2 with Black Substance:

The infrared spectrum of the black substance shows it to be composed of a fungal material. The spectrum compares to that of a typical fungus reference. In this case, the reference is that of a mushroom. There is no evidence of carbon, i.e. charred material. Following are spectra of the sample and a mushroom reference.



File: UT081

Phyllis A. Budinger