ABSTRACT

A field portable Raman spectroscopic device is being used to create a plant taxonomy database. Emphasis is on Texas specimens as well as domestic household plants. A nature trail, garden and orchard have been established to further this research. Use of Raman technology to identify types of food prepared by Native Indians on ancient cooking rocks is also being perfected. Other goals as pertains to Raman are its use as a detector of anthrax and aflatoxicosis.

Figure 1. A portable Raman device is being used to gather data in the field at the Salter Farm

New Biophotonic Sensors for Aflatoxicosis

Aflatoxin B1 is the most potent of 4 naturally-occurring aflatoxins.

- Aflatoxin B1 is a potent foodborne carcinogen that is also hepatotoxic, immunotoxic, and antinutritional.
- Source: Aspergillus flavus and parasiticus fungi (field and in storage).
- Drought is a common cause of fungal infection and enhanced production of aflatoxins impacting food safety, food quality and food security. High concentrations of aflatoxins and elevated infection rates have been recorded in Texas and in Ghana, Africa. New generation biophotonic sensors are being developed to monitor aflatoxin concentration in body fluids (blood and urine), in local environment (water and soil), and on food products directly (corn, nuts, etc.).