

## **Frontier Analysis, Ltd**

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### **TECHNICAL SERVICE RESPONSE NO.: UT096**

**Subject:** Analysis of an unknown White Fibrous Substance, aka 'Angel Hair',  
Deposited by Barbell-Shaped UFOs (Illinois, November, 4, 2016)

**Date:** January 12, 2017

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

#### **Background/Objective:**

Two witnesses observed barbell-shaped UFOs dispensing white filament-like material. The account as written by the principal investigator Bill Schroeder follows.

*"On November 4th, 2016 the Investigator was contacted by witness 1. He advised that he and witness 2 had observed a number of Barbell shaped objects in flight over his dwelling. The object first observed was silver metallic in color and 20 to 30 inches in length. When first observed the object was at rooftop level or about 35 feet over his head. The object was moving silently and laterally towards a small lake just south of the dwelling. At the time of the sighting witness 1 was in the company of witness 2. Witness 1 noted that there was no visible means of propulsion observed and no sound detected. As the object arrived to the center of the lake it stopped moving laterally and began to rise. As it started to rise it began exuding a white filament like material. The material was very fine and stretched all the way to the ground. After it had risen to several hundred feet it was joined by more than 12 other like objects that seemed to be circling it as it continued to rise. At this point in time the white material was spewing from the devices in such quantity it looked like rain. The objects rose together into a clear sky until they were no longer visible.*

*The white material that had fallen remained visible in trees for about 24 hours before dissipating. When witness 1 contacted the Investigator, he was requested to get samples if possible. The witnesses were able to obtain some samples of the material. Witness 1 also sent an email report of the sighting. Witness 2, who is a professional artist, painted a picture that depicted the sighting. The material was collected using a clean shish-kabob skewer. At the Investigators request the samples were placed in paper and plastic bags. The samples were sent to the Investigator via USPS Priority mail with tracking.*

*The samples arrived intact on November 9th, 2016. Upon arrival the envelope was opened by the Investigator who was in the company of a second Investigator. The package and enclosed samples were photographed by the Primary Investigator. The samples were then placed in evidence bags and bottles by the Investigator. The bags and bottles were then sealed and initialed by the Investigator. The arrival, repackaging, and sealing of the evidence was recorded on video tape for later review. Witness 2 painted a picture that re-created the scene at the time of the sighting. A scan of the painting was forwarded to the Investigator. A partial jpeg image is*

*included with this report.*

*The evidence was placed in a safe at the Investigators residence. Part of the evidence was later sent to Robert Powell and Phyllis Budinger for examination and lab testing.*

*Witness Information:*

*Witness 1 is an adult male. The witness has been in the aviation industry for more than 30 years. He has designed military and civilian aircraft systems over that time. He is familiar with aircraft propulsion systems and overall designs. He has a PHD level of education related to the industry. This individual has been personally known to the Investigator over 40 years.*

*Witness 2 is an adult female. The witness is a college educated professional. The witness is also a well-known artist (painter).“*

Following is a picture Witness 2 painted of the event.”



This analyst heard about the incident from Robert Powell. He was sending the material to another lab and asked my opinion on which tests he should request. This analyst asked for a sample after having analyzed a number of ‘Angel Hair’ samples over the years.<sup>1</sup> I desired to compare it to these previous samples especially since very credible witnesses saw the material being spewed from UFOs. I felt the identification of this material would be a clue and a step forward in understanding the UFO phenomenon and its purpose.

The objective is to identify the white fibrous material, compare it to samples from previous events, and offer speculations as to the reason for the UFO dispersions.

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<sup>1</sup> The Technical Service Reports (TSRs) can be found in the website: <http://www.theblackvault.com/casefiles/phyllis-budinger-collection>. They are: UT002, UT003, UT008, UT017, UT018, UT046.

### **Conclusions:**

- The analysis shows the white filament like material is primarily a biologically derived silk typical of that produced by spiders. Additionally present are very small amounts of cellulosidal material, i.e. plant derived substance, possibly inorganic nitrate and an unidentified rust/red material. It is unknown if these additional materials are part of the original composition or contaminants.
- The fibrous spider silk compares to other purported fibers, aka 'Angel Hair', analyzed by this laboratory and other laboratories. Other laboratories have done very credible research and issued extensive reports involving spider silk fibers that fell concurrent with UFO sightings. (See page 10 for a partial listing.)
- The above identification is particularly exciting because the UFOs' deposition was observed by multiple, very credible, witnesses. Spider silk has definitely been identified/linked to UFOs. This is an important clue.

### **Recommendations:**

Only so much testing could be done because of limited sample. If enough had been available it is recommended that solvent extractions be done followed by infrared analysis of the solubles. EDS elemental analysis for trace elements may have been informative. Headspace GC/MS analysis for volatiles is recommended if any sample exists which is tightly sealed in a vial/container.

### **Comments:**

In the past the identification of 'spider silk' for a number of 'Angel Hair' samples, has always been dismissed as being from a natural environmental origin. The ballooning spider variety doing its migration/travelling has been predominantly mentioned. Therefore, because it is of a common natural origin no one would link it to UFO deposition. Connection with UFOs was dismissed. This event proves to me that the spider silk is being spewed by the UFOs. It would seem that for some reason they have an interest in these arthropods. Its silk appears to be a byproduct dispersed of from an unknown process involving spiders.

This report is not unique to linking spider silk to UFOs. Besides the reports listed in the conclusions, similar inferences are found in an excellent 22 page compilation of many cases in the Australasian region of the planet. Please consult "Project 1947 – A Catalogue and Analysis of Australasian 'Angel Hair' Cases" compiled by Keith Basterfield.<sup>2</sup>

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<sup>2</sup> (<http://www.project1947.com/kbcat/kbangel.htm>).

## **Speculations:**

I am an analytical chemist who served as a problem solver for a large company in possibly one of the best analytical groups in the country at the time. A problem solver does not just present the analysis to identify the material but then tries to provide reason for its presence in the situation. So I would put all the analytical data together to come up with the cause and the solution to whatever problem the company was having. This carries over to my analysis of materials related to UFOs. Once the anomaly is identified, "What is the reason it is being found?" So this problem solver speculates.

First, there are a number of theories on the origin of 'Angel Hair'. Paul Hill (a well-known NASA scientist) speculated that 'Angel Hair' may be part of little understood UFO processes in his book "*Unconventional Flying Objects: A scientific Analysis*". Along this line some have opined that as UFOs pass from one dimension to another the energy involved results in physical interaction of inter-dimensional forces with the elements in the Earth's atmosphere. This forms the 'Angel Hair'. Others think 'Angel Hair' results from natural processes in the atmosphere. And still others relate their formation to waste products from conventional aircraft. Knowing this is spider silk, which is biologically derived, I reject these ideas. So I would like to throw another idea into the mix. I admit it may be way out, but it's an iota better than others I have heard. It may, or may not, be worth contemplating by those with a vast knowledge of genetics. I admit to having none in this science.

Let me start by pointing out that we do know from a number of publications there has been a lot of research on spider silk by our scientists, because the silk is very strong and elastic.<sup>3</sup> It has been called "bio-steel" because it is, on a weight basis, stronger than steel and comparable to Kevlar. Many products have been proposed such as bulletproof vests, parachutes, armor, tethers, etc. Ways of mass producing spider-strength silk is the objective of some scientists. For example, Chinese genetic engineers said they had successfully implanted genes into silkworms. Canadian scientists have implanted spider genes in a herd of goats. This results in the production of silky strands in the goat's milk. What is of interest here is NOT the spider silk, but the inclusion of spider gene into the genome of other animals. This invites the question, "Has anyone investigated the inclusion of spider genes into the human genome?" It turns out they have. "Scientists are now discussing the possibility of adding silk-producing genes into the human genome to produce 'bulletproof' skin."<sup>4</sup> Studies have also found that there are genomic similarities between spiders and humans.<sup>5</sup> And

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<sup>3</sup> Frank K. Ko, Sueo Kawabata, Mari Inoue, Masako Niwa, Stephen Fossey and John W. Song, "Engineering Properties of Spider Silk" ([www.material.drexel.edu/fml/classes/biomaterials/ko.pdf](http://www.material.drexel.edu/fml/classes/biomaterials/ko.pdf))

<sup>4</sup> Anthony Gucciardi, "Scientists to Add Spider Genes to Human Genome to Create 'Bulletproof Skin'". (<http://naturalsociety.com/scientists-to-add-spider-genes-to-human-genome-to-create-bulletproof-skin>)

<sup>5</sup> Alexander Saltarin Tech Times "There is a Spider-man in you. Scientists find out genomic similarities between spiders and humans." (<http://www.techtimes.com/articles/6775/20140511/there-is-a-spider-man-in-you-scientists-find-out-genomic-similarities-between-spiders-and-humans.htm>)

furthermore, much new research has been done on spider genomes to provide insight into compositions and evolution of venom and silk.<sup>6</sup>

It has been widely purported by many well-known and seasoned ufologists that the primary interest of UFOs coming here is a human reproduction/genetics program. Could it be that spiders in some way are involved in their genetics program? Are they using something from the spider genome for altering human DNA? I feel our technology just touching the surface in this area of research.

### **Procedure:**

The 'Angel Hair' witnessed being spewed on November 4, 2016 from UFOs was received in a plastic bag on December 23, 2016.

Three infrared spectra<sup>7</sup> were obtained from the 'Angel Hair' on the Thermo Electron Avatar 360 FT-IR spectrometer using the Smart Herrick diamond sampling accessory. Photographs were also obtained from the Leica GZ6 stereomicroscope interfaced to a Canon A520 digital camera.

### **Results:**

The analytical results of the individual tests done on the 'Angel Hair' follow. These results are summarized in the conclusions section on page three of this report.

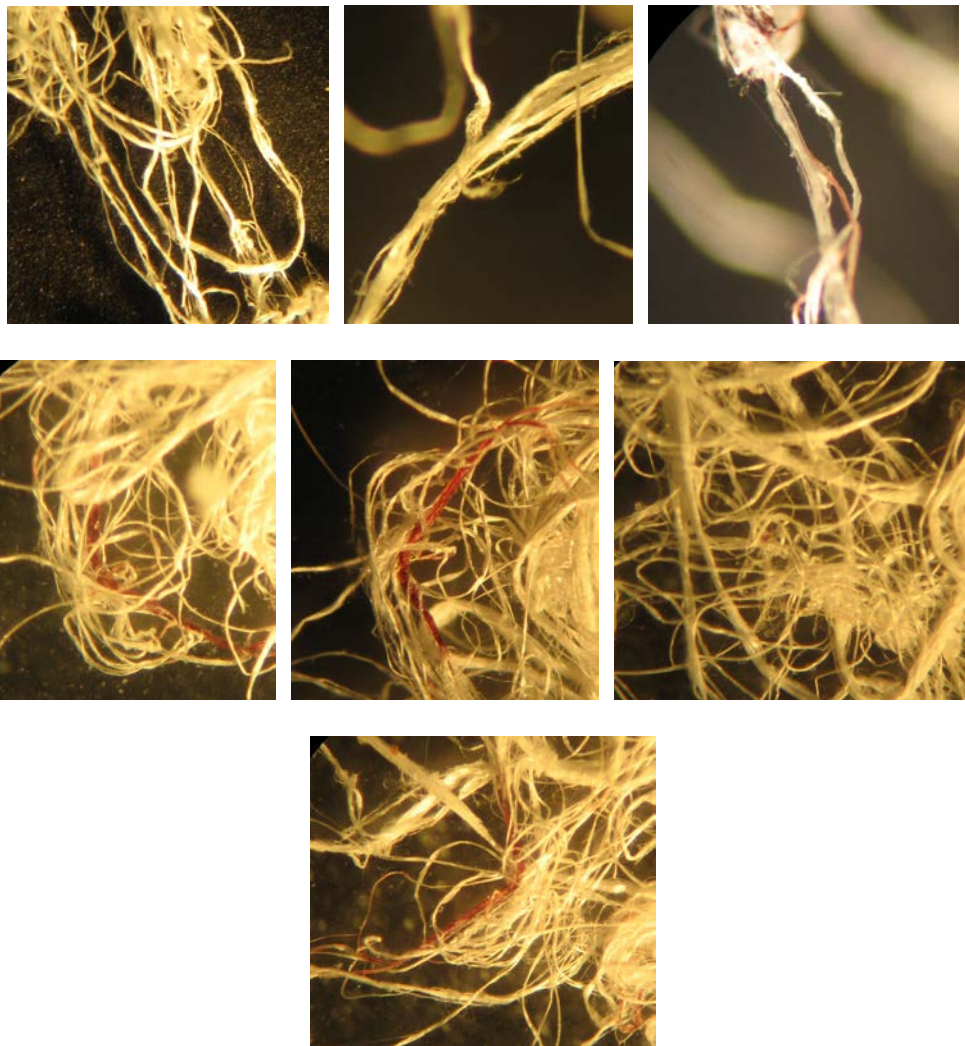
## **Microscopic Analysis**

Optical microscope photographs below show the 'Angel Hair' is made up of extremely fine strands. Most fibers are bundled, rope-like fashion with a few single strands sticking out. There are very tiny particulates adhering to the fibers that are similar to those observed on silk derived from spiders. Though visible, they are more obvious by eye-view through the microscope than in the following photographs. (However zooming out the photograph will display them better.) Additionally, there is a very small amount of unidentified red/rust-colored material included in the fiber. The images (though taken at much lower magnification) are comparable to those taken of spider web which was obtained on a SEM (Scanning Electron Microscope)

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<sup>6</sup> Kristian W. Sanggaard, Jesper S Bechsgaard et al, "Spider genomes provide insight into composition and evolution of venom and silk". Nature Communications 5, Article Number: 3765 (2014).  
(<http://www.nature.com/articles/ncomms4765>)

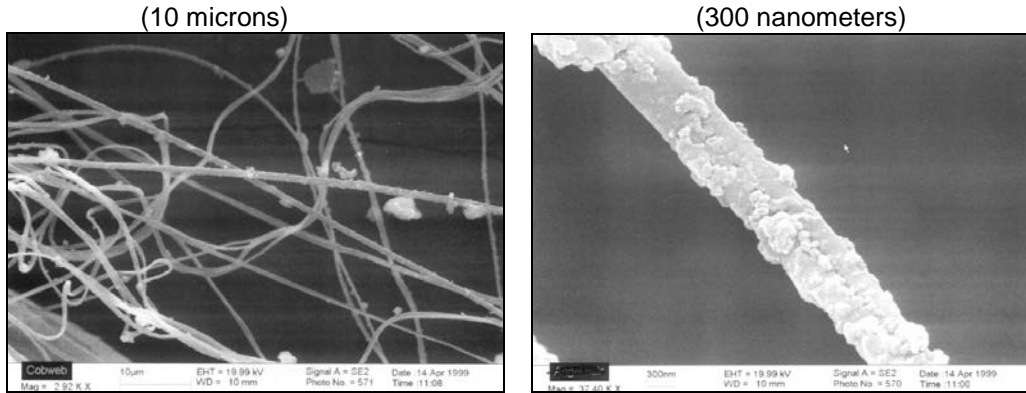
<sup>7</sup> **FT-IR (Fourier Transform Infrared Spectroscopy):** Infrared spectroscopy is used for the molecular structure identification and quantification of solids, liquids, and gases. An infrared spectrum is the result of light (in the 2 to 25 micron wavelength range) interacting with the vibrations of molecules. The particular set of vibrations of a molecule gives rise to specific spectral absorption bands, often referred to as the "fingerprint" spectrum.



Below are SEM microphotographs of spider web. Two were requested by this laboratory (the Port Clinton, Ohio photographs) of a SEM expert at a petroleum company, and the third obtained from a website ([em-lab.berkeley.edu](http://em-lab.berkeley.edu)). This analyst obtained the Port Clinton silk soon after the spider deposited it in hopes it would not pick up too many contaminants.<sup>8</sup> The photographs also show the strands are bundled and contain particulates comparable to the lower magnification optical microphotographs.

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<sup>8</sup> Spider web is sticky and almost immediately attracts environmental debris, i.e. dirt, plant material, insects.



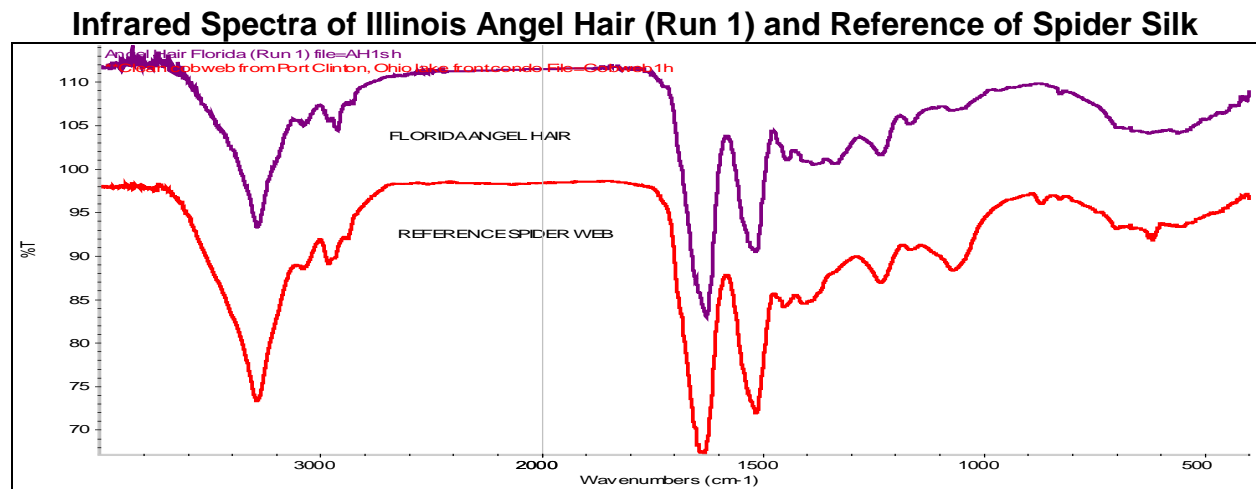
Port Clinton Spider Silk



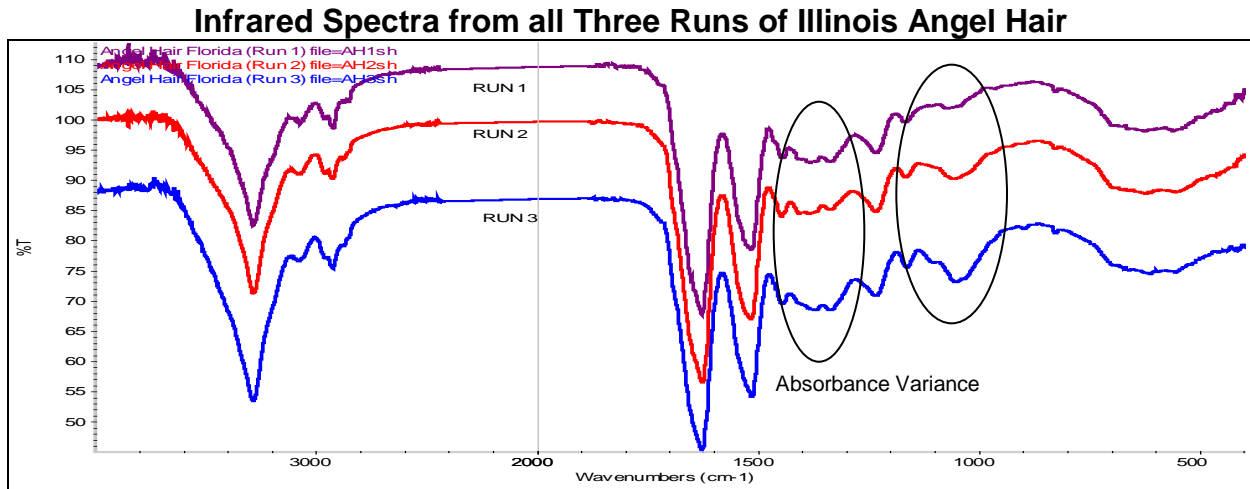
Spider Silk from Berkley

### Infrared Analysis

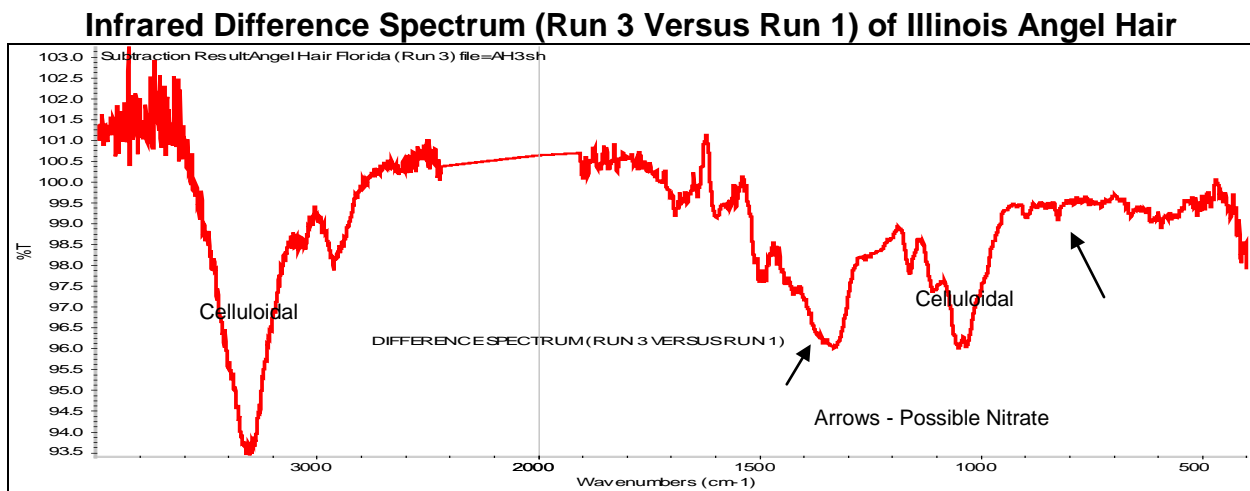
Three infrared spectra of the 'Angel Hair' identify it as mostly a biologically derived material with prominent bands typical of spider silk. Following is a spectrum of the Illinois (Run 1) sample and a reference of the Port Clinton spider silk which demonstrates the similarities.



Additionally, small amounts of other materials are detected. Following are spectra taken of all three runs of the Illinois sample. Noted is a variance in absorption in the regions between 1500-1300  $\text{cm}^{-1}$  and 1200-950  $\text{cm}^{-1}$  for the three samplings. The Run 3 spectrum shows the greatest absorbance variance compared to the Run 1 sample which shows the least additional absorbance in this region. The spectra follow.



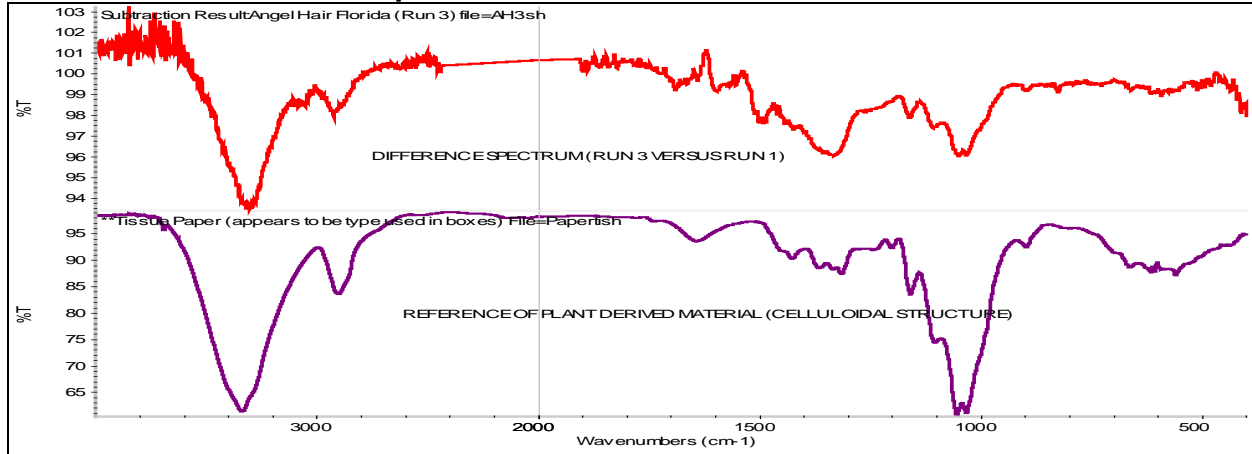
This additional absorbance shows small amounts of other components are present in the sample. Therefore, a difference spectrum was generated between the spectra of Run 3 versus Run 1. This computer massaging nulls out the spider silk absorption to observe the extraneous absorption bands more clearly. This enables specific identification of some of these other materials. The difference spectrum clearly shows absorption between 1200-950  $\text{cm}^{-1}$  is from a celluloidal material, i.e. plant derived material. Additionally the absorption between 1500-1300  $\text{cm}^{-1}$  could possibly be due to an inorganic nitrate though this is not confirmed. Following is the difference spectrum with the absorbance bands identified.





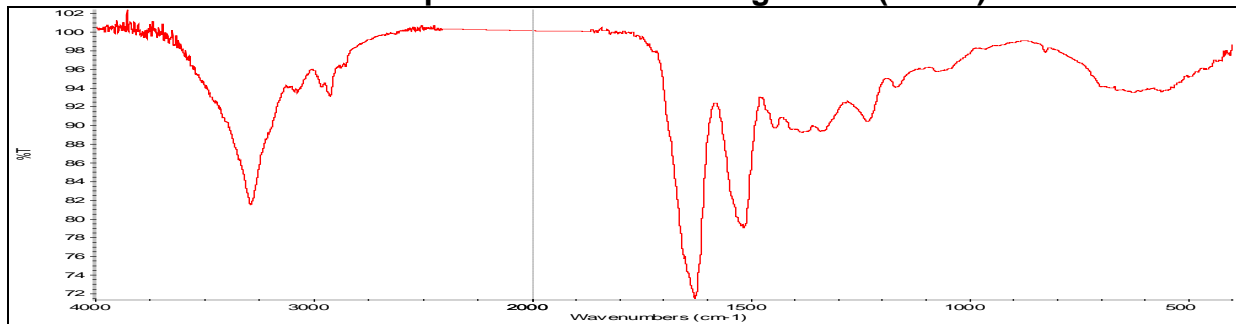
Also following is the difference spectrum again along with a reference of celluloidal material clearly showing major bands match.

### Infrared of Difference Spectrum and Reference of a Celluloidal Based Material

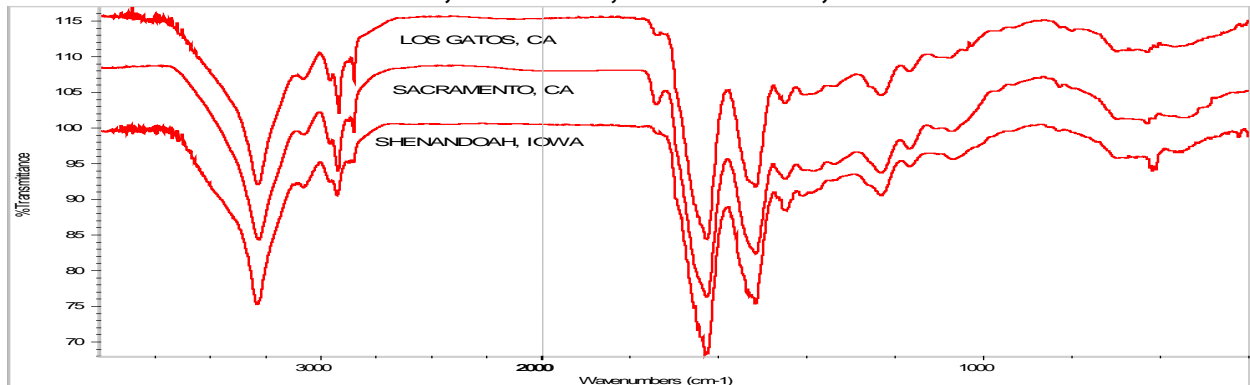


The infrared spectra also compare to 'Angel Hair' samples analyzed in the past. They also were identified as biologically derived silk comparable to references of silk from spiders. Following is another spectrum (Run 1) of the Illinois sample and those from some past samples analyzed by this laboratory.

### Infrared Spectrum of Illinois Angel Hair (Run 1)



### Infrared Spectra of "Angel Hair" from other events: Sacramento, California; Los Gatos, California; Shenandoah, Iowa



And finally, it should be noted that reliable witnesses in the past have observed UFOs when the filaments have been observed. There are other very credible laboratories which have identified these UFO related filaments as spider silk. This analyst has some of their reports on file. Following is a partial list of the best reports, which to my knowledge are not on the internet. They exist as hard copies in my files.

- *“Amino Acid Analysis of Material Obtained at Time of UFO Sighting”* by C.M Haaland (Emergency Planning Group), J. W. Holleman (Molecular Anatomy (MAN) Program, Biology Division), Mary H Welch (Biophysics Section, Biology Division), Holifield (Oak Ridge) National Laboratory<sup>9</sup>, Oak Ridge, TN. This is a 14 page report which is not dated, though the ‘Angel Hair’ drop was observed concurrent with a fast moving object in Sudbury, Massachusetts on the evening of October, 22 1973. This analyst suspects it was written circa 1975. It was submitted to Oak Ridge by J. Allan Hynek. The material was identified as spider silk.

- *“E.T.” Artifact Testing A Scientific Study of an Unknown Fiber Sample.*”, Mid-Term Report, Submitted to Dr. Ronald Stearman (Department of Aerospace Engineering and Engineering Mechanics) the University of Texas at Austin, Submitted by Arachno-Tech Reseach, Jullian C Turner Jr., Norton Wong, March 11, 1994. This is a 41 page report. MUFON presented this project to the University of Texas so that an identification of the “Angel Hair” fiber could be made. Arachno-Tech accepted the task. The sample was collected on October 23, 1973 in Midway, Texas. At the time the witness noted a two metallic cigar-shaped objects hovering in the sky. Subsequently, a web-like substance fell from the sky. It was identified as spider silk in the final report.

- *E.T.” Artifact Testing A Scientific Study of an Unknown Fiber Sample.*”, Final Report of by above laboratory. May 9, 1994. This is a 52 page report Arachno-Tech identified it as spider silk 20 years after the event.

File: UT096

**Dedication:** This report is dedicated to the late Brian Boldman who was an expert in ‘Angel Hair’ research. He shared many of his files with me before his tragic death. Some of them are cited in this report.

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Phyllis A. Budinger

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<sup>9</sup> Operated by Union Carbide Corporation, Nuclear Division, for the U.S. Energy Research and Development Administration.