

LABORATORY SERVICES BUREAU

Document: Controlled Substances Analysis Manual

Policy Number:
1546

Revision:
5

Subject: CS-SOP-45 Peyote

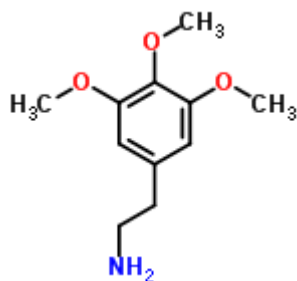
Approved:
Bell, Erica

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1. PEYOTE

- A. The first two steps in the analytical scheme for the identification of peyote should be a visual examination of the evidence and a determination of the amount of material.
- B. The specific identification of peyote is based on the following two steps.
- (1) The plant material is visually examined for the gross botanical features of peyote. The tufts of white hair and lack of spines should be evident whether the plant material is whole or crushed.
 - (2) A sample of the plant material is extracted and analyzed by GC/MS for the presence of mescaline.
- C. Structure, Empirical Formula, Molecular Weight



Mescaline
 $C_{11}H_{17}NO_3$
MW 211.3

- D. Synonyms: Mescal button
- E. Trade Names: NA
- F. Drug Action: Hallucinogen
- G. Common pharmaceutical/street forms: Peyote buttons (3-12/dose or 75-300 mg mescaline)
- H. Solubility of Mescaline: Water, ethanol, chloroform, insoluble in diethyl ether
- I. Botanical Description: Peyote is controlled under Arizona law as any part of a plant of the genus *Lophophora*. It is a small round spineless cactus with tufts of tan colored hair on top, which grows wild only in north central Mexico and southern Texas.

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J. Extraction: Acid/base extraction to extract mescaline from plant material

- 1) Crush dried plant material to increase surface area and place in large glass tube.
- 2) Add 2 milliliter of 0.2 N sulfuric acid. Allow to soak for approximately 2 hours, vortexing every 20 minutes.
- 3) Filter to remove insoluble plant material.
- 4) Extract the filtrate two times with chloroform, discarding the chloroform (bottom layer).
- 5) Basify the aqueous solution with concentrated ammonium hydroxide. Verify that the pH is basic.
- 6) Extract with chloroform. If emulsions occur, the sample may be centrifuged.
- 7) Remove the chloroform layer and place into a clean well.
- 8) Repeat steps 6 and 7, combining the chloroform extracts.
- 9) Evaporate the chloroform and reconstitute with C15 methanol.
- 10) Use an insert for GC/MS analysis.

K. Chemical indicator tests:

- (1) Marquis: Orange
- (2) Liebermann's: Black
- (3) Froehde's: Brown
- (4) Mecke's: Orange to brown

L. TLC:

- (1) Mobile Phase:
 - (a) System 1: Methanol:conc. ammonium hydroxide (100:1.5)
 - (b) System 2: Chloroform:methanol (90:10)
- (2) Locator: Acidified iodoplatinate, Dragendorff reagent, Marquis reagent, ninhydrin reagent

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- M. GC/MS: Analyze using "Drugs1" program.
- N. Comments: Peyote may be legally used by members of the Native American Church for religious ceremonies.
- O. Report as:
- (1) Plant material identified as Peyote should be reported as: Peyote
 - (2) Plant material unable to be identified as Peyote, but containing mescaline should be reported as: The plant material was found to contain mescaline, a dangerous drug.
- P. References:
- (1) Marnell, T., (ed.), Drug Identification Bible, 4th ed., Drug Identification Bible, Denver, CO, 1999, pp. 578-581 and 684-687.
 - (2) McLaughlin, J., Peyote: An Introduction, Lloydia, Vol. 36, No. 1, March 1973.