



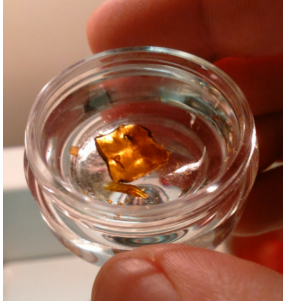
Cannabis Data Science

Meetup

January 19th, 2022

What makes a profitable processor?

It's important to learn from others. If you're thinking about starting as a processor, then you can learn from successful processors in Washington State.



A cannabis concentrate, known as shatter, produced in Alaska (74% THC)

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History of Cannabis Processing

Humans are remarkably good at using plants as factories of complex chemicals.

- Cannabis may have been used in India as early as 1000 BC.

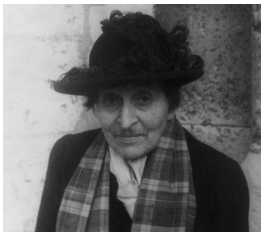


hang eaters from India c. 1790.

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Cannabis Edibles

- *“The first cannabis edible recipe appeared in the United States in the early 1960s in a cookbook called The Alice B. Toklas Cookbook written by Alice B. Toklas. The recipe is called “Hashish Fudge” and was actually contributed by Alice’s good friend, Brion Gysin”*
- *“The 1001 Nights provided him “with an entr{’ee into Tangiers society. His Moroccan culinary delights even merited an entry in Alice B. Toklas’s famous cookbook, with a recipe for hashish fudge. Toklas, however, had no idea what the mysterious ingredient – cannabis.”*
- *“A mixture of fruit, nuts, spices, and “canibus sativa”.”*



Cannabinoid Separations

- First cannabinoid, CBN, fully formed by Robert S. Cahn (chemist) in 1940.
- CBD discovered by Roger Adams (chemist) in 1942.
- First stereochemistry of CBD (cannabidiol) by Raphael Mechoulam (professor) in 1963.
- First stereochemistry of THC (tetrahydrocannabinol) by Raphael Mechoulam in 1964.

Cannabinoid Separation

“Cannabinoids can be separated from the plant by extraction with organic solvents. Hydrocarbons and alcohols are often used as solvents. However, these solvents are flammable and many are toxic. Butane may be used, which evaporates extremely quickly. Supercritical solvent extraction with carbon dioxide is an alternative technique. Once extracted, isolated components can be separated using wiped film vacuum distillation or other distillation techniques.[59] Also, techniques such as SPE or SPME are found useful in the extraction of these compounds.”

Cannabis Processing Variability

Reasons processors may be concerned about variability:

- For financial reasons: Minimize risk.
- For economic reasons: People are risk adverse.
- For engineering reasons: Minimize variance.
- For business, marketing, and public health reasons: Maximize consistency.



Thank you for coming.

Lesson of the Day

Variability matters!