

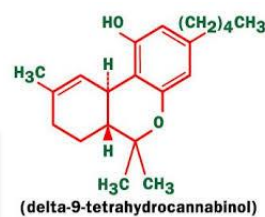
BASIC SCIENCE AND LEGAL CHALLENGES OF

MEDICAL CANNABIS



PRESENTATION OVERVIEW

- * Cannabis History
- * Active Compounds
- * MMFLA/MRTMA
- * Legal Challenges
- * Questions



CANNABIS HISTORY



12,000 years ago

Archeological evidence of hemp rope in Taiwan



2,700 years ago

Cannabis fragments and documentation in pharmacopeia found in China



2000 BCE

Documentation in Atharva Veda Hindu text



1970

Federal guidelines placed Cannabis as a schedule 1 drug with no medicinal value

PLANT BIOLOGY



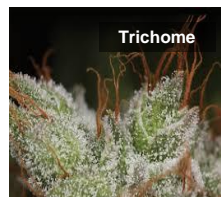
Flowering Cannabis Plants



Cannabis Flower



Cannabis Flower



Trichome



Trichome

CANNABIS CLASSIFICATION

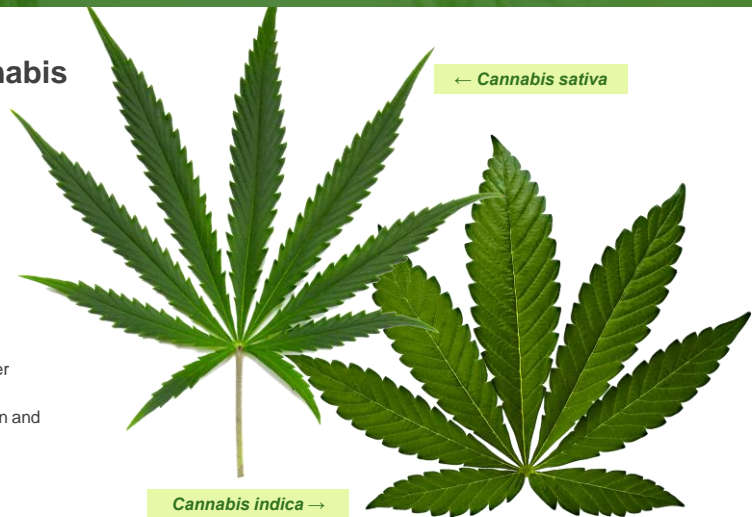
Distinction of 2 strains of cannabis made in the 18th century

* *Cannabis sativa*

- Temperate climates near the equator
- Uplifting and cerebrally focused effects for fatigue and depression

* *Cannabis indica*

- Afghanistan/Hindu Kush area. Can tolerate harsher climates
- Sedating and relaxing with full body effects for pain and insomnia



CANNABIS COMPOUNDS

Cannabinoids

* Δ -9-tetrahydrocannabinol

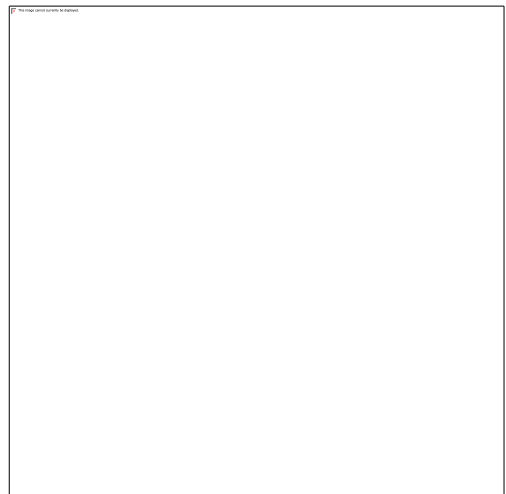
Responsible for euphoric as well as medicinal properties. This component is what is classifies cannabis as schedule 1.

* Cannabidiol (CBD), Cannabichromene (CBC), Cannabigerol (CBG), Cannabinol (CBN), Cannabicyclol (CBA)

Non-psychoactive. Have various medicinal properties.

* Terpenes

Molecules that give fragrance and taste. Also have medicinal properties separate from THC



PHARMACOKINETICS



Smoked

- Rapid Absorption- peak is at 15 minutes after inhalation
- Bioavailability of 2-52% depending on a number of variables
- Maximum of 25-27% of THC content is absorbed in common use



Vaporized

- Comparable absorption to smoking, one study shows vaporizer to be superior
- Decreased Polycyclic Aromatic Hydrocarbons, Carbon Monoxide, and Tar



Oral - Dronabinol

- Slower Absorption 30 min to 4 hours
- Needs to be activated by decarboxylation- usually achieved by heat
- Less bioavailability as compared to smoking because of hepatic first pass and poor water solubility



Oro-mucosal - Nabiximols

- Lower absorption when compared to inhalation
- Comparable absorption to oral ingestion

PHARMACOKINETICS



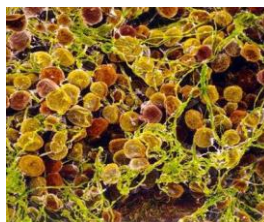
Rectal

- THC is not absorbed through the rectal route. The pro-drug delta9-THC-hemisuccinate can be absorbed rectally.
- Higher bioavailability than ingestion



Topical

- Hydrophobic nature of cannabis compounds cause a limited diffusion across the aqueous layer of the skin



Distribution

- Time dependent
- Primary uptake is by fatty tissues and highly perfused organs



Metabolism

- Mainly occurs in the liver
- Involves multiple stages- allylic oxidation, epoxidation, decarboxylation, and conjugation
- Multiple metabolites
- Excreted in feces and urine, 70/30

Why is Cannabis is Federally Illegal?

- * **Uniform State Narcotic Drug Act-**
 - First federal regulation of marijuana in 1935
 - Allowed for federal regulation of all narcotics across all states and took away local authority
- * **Marijuana Tax Act of 1937**
 - Made possession or transfer of marihuana illegal throughout the United States, excluding medical and industrial uses
 - Imposed of an excise tax
- * **Addition to DEA Schedule 1 Classification- 1970**
 - No medicinal value
- * **Cole Memo- 2013**
 - Clarified federal policy on pursuing commercial cannabis
 - Rescinded by AG Jeff Sessions in January of 2018



LEGAL ISSUES AND RISKS

- * **Schedule 1 Classification Limits**
 - Pharmacies and companies with pharmacy licenses to have any Schedule 1 products on site
 - Unable to perform research on cannabis molecules and use in medicine
 - No FDA approved products
- * **"Recommendation Only"- Unable to legally "prescribe" due to schedule 1 DEA classification**
- * **Determining driving under the influence of cannabis is a prevalent problem as there are no reliable tests for intoxication.**



Michigan Medical Marihuana Facility Licensing Act

- * **Created a licensing process along with regulations for commercial medical marijuana operations**
- * **Cultivation**
 - o Class A- 500 plants
 - o Class B- 1000 plants
 - o Class C- 1500 plants
- * **Processing-** Facilities that extract cannabinoids and create other cannabis infused products
- * **Retail/Provisioning-** Facilities that will dispense cannabis and cannabis infused products
- * **Safety and Compliance-** Lab testing facilities
- * **Secured Transport-** Movement of all cannabis goods



MRA Executive Director Andrew Brisbo

Michigan Regulation and Taxation of Marihuana Act

- * **Legalized adult use of marijuana for those over the age of 21**
- * **Those over the age of 21 may also grow 12 plants**
- * **May possess 2.5 ounces of marijuana on them at any time**
- * **May store up to 10 ounces of marijuana at their home**
- * **Cities are all opted in, unless they opt out by resolution (opposite of MMFLA)**
- * **Additional 10% excise tax on all recreational products**
- * **Initial recreational licenses are only available to current MMFLA license holders if the local municipal allows**

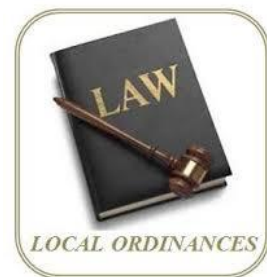


Benefits to the Community

- * Residents will have access to medical cannabis in safe and secure locations
- * Tax Benefits- a portion of the excise tax is collected and redistributed to communities that have opted in. Shares are determined by the number of licensed locations.
- * Favor redevelopment of distressed or outdated properties and create an increase in tax revenue for the city directly
- * Strategic planning can incorporate these facilities into the landscape while stimulating economic development around them
- * Ordinance for licensing should favor local resident ownership and employment
- * Ordinance should require partnership with local organizations for specific community benefits plan
- * Create infrastructure for the adult use market OR maintain rules for medical facilities only

Municipal Challenges

- * Nuisance, loitering, diversion- all regulated at both the state and local level.
 - Local ordinances can be placed to address these issues
- * Partnering with the right business
 - Proper holistic approach and plan to treat medically ill patients
 - Partner with the Community to enrich local programs
 - Hiring locally with sustainable living wages
- * Crime Prevention- Requiring a proper security plan and open communication with law enforcement



Choosing The Right Provisioning Center

- * **Have a medical director and medically trained staff to provide proper health care**
- * **Carry a variety of lower dosage products and delivery methods**
- * **Provide educational programs and seminars to the community**
- * **Communicate and provide feedback to the patient's health care providers**



SOURCES

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Questions?

