

IX. Training and Competency

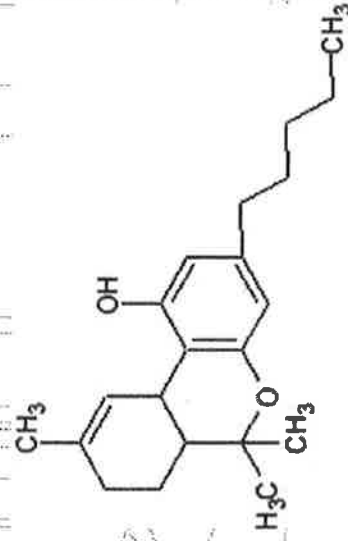
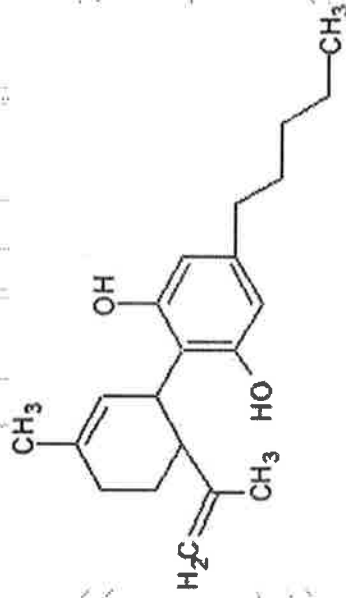
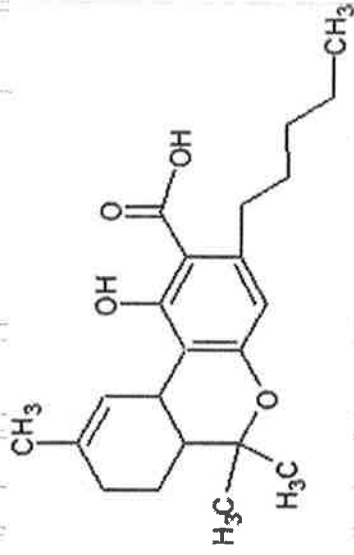
An analyst must receive training for this method from someone who has passed their competency test or someone who has been designated by the Forensic Chemistry Technical Leader. This training will cover general concepts of quantitation as well as specifics to this method. There is an available slideshow highlighting aspects of the method, which can be used while training an analyst.

After the analyst has completed their training, they will have to pass a competency test before using this method in casework. The competency test will be administered by a qualified analyst or by a designee of the Forensic Chemistry Technical Leader. The competency test will require the trainee to prepare all calibration standards and a control standard; these standards must meet the methods acceptance criteria. The trainee will also have to weigh out, extract, and analyze three unknown samples. The unknowns will have to be analyzed using the calibration curve the trainee has prepared. These unknowns will be any combination of hemp samples, marijuana samples, or negative samples. The trainee must successfully identify all three unknowns.



Quantitation of THC

A GC/MS method to
distinguish hemp and
marihuana.



Legislation

- “...the plants and plant parts of the genera cannabis that do not contain a delta-9 tetrahydrocannabinol (THC) concentration more than three tenths of one percent (0.3%) on a dry mass basis, grown from seed certified by a certifying agency, as defined by § 43-10-103.”



Internal Standard Solution

- 300 µg/mL Tribenzylamine in methanol.
The final concentration will be 150 µg/mL after extraction and preparations.
- The internal standard helps consistency between injections.

Calibration Standards

- 50 µg/mL
 - 100 µg/mL
 - 150 µg/mL
 - 300 µg/mL
 - 500 µg/mL
 - Made by diluting a 1 mg/mL THC Standard with methanol and Internal Standard solution.
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- | |
|-----------|
| 0.1 % THC |
| 0.2 % THC |
| 0.3 % THC |
| 0.6 % THC |
| 1.0 % THC |



Control Standard

- 100 mg of a spice sample spiked with 300 μ L of THC standard of a different lot number than the Calibration standards. This sample is allowed to dry before extracting. The extraction used on the Control Standard is performed exactly like the plant material sample extractions.

Sample Preparation

- 100 mg of Plant material
- 1 mL of 300 µg/mL Tribenzylamine Solution
- 1 mL of Methanol
- At least 30 minutes of extraction time
- At least 10 minutes of vortexing



Quality Control

- All Calibration Standards must agree within 20 % of the expected value
- The control standard must agree within 20% of the expected value
- The result for the control standard will be recorded for the estimation of uncertainty.

Data Analysis

- Chemstation – Data Analysis
- Use an appropriate GC/MS method to collect data
- Update Calibration values after running standards
- Calculate Percent THC values

Conclusions and Questions

- Take your time.
- Sensitive to Inlet conditions on the instrument
- Will distinguish Hemp from Marijuana.