

Cannabis Event Adventures with your host Candy O' October 2022

High Life Style Show

and

*MCR Labs Science over Stigma series #2
"Defining Cannabis Data"*



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October 19, 2022

High Life Style Show Oct 7-9, 2022 <https://highlifestyleshow.com/>

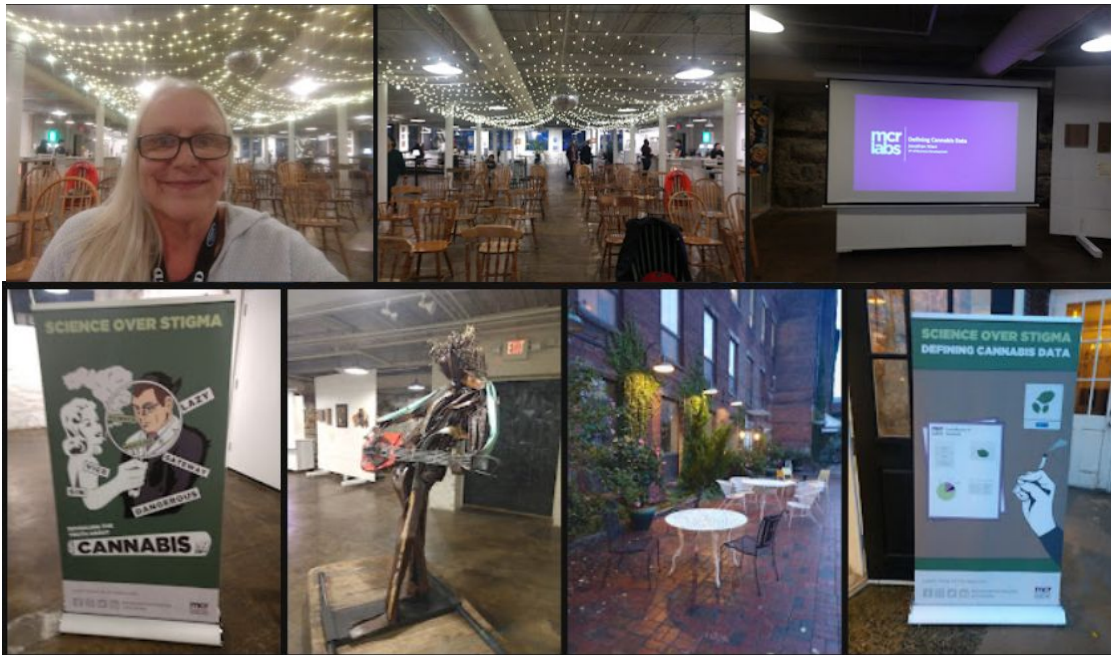


A weekend getaway of networking and entertainment for top level executives, brand managers, marketing professionals, cultivators, innovators, influencers and advocates.



MCR Labs Science over Stigma series #2

"Defining Cannabis Data" Oct 13, 2022



TRUST SCIENCE OVER STIGMA

REVEALING THE TRUTH ABOUT

CANNABIS

mcr labs

SCIENCE OVER STIGMA

Join us in challenging the misrepresentation of cannabis. As the industry evolves, laws and regulations must be shaped by science rather than the stereotypes and falsehoods that have undermined cannabis for over a century.

Over the course of 2022, MCR Labs will be advocating for open discussions on the science and research of cannabis and how to best employ this knowledge to build policies, legislature, and cultivation best practices backed by science and data, not misconceptions and stigmas.

UPCOMING EVENTS & DISCUSSIONS

Cannabis Through the Ages	September 19
Defining Cannabis Data	October 13
Cannabis Data & Decisions	November 13
The Cannabis Science Fair	December 3

Follow the discussions on social media with #scienceoverstigma

Scan the QR code to the right to view the campaign page.

<https://mcrlabs.com/event/defining-cannabis-data/>

MCR Labs: “Jonathan Wani” VP Business development

- I am a bit in awe of Jonathan for his dedication to helping folks create and consume Cannabis safely.
- Jonathan seems an awesome family man calling on his wonderful, supportive wife in the audience
- Jonathan was humble and mentioned how he was glad to see folks at the 2022 event (although it wasn't jam-packed) because in 2014 no one wanted to hear his talks and he still gets excited when folks show up.
- The affair was at a beautiful venue with bar and T-Shirts, stickers, pens displayed free on the table.
- Presentation was followed by a panel discussion. Jonathan Wani presented questions to his panel of subject matter experts he gathered for the event: Retail, Growers, Extractors for panel discussion on how they are using data for business decisions.
- Tonight's Subject was "Data", collecting data, accessing data, scrutinizing data, data analysis, COA generation, sending data, quantitative vs. qualitative data,...
- Jonathan prefers hydrocarbon extraction
- MCR Labs will help growers achieve test goals via partnering with clients because they want educated consumers. Yes they want to help you. MCR will keep some trade secrets but they will guide you to your goal.
- MCR Labs openly posts their COAs on their website! ProVerde Labs located in Milford MA when I asked them at the HighLifeStyleShow immediately hid behind HIPAA regulation being the reason they do not supply COAs.
- Passing with MCR Labs is truly a badge of honor.
- “Honest Cannabis Businesses” publish COAs

Current Trends: THCP/CBDP - natural cannabinoid found in a variety of strains (FM1, FM2)



THCP is much, much stronger than delta 8 THC (**roughly 60 times as strong**). The effects of these cannabinoids are very different as well. THCP can be quite stimulating. This, combined with its exceptional potency, makes THCP very likely to result in anxious side effects, insomnia, and rapid heart rate.

Tetrahydrocannabiphoro

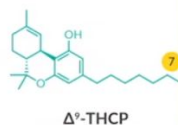
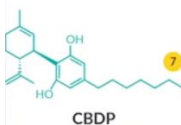
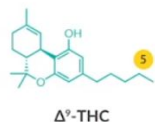
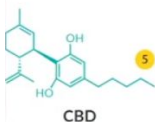
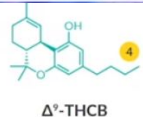
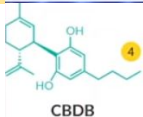
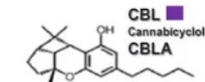
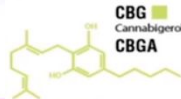
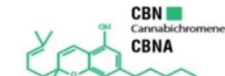
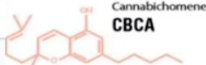
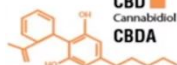
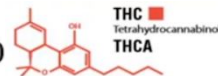
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Article Talk



Not to be confused with THPC.

(-)-Trans- Δ^9 -tetrahydrocannabiphorol (Δ^9 -THCP, (C7)- Δ^9 -THC, and THC-Heptyl), is a



The resulting “high” from a THCP-rich cannabis strain or product could produce some pretty powerful effects. Paired with other cannabinoids and terpenes, the effects might be **more sedating, energizing, or soothing**. Mar 2, 2022



THCP/CBDP

University of Modena in Italy researchers discovered a new cannabinoid 30 times more potent than THC in 2019

Possible effects: pain relief, better sleep, high euphoric feeling.

THC/CBD have five-term side alkyl chain whereas THCP/CBDP have 7. This makes THCP/CBDP easier to bind to human CB1 and CB2 receptors of the endocannabinoid system - 33 times more active than THC and 13 times more active than THCB against CB1 receptor. "THCP has a longer alkyl chain and it is more lipophilic and fits the CB1 receptors 30 times more than THC. We only did a drug study but now the adventure begins, because this is only the first step towards this new class of cannabinoids. This means that we have to study the concentration of THCP and CBDP cannabinoids in the different cannabis strains because sometimes it is not clear why some strains with a low THC level have extremely high psychotropic properties: it could [probably] be due to THCP. The goal of the research was to give a molecular imprint to the FM2 strain. The researchers worked with a new technique, called metabolomics, which is the systematic study of the chemical footprints left by specific cellular processes and which allows the identification of a molecular footprint of the biological sample and enables the discovery and identification of new compounds with a high degree of confidence, even when present in traces in complex matrices."

<https://hightimes.com/news/what-we-know-so-far-about-the-newly-discovered-cannabinoids-thcp-and-cbdp/>

Metabolomics is the large-scale study of small molecules, commonly known as metabolites, within cells, biofluids, tissues or organisms. Collectively, these small molecules and their interactions within a biological system are known as the metabolome. Metabolomics is a powerful approach because metabolites and their concentrations, unlike other "omics" measures, directly reflect the underlying biochemical activity and state of cells / tissues. Thus metabolomics best represents the molecular phenotype.

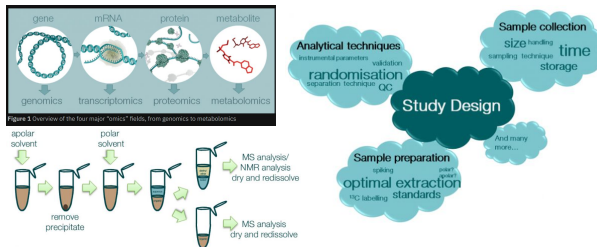
THCV is being researched for metabolic disorders such as diabetes and appetite suppressant; CBN is the degradation of THC, CBG

Royal Society of Chemistry: <https://edu.rsc.org/resources/collections/analytical-chemistry-introductions#MassSpectrometry>

Find Reactions, Proteins and Pathways: <https://reactome.org/>

Cool Biology note: one gram of DNA can store 215 Petabytes <https://www.youtube.com/watch?v=ax0yjbSBa4> timestamp: 1:30/9:30

THCP/CBDP- Metabolomics



Noise (or error) is an important consideration to factor in because it distorts the signals in your data. There are two types of noise:

- Random noise – this results from contaminants and general technological limitations. It produces signal spikes and discontinuous data that could be mistaken for meaningful data.
- Systematic noise – this results from external factors that are not relevant for the study. Baseline drift is one example of systematic noise and is a common problem in liquid chromatography-mass spectrometry (LC-MS) where the gradient of the mobile phase causes the chromatographic baseline to be irregular.

There is a great deal of variation in metabolites between species, it is estimated there are around 200,000 metabolites across the plant kingdom, and somewhere between 7,000 and 15,000 within an individual plant species (1, 2). By contrast, in humans, there are thought to be around 3,000 endogenous or common metabolites (3). These estimates are approximations that are likely to be underestimates because it is difficult to detect low-abundance molecules. Nonetheless, it can be concluded that plants are particularly biochemically rich by comparison with many other species. They also typically contain larger numbers of genes than other eukaryotes.

Personalised medicine

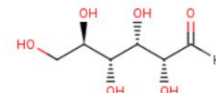
Personalised medicine, the ultimate customisation of healthcare, requires metabolomics for quick medical diagnosis to identify disease. In healthcare, we currently use classical biochemical tests to measure individual metabolite concentrations to identify disease states (e.g. the blood-glucose level in the case of diabetes). Metabolomics offers the potential for the rapid identification of hundreds of metabolites, enabling us to identify these disease states much earlier.

<https://www.ebi.ac.uk/training/online/courses/metabolomics-introduction/>

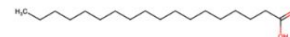
Small molecules

What are small molecules?

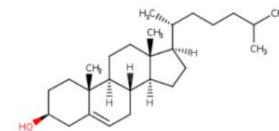
A small molecule (or metabolite) is a low molecular weight organic compound, typically involved in a biological process as a substrate or product. Metabolomics usually studies small molecules within a mass range of 50 – 1500 daltons (Da).



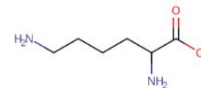
glucose
(a sugar)



stearic acid
(a fatty acid)



cholesterol
(a lipid)



lysine
(an amino acid)

Figure 2 Examples of small molecules

Examples of small molecules can be seen in Figure 2 and include:

- sugars
- lipids
- amino acids
- fatty acids
- phenolic compounds
- alkaloids

Current Trends: French Cannoli passed away recently

French Cannoli passed away recently

<https://www.nytimes.com/2021/07/31/us/frenchy-cannoli-dead.html>

There has been interest in a terpene that he had discovered in 2014 that's typically found only in pressed heated hashishene.

<https://www.theleafonline.com/c/science/2016/06/terpene-profile-hashishene/>

Hashinene is created by the oxidation of beta-myrcene, with photo-oxidation being the most effective way. Most hash producing countries do this by sun curing the plants and pressing the final product with heat.

<https://frenchycannoli.com/trichome-research-initiative>

Current Trends: Hops latent viroid

“Hops latent viroid study needed - how to prevent - does it remain on the pallets? Studies need to be done,..

As the name suggests, Hop Latent Viroid (HpLVd) was first identified in hops. Ironically, infected hop plants are asymptomatic. In contrast, infected hemp plants (*Cannabis sativa*) may or may not manifest any apparent symptoms. Symptoms include stunted growth, reduced vigor, brittle stems with less flower mass and stunted trichomes. This disease is commonly known as dudding.

Viroids are the smallest known pathogens of row crops and fruit trees. Like some plant pathogenic viruses, viroids are single-stranded RNA molecules; however, viroids are smaller in size and are not encapsidated. Potato spindle tuber viroid was the first viroid that was discovered in 1971. To date, twenty-nine more viroids have been discovered and characterized.

Studies indicate that the HpLVd is mainly introduced by infected propagation material. Subsequent viroid transmission from infected to healthy plants is shown to be through horticultural practices. Such mode of transmission (mechanical transmission) is also very common in phytopathogenic viral species. In hops, transmission of HpLVd was shown to be more effective with tools (e.g. pruning shears) rather than natural abrasions caused by physical contact of individual plants. In addition, no evidence of transmission and long-distance spread of the viroid by aphids has been presented.

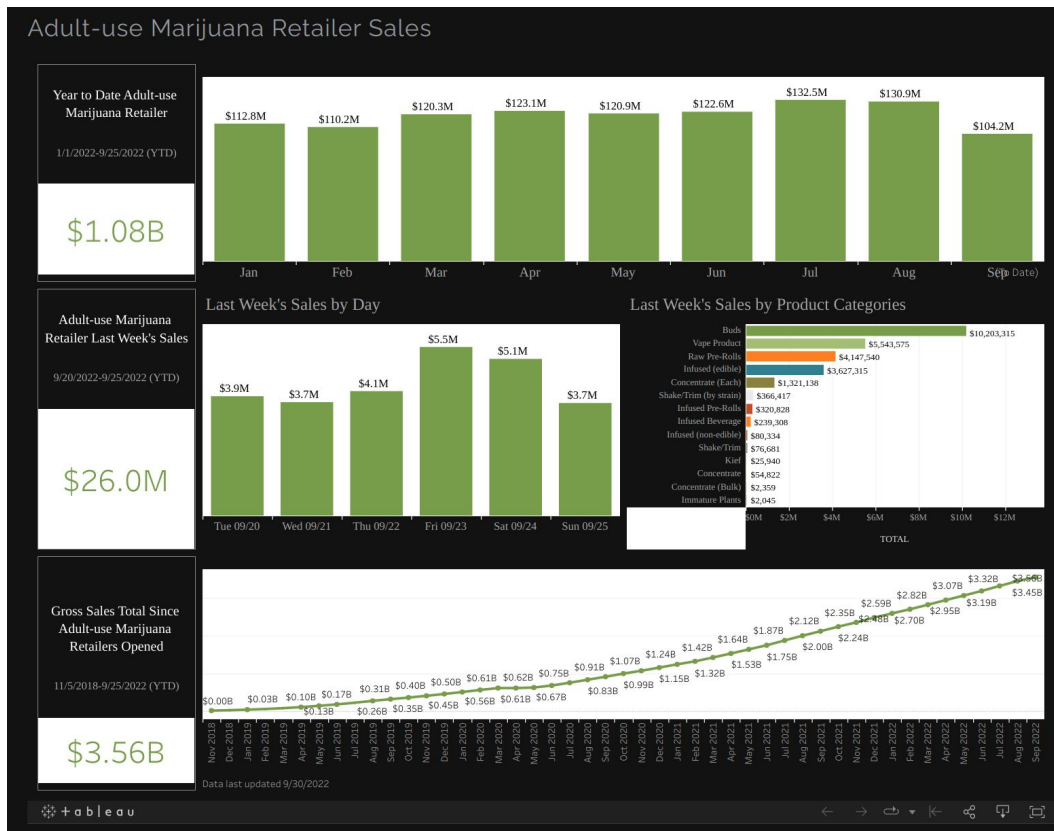
The main component of successful management of HpLVd is prevention. Using disease-free seeds and propagation material is the most effective way of avoiding HpLVd. CSP Labs is equipped to test high volumes of seeds and plant material for HpLVd with high throughput molecular testing to ensure rapid turnaround times. Moreover, our plant pathologists have developed assays to test multiple diseases along with HpLVd simultaneously.”

<https://csplabs.com/hop-latent-viroid-hplv/>

Accessing Data: MA Cannabis Control Commission

sales_and_product distribution chart shows ~60% Flower in MA

<https://masscannabiscontrol.com/open-data/>

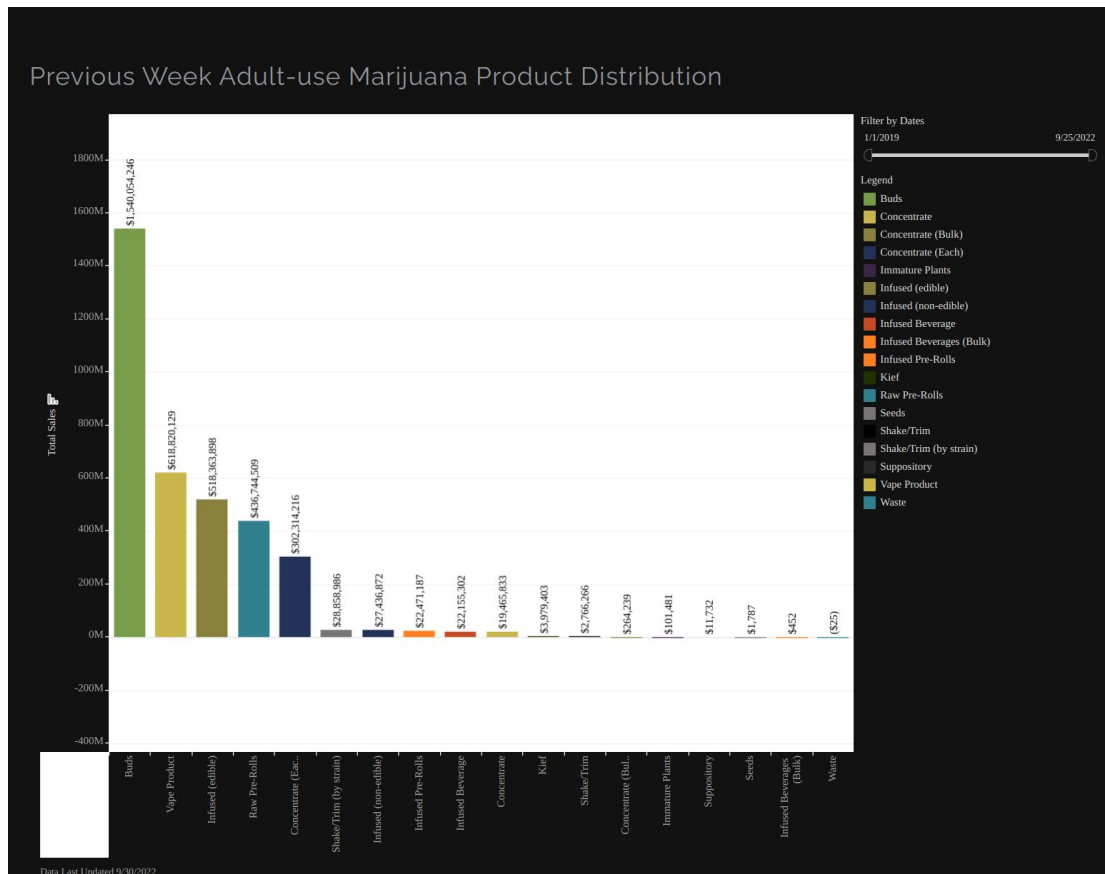


Accessing Data: MA Cannabis Control Commission

I have never witnessed a suppository table/booth/room or suppositories on any table at any Cannabis Recreational Legacy or State Legal events I have attended past and present.

I have only witnessed suppositories sold by MA State Cannabis Dispensaries.

I have only witnessed Legacy suppositories made available for free using RSO to help treat cancer patients at Legacy Charity events.



Many adult use is truly medical because adults don't want to apply for the cost of the card, doctor appointment; and have their product use tracked by the state.

Cannabis is medicine and should not be turned into a cigarette business.

MA Recreational users dataset appears to encapsulate a smaller medical user dataset viewing the \$11,732 Cannabis Suppository Distribution.

Thirteen ISO 17025 certified Labs in Massachusetts: using different methods.

- 13 ISO 17025 MA Labs 13 methodologies
- Each producer samples their own cannabis so likely to cherry pick non moldy perfect samples vs 3rd party selection of samples for testing.
- Producers are seeking labs to increase THC and pass rates.(WA and FL historic)
- Sales sells products to boost THC Max profitability.
- The "God We Trust" trusts the data whereas misinformation, inaccurate information tandem rewards bad behavior with no rewards for being a good grower, producer.
- Big Box Pot Shop ~70 Million facility puts all products through x-ray as Standard Operating Procedure SOP prior to sending out for testing and will not disclose to retailers. You must specially check off the box in metrics. Instead of working on the problem they don't disclose.
- It cost me money and time to figure out mold microbes to fix my grow or \$125 to 4000 to buy a machine to eliminate microbes altogether. Putting lead in with Gamma X-Ray, RFC creates heat and hurts the product.
- There should be transparency with data and SOP walkthrough products to see product development. This lack of process transparency cuts into the Transparent grower product. It is kept secret because employees sign ndas. What's in this product clients need to ask, put this in front of the consumer, consumer can ask for only organic Bud never radiated!! ask about the COA 5,000 CFUs. Why so low? Was the product radiated?

Microbe testing: “Let's look at Kombucha”

- Kombucha, an old product with high microbes as the main selling feature.
- Washington 2012 limits were pulled out of a textbook table example in the book and that is what Massachusetts is using.
- Kombucha would never be able to be a Cannabis infused product.
- Microbial data is a hindrance to higher limits on butane, propane per an unofficial white paper on microbes
- MCR Labs Jonathan is working with the CCC regarding limits such as butane - MCR Labs tested butane limits on bubble hash, the air in the MCR Lab parking lot and a Burger King Burger. All tests failed MA limits with 22+ PPM butane.
- Nov 10, 2022 there's a CCC meeting where this will be discussed. <https://masscannabiscontrol.com/calendar/>



Interesting Trends:

- Edibles have bottomed out lots of inventory (vote with your dollar)
- Seasonal Barbecue / hot sauce products sold off the shelf during the summer.
- Just like a brewery needs new beer, new edibles need to be developed.
- Flowers are pretty much the same strain every day that people buy.
- The innovation is in baked goods as in Artesian products, gummies, chocolates, bon bons, risotto,...
- Seasonal Barbecue / hot sauce products sold off the shelf during the summer.
- Just like a brewery needs new beer, new edibles need to be developed.
- Flowers are pretty much the same strain every day that people buy.
- The innovation is in baked goods.
- High THC only metric: extract live resin has better product at 72% where yet again we're reminded of Everclear because this just flies off the shelf whereas best Craft Beer products sit on the shelf. [I personally do use high THC RSO product occasionally as a Medical Patient for pain]
- Lack of using microbe testing

How Data is Used:

- On the Sales side: “Medical Users request Data”
- On the Grow side: “Product doesn't move unless there's Data”
- Data is used to develop client personas and create educational materials
- Data points are used to interpret the thought process that goes into it getting colas as getting COAs can be difficult
- Data takes the thinking out of operations using data and process flow charts.
- All staff needs to see the data all the time showing growth conditions.
- Discover curious Rockstar staff users of the data to observe how staff understands and derives Data insights, sensor array knowledge and understanding the hundreds of different data points
- Watching people around you - data is often overlooked and pushed aside
- All data is good data - COA from MCR used for training data for the workforce
- Data is often overlooked and needs to be user friendly/API
- The more data the better - advantages with world stuff and flat legacy methods leave some strides for educational resources for Growers
- "We put the Hammer down with Data"

Essential questions to consider before buying a Cannabis product:

- Is this a high-quality cannabis product from a trustworthy, reputable source?
- Is there a Certificate of Analysis (COA) provided? QR code for COA on product?
- What is the shelf-life of this product?
- Ask how long your product was cured?
- Is this product free of pesticides and other harmful substances?
- Were any methods such as radiation used to help products pass microbial testing?

#scienceoverstigma #mcrlabs <https://mcrlabs.com/events/>