

# Forensic Science Drugs PartD

## School Year 2021-2022

[jwardisiani@pths209.org](mailto:jwardisiani@pths209.org)

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### **Bell Ringer**

- What are the classifications of Heroin/Cocaine?
- What is the primary system these types of drugs effect?
- What is the typical cause of death with overdose?



# Introduction: Altering Perception and Dirty Deeds

- ❑ **Hallucinogens** alter perceptions and mood, lead to delusional thinking, and cause hallucinations.
- ❑ **Delusions** basically are false beliefs that have little basis in reality.
- ❑ **Hallucinations** are sensory experiences that aren't real and may affect any or all of the senses; that may be visual, auditory, olfactory, taste or tactile.



# Introduction Continued

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- The most frequently encountered hallucinogens come from the plant world
- Marijuana
- Peyote
- Mushrooms  Or in the  
Chemistry  
Laboratory
- LSD
- PCP



# Smoking Mary Jane

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- The most commonly used
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hallucinogens is Marijuana.

□ It's a cannabinoid, which means it's derived from the Cannabis sativa plant.

□ The active ingredient, Tetrahydrocannabinol (THC) is found in marijuana at a concentration of 2% to 6%. □

Hashish is the oily extract of the plant, contains approximately 12% THC.

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# Mary Jane's Family

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□ The body breaks down THC into a series of compounds, the most important being 9-carboxytetrahydrocannabinol (9-Carboxy-THC), which is the major urinary metabolite.



□ Drug testing of the urine looks for this compound, which can be found up to two months after most recent use.

□ One problem, however is that even passive exposure can lead to a positive urine test. For example, if

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you're in the area when someone is smoking, your urine may reveal low levels of (9Carboxy-THC).

# Mary Jane's Friends

- In suspected users, presumptive chemical testing typically involves the Duquenois Levine Test, which shows a purple color change in the presence of cannabinoids.
- A positive reaction occurs when all the cannabinoids are not just THC, so urine testing can't absolutely identify THC. □ Because most states prohibit the



proportion of any cannabis resins and not just THC, this test is typically all the police need.

Other tests include TLC, GC and MS.

# Cacti



□ Peyote is a small Mexican cactus. Active ingredient is mescaline, which is a hallucinogen in the alkaloid family.

□ The surface of the cactus is covered with small round bumps



called Peyote buttons.

□ Buttons are divided into sections like an orange, and each section contains a cotton like tuft inside. □  
Either TLC or GC can confirm the presence of alkaloids. Further testing is not necessary because having the plant or any part of it is illegal.

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# Mushrooms

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- ❑ Mushrooms present a different problem. The mere possession of marijuana and peyote is illegal, but the possession of mushrooms are not.
- ❑ And that means the toxicology lab must



identify the psychoactive components of the mushroom before they can be deemed illegal.

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# Testing

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- ❑ Labs typically use two color-change tests to screen for the presence of (psilocin and psilocybin), the active ingredients in mushrooms.
- ❑ Van Urk's reagent turns purple, and Fast Blue B turns red in the presence of these chemicals.
- ❑ Often the toxicologists use TLC to separate the components, which he or she then sprays with Van Urk's solution.
- ❑ Alternatively, the toxicologists views the bands produced by TLC, under ultraviolet light, which cause the psilocin and psilocybin to glow.



# Trippy Chemicals

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- ❑ A wide variety of chemically-produced hallucinogens are made.
- ❑ The most common ones are Lysergic Acid Diethylamide (LSD) and Phencyclidine (PCP).
- ❑ LSD is potent, as little as 25 micrograms can cause a trip that lasts for 12 hours.
- ❑ Although LSD is not directly fatal, the hallucinogens produced are typically vivid.



- The primary screening tool for LSD is the Van Urk Color Test.

# Date-Rape Drugs

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- Date-rape drugs have been the subject of considerable number of criminal actions and civil litigations. □ The recent conviction of Andrew Luster, the heir to the Max



Factor fortune was based on his illicit use of GHB (gammahydroxybutyrate).

- The major date-rape drugs are Rohypnol, Ecstasy, GHB and Ketamine.
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# Chemically Speaking

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a degree of compliance,  
poor judgment and  
amnesia of the events that  
occurred under the  
influence of the drug.

Only later does the victim  
realize that something  
happened, but his/her

These drugs call sedation, memories are spotty or  
absent all together.

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## Chemically Speaking Continued

- Recreational use of any of these drugs is a proverbial crapshoot.
  - The quality and purity are variable, Users don't know what drugs or exactly what amount they are ingesting.
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- Reactions vary widely from person to person and are unpredictable.
- This unpredictability puts thousands of people in the morgue every year.
  - Ecstasy is an amphetamine and appears in most routine drug screens, but other drugs in this category are not typically part of the screening, however they can be detected using GC/MS.



# Thanks For Your Attention

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# ▣ Questions and Comments

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