## A184 Analysis of Synthetic Cannabinoid (AM2201) by LC/MS/MS and GC/MS: A SPE Approach

*Jeffery Hackett, PhD*, United Chemical Technologies, Incorporated, 2731 Bartram Road, Bristol, PA 19007; Albert A. Elian, MS, 59 Horse Pond Road, Sudbury, MA 01776; and Michael J. Telepchak, MBA, United Chemical Technologies, Incorporated, 2731 Bartram Road, Bristol, PA 19007*

After attending this presentation, attendees will learn about the analysis of a new synthetic cannabinoid (AM2201) from seized material using readily available solid phase extraction (SPE) cartridges and gas chromatography/mass spectrometry (GC/MS) liquid chromatography/mass spectrometry (LC/MS/MS). Use of this SPE method will permit analysts to provide data on this compound in samples

This presentation will impact the forensic science community by offering analysts in forensic facilities a method that permits samples of synthetic cannabinoids to be analyzed in a clean format with minimal matrix effects and excellent analytical characteristics in terms of SPE and GC/MS/ LC/MS/MS.

**Method:** Extraction (SPE) was performed on a mixed mode column (C8/WAX) conditioned with methanol, deionized water, and 0.1 M phosphate buffer (pH 6 (3mL, 3mL and 1mL, respectively)) prior to sample loading. Methanolic extracts of seized material (1mL) were adjusted to pH 6 with 0.1 M phosphate buffer (5mL) and an internal standard added (THC-d3). After loading the sample, the sorbent was washed with deionized water and a solution of the phosphate buffer containing 20% by volume of acetonitrile (3mL). After drying each SPE column was eluted with 3 mL of a solvent consisting of ethyl acetate containing 10% methanol (two x 3mL). The individual eluates were collected, evaporated to dryness and dissolved in mobile phase. These solutions were combined for analysis by LC/MS/MS in positive multiple reaction monitoring (MRM) mode. Data is presented for MRM's of AM2201 and THC-d3 respectively. For GC/MS analysis, after evaporation, the eluates were dissolved in 50µL of ethyl acetate/ BSTFA (containing 1% TCMS) and heated prior to injection.

Liquid chromatography was performed in gradient mode employing a 50 x 2.1 mm C18 analytical column and a mobile phase consisting of acetontitrile and 0.1% aqueous formic acid. The gradient was programmed to run from 5% to 90% acetonitrile in 4.0 minutes and then back to 5% for re-injection. The total run time for each analysis was less than 5 minutes. In terms of GC/MS, a temperature program starting at 100ºC for one minute rising to 310ºC at 40 ºC/ minute was used employing a 30m x 0.25mm (250 µm) capillary column. Mass spectrometry was performed in selected ion monitoring/full scan mode (50- 500 m/z). In this presentation, representative chromatograms are shown to illustrate the efficiency of the chromatography and analysis.

**Results:** The limits of detection/quantification for this method were determined to be 50ng/g and 100ng/g, respectively for both. The method was found to be linear from 100 ng/ g to 2000 ng/ g (r2>0.999). Data is presented to show that recoveries of AM2201were found to be greater than 85%. Interday and Intraday analysis of AM2201 were found to < 5% and < 8%, respectively. Matrix effects were determined to be < 6%. Details of genuine samples are given at the presentation.

**Conclusion:** The use of this new procedure for the analysis of a synthetic cannabinoid (AM2201) will be of great use to analysts in the field of forensic drugs analysis as the concentrations of this can now to be reported rather by either GC/MS or LC/MS/MS techniques.

**Spice, LC/MS/MS, SPE**

 ** Presenting Author*