

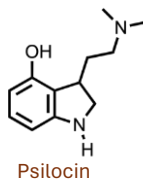
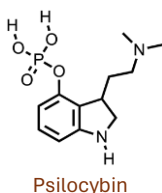
# Untargeted Analysis of Psychedelic and Non-Psychedelic Mushrooms using Liquid Chromatography-Quadrupole Time-of-Flight Mass Spectrometry

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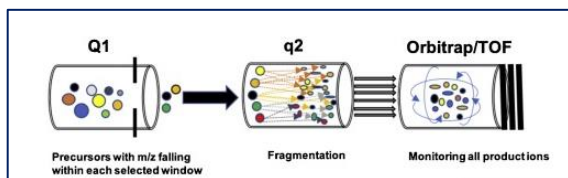
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## Abstract

Psychedelic mushrooms are used to treat psychological disorders like depression, anxiety, and PTSD. Psilocybin, psilocin, and other tryptamines distinguish psychedelic mushrooms from the non-psychedelic ones. This study identified additional chemicals found in psilocybin mushrooms but not non-psilocybin ones that may cause psychedelic effects. Psilocybin and ordinary mushroom samples were analyzed in Liquid Chromatography Quadrupole Time-of-Flight mass spectrometer and data was analyzed in MS-Dial to find essential features. MS-Finder is used to find out the potential compound from the key features found. Some key features were found in psilocybin mushroom that distinguish itself from non-psychedelic ones.



## Untargeted Analysis



## Samples

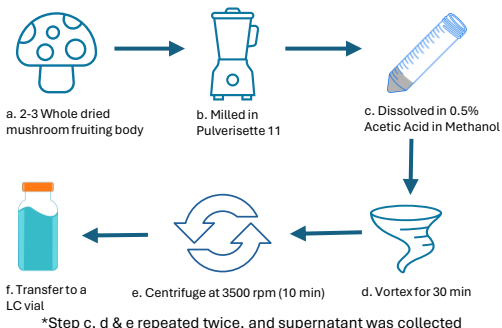
### Psychedelic Mushrooms

- Creeper
- Texas Yellow
- Blue Meanie
- Thai Cubensis
- B+

### Non-Psychedelic Mushrooms

- Shiitake Caps
- Button
- Wild

## Sample Preparation



## Instrumentation



Fig: Shimadzu Naxera X2 UHPLC coupled to QToF 9030

## LC Method

0.0-1.0 min: 5% B,  
1.0-10.0 min: 5-100% B,  
10.0-12.0 min: 100% B,  
12.0-15.0 min: Re-equilibration  
Total Flow: 0.4 mL/min

## Injection Volume

5 µL

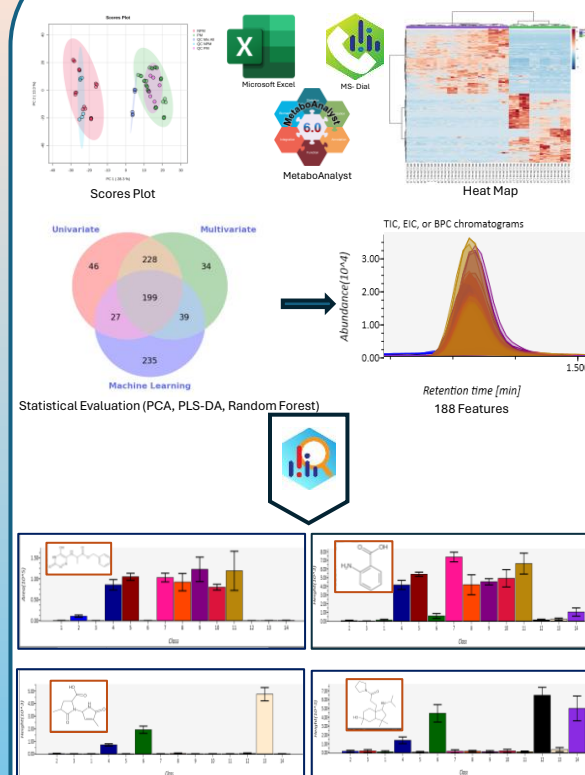
## Column

Raptor Biphenyl  
100 × 2.1 mm, 2.7 µm

## MS Method

Ionization mode: ESI  
Nebulizing Gas: 2.0 L/min  
Heating Gas: 10 L/min  
Interface Temp: 300 °C  
Desolvation Temp: 526 °C  
Interface Voltage: -3.50 kV  
Drying Gas: 10 L/min  
DL: 250 °C  
Heating Block Temp: 400 °C  
Mass Range: (100-1000) m/z  
Loop Time: 0.740 sec  
Q1 Resolution: 21 m/z (centered)  
CE Spread: 25

## Results & Discussion



## Future Works

- ❑ Untargeted & Targeted analysis with HILIC & Inert-coated columns.
- ❑ Supervised analysis to investigate compositional differences among psychedelic mushroom strains.
- ❑ Analyzing psychedelic mushroom sample stability.

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