



Cannabis & Hashish

introduction

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Introduction

Contents

**1. Introduction to *Cannabis*: Kan(n)aB/
Kanabos/קנה בושם/Κάνναβης**

2. The History of Hashish

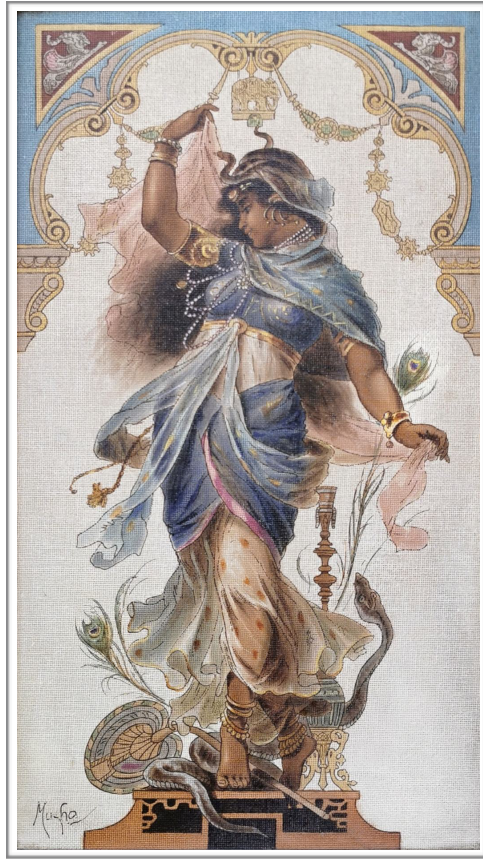
3. What is Hashish?

4. What are Trichomes?

5. How do I make Hashish?

6. What is Rosin?

7. Decarboxylation



“Unlimited goodwill. Suspension of the compulsive anxiety complex. The beautiful character unfolds. All of those present become comically iridescent. At the same time one is pervaded by their aura.”

– Walter Benjamin

Introduction to Cannabis:

Kan(n)aB/Kanabos/קנה בושם/Κάναβης

We find ourselves in an ironic era regarding domestic *Cannabis*. Open discussion about *Cannabis* has been stifled, yet a century of relentless persecution has shown that *Cannabis* not only survives but thrives in industrial society. However, even as the age of global drug wars has transitioned into the rise of knowledgeable cannabis sellers and potent high-THC strains, a peculiar trend of prohibition that emerged in North America now exists everywhere: people smoke more flower than hashish. This only makes sense historically, however, and is likely a bit of an enigma.

Alcohol has been variable prohibited throughout the ages, and spices like chocolate and coffee have been subjects of love and hate from the dawn of cosmopolitan trade, but the industrial revolution brought forth the production of morphine, cocaine, ether, and inexpensive hard liquor, substances with clear negative effects in industrial societies. Staggering drunks, Jeekyll & Hyde coke fiends, desperate morphine addicts, and whole neighborhoods of stupefied ether-heads of the 19th Century led to prohibition and the establishment of secretive police organizations to combat the resulting social issues. Despite the end of alcohol prohibition, the drug war has endured. In fact, a very traditional drug that had never caused any social problems, *Cannabis*, was only made illegal after prohibition! Ironically, the most commonly consumed, safest, and easily detectable among all illicit plants became the primary target of drug persecution. Due to its quick and simple production process, unprocessed flowers became the prevalent form of *Cannabis* in North America during the period

of intense cannabis prohibition, while the true agricultural product of medicinal *Cannabis*, hashish, became exceedingly rare. However, times have changed.

The wisdom of ancient sages shines through their understanding of the *Cannabis* plant. Over countless millennia, *Cannabis* cultivators have skillfully bred aromatic and psychoactive plants, employing various methods such as meshes to separate the coveted THC and terpene-producing trichome glands (the desirable components) from the rest of the plant material, which may not offer the same pleasant consumption experience. The term "*Cannabis*" carries a rich linguistic heritage, tracing its origins back to Greek "*κάνναβης*" (*kannabas*), Hebrew "*קנה בושם*" (*kaneh bosm*), Persian "*kanab*," and numerous other Indo-European cognates. By linguistically reconstructing its early Indo-European form as "*kan(n)ab(p)*," we uncover the ancestral roots of this remarkable plant.

Use and domestication of wild *Cannabis sativa* took the plant in more than one direction: it was used as cane for rods and huts, as rope and textiles, as seed as food, and as flowers for medicine and spirituality. What are commonly known as *Cannabis 'indica'* and *Cannabis 'sativa'* are a bit like dog and wolf, or maybe more like German Shepard and dingo. They are not different species, just different breeds, and modern pop culture conceptions of '*indica*' and '*sativa*' don't fit the genetic reality very well. There is some biological reality to the distinction: the long-domesticated hashish plants of Central Asia with giant fan-like leaves, huge dense flowers, and high cannabinoid content are called *Cannabis 'indica'*. Recreationally available *Cannabis 'sativa'* derives in part from Indian '*ganja*' and Thai strains and can be very high in THC, but truly wild *Cannabis sativa* has a very low THC content. For better or worse, *Cannabis 'sativa'* has

more genetic variation, and 20th Century breeders have taken advantage of this to create dramatic hybrids with intense features like high THC and pungent aromas of fruit and citrus. But many experienced stoners will acknowledge that the best all-around psychological effects come from

"A heavenly dreaminess comes over one, in which they move as if on air. Everything is calm and lovely to them: no pain, no care, no fear of anything, and while it lasts one feels like an angel half asleep."

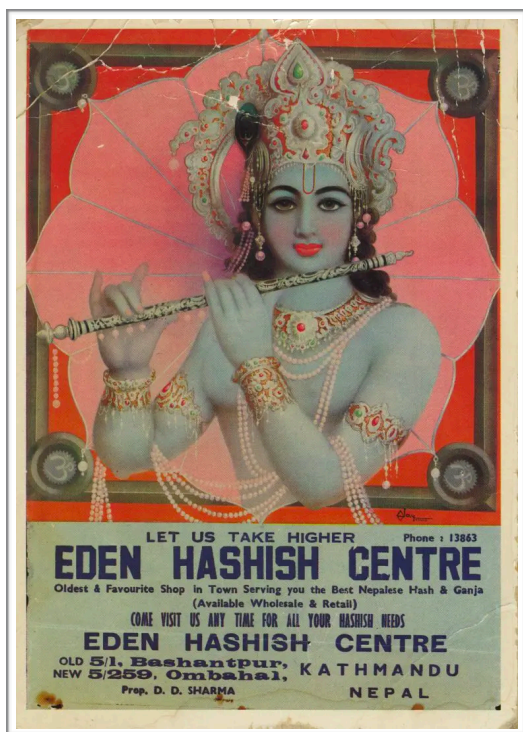
- Luisa May Alcott

the heirloom breeds, the Central Asian *Cannabis* domesticates commonly called 'indica.' It's more than just high cannabinoids, it's the subtle array of distinct cannabinoids, terpenes, flavonoids, and volatile sulphur compounds that counts.

Experienced breeders recognize that over countless generations, our ancestors dedicated themselves to perfecting the aromatic and psychoactive characteristics of *Cannabis* 'indica.' Additionally, they focused on enhancing its mechanical properties to facilitate the extraction of hashish, a concentrated substance containing all the active compounds. In traditional medicinal and religious practices, the psychoactive resinous nodules of the plant, known as trichome glands, were separated from the leaves and flowers. These trichomes were then extracted through shaking and dry sifting, while the remaining parts of the plant served purposes other than medicine. This meticu-

lous selection process, aimed at refining the psychoactive traits, played a significant role in shaping the genetic makeup of what we commonly refer to as *Cannabis* 'indica.'

Some traditional *Cannabis* consuming regions made edible preparations with flower, 'bhang.' Hashish production in these tropical regions was impossible before electricity, and potent strains of what is commonly referred to as *Cannabis* 'sativa' were developed without much regard for trichome morphology. It was these strains that were first grown in the Americas and Caribbean. In regions where *Cannabis* growing was illegal but with viable climate for cultivation, the black market driven by the war on drugs primarily focused on the distribution of quickly dried and distributed *Cannabis* flower, and these varieties fit that model. The prohibition of *Cannabis*, coupled with its significant popularity in industrial societies, resulted in a substantial oversight of its rich history; in places where it is legal to grow and sell *Cannabis* and the climate is cool and dry, the emphasis on raw dried flower is much lower. Throughout this era of agro-industrial revolution, *Cannabis* has faced nearly global prohibition, leading to a disconnection between clandestine breeding programs and



the time-honored hashish traditions of the *Cannabis* experts from Central Asia.

If a hashish enthusiast from a pre-industrial era could travel through spacetime from the foothills of the Himalayas to an early-mid 21st century North American *Cannabis* dispensary, they would be astounded to witness the immense excitement surrounding the consumption of *Cannabis* flower. However, if you were to persuade the time traveler to smoke it, they would be taken aback by the somewhat intense and stimulating effects of most '*sativas*.' Introducing them to concentrates such as crumbles, shatters, and waxes would only lead to frustration due to the difficulties in carrying, storing, and consuming them. Presenting them with an elaborate dab bong would leave them bewildered. Finally, if you were to offer a seasoned old-school hashish-maker a representative sample of dried *Cannabis* with the new genetics, they would be disappointed by the ridiculously dense buds, the relatively small and deformed trichomes, odd-shaped trichome stalks, and bothersome trichome size variations, irrespective of the high THC content.

There is something to be learned from the recent high-capsaicin chili pepper craze (ghost peppers, Carolina Reapers, etc.) You can force a chili pepper to be 20x hotter than a habanero, but you have to sacrifice genetic alleles for taste and plant vigor. A chili pepper connoisseur will take the habanero every time. They taste great, and they are VERY hot, hot enough to scorch the mouth of anyone, especially when made into a paste or salsa concentrate.

The difference in measurable THC between heirloom '*indicas*' like Mazar-I-Sharif, Chitral, Mag, Lashkar, and Kush and the new '*sativa*' hybrid genetics isn't quite as dramatic as capsaicin in chili peppers (15-25% THC in traditional '*in-*

dica' vs. 18-35% THC in '*sativa*' hybrids for dry flower). But what *has* been unwittingly sacrificed in the quest for high THC numbers and tootie-fruity terpene profiles are the more mysterious medicinal effects of complex psychoactive cannabinoid profiles and stable trichome morphology. The old '*indicas*' have pleasant, heavy psychoactive effects and big, easily-shed trichomes on longish stalks, all brought by careful selection and propagation of seeds over countless generations.

“One (heirloom Beldiya Kif) makes you think, the other (high-yield modern hybrid) makes you paranoid.”

*- Mohamed Benyahya, Kif mountains, Morocco
(quoted 2019 by Agence France-Presse, 10/10/2019)*

Hashish producers in Morocco have largely changed to higher-yielding, higher THC hybrids also, but this brought with it an ironic effect on 'traditional' Moroccan hash plant varieties like Beldiya. Because Beldiya is so much better on the soul (ands more nostalgic) than the high-yielding hybrids that have recently replaced it in commercial-grade hashish, Beldiya hashish, now considered 'gourmet,' has actually *increased* in value recently in spite of significantly increased tolerance and reduced prohibition penalties.

If a stoner from the late 20th century drug war era were to stumble upon the garbage of a 19th-century hashmaking facility in the Kush Mountains of India, they would undoubtedly believe they had entered a paradise of ganja. The contrast between the abundance of *Cannabis* available

“The illegality of Cannabis is outrageous, an impediment to full utilization of a drug which helps produce the serenity and insight, sensitivity and fellowship so desperately needed in this increasingly mad and dangerous world.”
- Carl Sagan

in legal and illegal settings is truly astonishing. Consider the drastic difference: in 2021, a kilogram of commercial-grade, gray-market flower in California sold for approximately \$400 (a significant drop from the \$7,000 price tag for the same buds in 1994). Furthermore, in 2021, sugar shake, an excess byproduct, became so plentiful that it had no market value. In the Northern California countryside during the same year, having connections with a grower meant that you could effortlessly trade 25 kilos of sugar shake for a few jars of honey—yes, actual bee honey. This is precisely why traditional hashish is only now resurfacing in industrial markets, though it resides at the highest of the *Cannabis* price spectrum, so to speak.

Here we stand, at the culmination of an era marked by prohibition, yet *Cannabis* remains burdened by pervasive stigma. Numerous anecdotes, biased sociological speculations, and opinions exist regarding the reasons behind this stigma. Consuming *Cannabis* has a mildly hallucinogenic, highly thought-provoking effect. It triggers a whirlwind of associations and realizations, sometimes occurring at a pace that eludes short-term memory. Inexperienced users often experience disorientation due to this effect on the

progression of their thoughts, but more regular consumers use the mental state constructively. Its appeal lies within circles of writers, graphic artists, spiritualists, philosophers, scientists, and free thinkers, rendering it inherently suspicious to political authoritarians and fundamentalist religious leaders. Furthermore, *Cannabis* serves as a common self-administered remedy for psychological conditions, attracting the attention of law enforcement systems seeking dragnets to cast over individuals deemed "marginal." Throughout centuries, *Cannabis* has been utilized by those who find themselves oppressed within the cultural systems accompanying humanity's transition away from a foraging lifestyle. As we have journeyed into the wilderness beyond Eden, *Cannabis* has been a steadfast companion, traversing the entirety of our human experience.

The History of Hashish

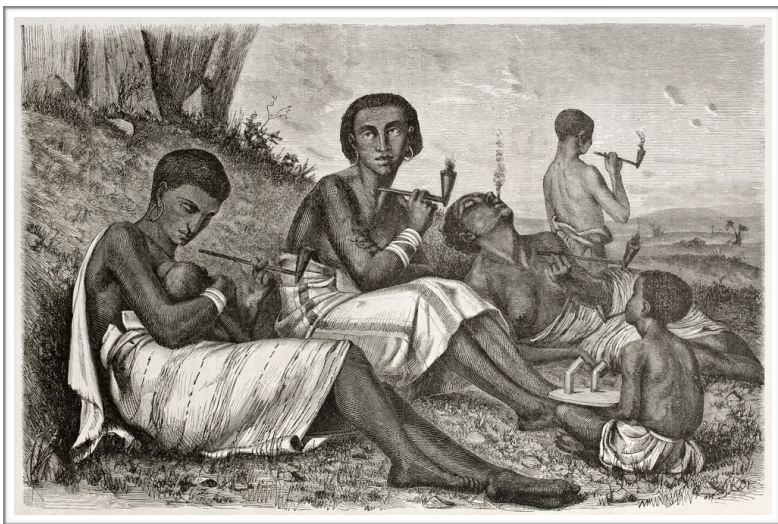
Wild *Cannabis* is common in much of Eurasia, and its original human-related dispersals around the continent extend deep into the dim recesses of agricultural prehistory. The complex Eurasian dispersal of *Cannabis*, related to eons of complicated human migrations, is not well understood. We don't really know the exact center of origin of domesticated *Cannabis*, and it is likely that there are multiple points of origin over a long and complex evolutionary process analogous to how dogs evolved from wolves. It is highly likely that the association of humans and *Cannabis* is just as deep as the association of humans and dogs, going back to the earliest proto-agriculturalists in Eurasia.

The earliest indications of *Cannabis* use can be traced back to remnants of rope and twine, which continue to serve this purpose in modern times. The initial evidence of such usage can be found in stone age sites dating over 10,000 years ago. However, these remnants, comprising fragments of twine fiber and impressions on pottery, cannot be identified through genetics alone. The identification of *Cannabis* based solely on its fiber morphology remains a topic of controversy.

More definitive evidence emerges at a later period. Alongside wheat, rye, millet, and rice, *Cannabis* stands as one of the earliest known plant domesticates for food in human history. The first archaeological proof of *Cannabis* consumption comes from seeds discovered in ancient Japanese trash heaps, dated to approximately 10,000 years ago. These seeds exhibited larger sizes compared to their wild counterparts, indicating intentional domestication—an occurrence predating the arrival of domesticated rice in Japan from China. Additionally, pottery fragments from around the same period bear impressions of hemp twine, further supporting the utilization of *Cannabis*. Further evidence of *Cannabis* being utilized as food arises from China, a few millennia later, during the later stages of the Neolithic era—the final phase of the stone age.

The earliest recorded medicinal use of *Cannabis* can be traced back to the Vedas, dating between 2,000 and 1,400 BCE. The Atharva Veda specifically suggests that *Cannabis* possesses the potential to alleviate anxiety. During a similar period, the Ebers Papyrus from the early New Kingdom of Egypt (~1,500 BCE) documents the use of *Cannabis* for addressing inflammation. Assyrian cuneiform tablets from around the same time also mention the medicinal properties of *Cannabis*.

The first well-documented instance of *Cannabis* being used as a psychoactive substance can be attributed to the Central Asian Steppe approximately 2,500 years ago. This coincides with the famous accounts by Herodotus, who described the smoke-house rituals of the Scythian people living in the Steppe. *Cannabis* was employed by the Scythians to achieve a state of euphoria, as mentioned in Herodotus' Histories, dating to 430 BCE. The Scythian word for *Cannabis*, "Cannabis" (κάνναβις), is the root of various Indo-European words, including "cane," "canal," "canvas," and more. Additionally, archaeological evidence shows that Scythian incense braziers from around the same era (approximately 400 BCE) possess clear traces of *Cannabis* residue.



The Old Testament of the Hebrew Bible contains numerous references to 'Kaneh bosm' or sweet cane, highlighting its role as an ingredient in incense, anointing oils, textile production, and various other contexts. However, in the first Greek translation of the Hebrew Bible dating back

Ma Fat (Herba Cannabis Sativa) Is acrid and balanced. It mainly treats the seven damages, disinhibits the five viscera, and precipitates the blood and cold qi. Taking much of it may make one behold ghosts and frenetically run about. Protracted taking may enable one to communicate with the spirit light and make the body light. The seed (Semen Cannabis Sativae) is sweet and balanced. It mainly supplements the center and boosts the qi. Protracted taking may make one fat, strong, and never senile. (Herba Cannabis Sativae) is also called Ma Bo (Hemp Erection). It grows in rivers and valleys.

-Shen Nong Ben Cao Jing The Divine Farmer's Materia Medica

to the 3rd Century BCE, 'Kaneh bosm' is mistakenly translated as 'calamus.' This translation error overlooks the specific textile-related uses mentioned in the Bible, which would be impossible for calamus due to its lack of suitable fiber. In reality, 'Kaneh bosm' refers to *Cannabis*, and it becomes apparent that the Old Testament, likely compiled during the time of Herodotus' *The Histories*, extensively references the use of *Cannabis*.

Authors from Western Eurasia are not the sole contributors from antiquity when it comes to documenting *Cannabis*. Following a few centuries after Herodotus and the compilation of the Old Testament, specifically between 200 BCE and 200 CE, Emperor Shen Nong Ben Cao Jing is recognized for gathering ancient Chinese oral medical traditions into a comprehensive work called *The Divine Farmer's Materia Medica*. Within this text, numerous medicinal properties of *Cannabis* are explored and discussed.

In the Roman Antiquity, both Galen and Pliny the Elder speak of the medical use of *Cannabis*. But, it seems like while hemp has been openly cultivated across the agricultural world for fiber without pause, its use declined as plagues, famines, political crises, and religious upheaval un-

raveled the Roman world; few historical datapoints for medicinal/psychoactive cannabis use exist from the European Dark Ages; there are some references to hemp being used for inflammation.

The use of *Cannabis* in the Muslim and Coptic world during the contemporaneous Islamic Golden Age, however, is well-documented, both as medicine and for its psychoactive effects. Ibn al-Bayṭār, a chemist active in the early 1,200's, mentions the cultivation of medicinal '*Qinnab hindi*' (*Cannabis indica*) in Egyptian gardens. Archaeological evidence suggests ritualistic *Cannabis* burning in Ethiopian coptic monasteries in the 1,300's. The collected folk tales in One Thousand and One Nights, compiled over many centuries with some stories tracing to the pre-Islamic traditions of the Middle East, Persia, and North Africa, speaks of hashish sales in Egypt and describes the intoxicating effects of hashish (but never mentions smoking). Marco Polo is famous for retelling hyperbole-laden stories of Al-Sabah using an addictive potion to seduce his hit-men which he set against Persian enemies. The ninja-like sect of Al-Sabah was real, but the connection of the sect to a murderously addictive *Cannabis* potion is a fiction largely exaggerated during the early US Drug War. Hashishin meant something more like 'druggie ragamuffin' and came from a pejorative term for a broad group of the poor who might or might not have consumed *Cannabis*. The wordplay is similar to the way that the term 'Marijuana' was used to stigmatize Spanish speakers who had *Cannabis* in their medicine cabinet in the early 20th Century of the American Southwest. The enemies of Al-Sabah called his ninjas Hashishins. As with India, use of *Cannabis* and hashish in the pre-industrial Islamic world was widespread and culturally continuous with present hashish traditions.

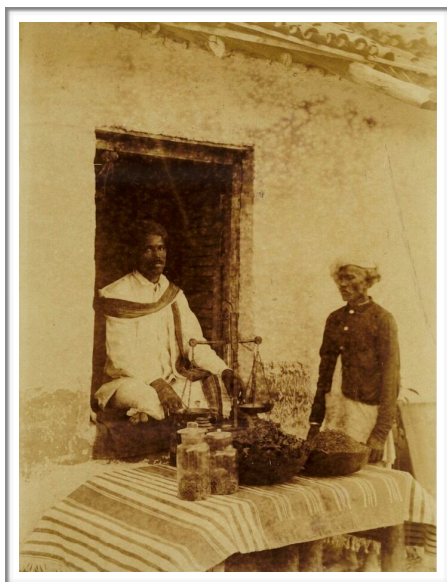
Medicinal *Cannabis* was rediscovered by Europeans during the Age of Exploration. Jan Huygen Van Linschoten writes of bangué (*Cannabis* flower) in his 1598 Discours of Voyages into ye Easte & West Indies.

Van Linschoten writes of slaves and indentured servants using *Cannabis* to help forget their torment. *Cannabis* consumption as **bhang** (edible preparation of flowers), **ganja** (flower), and **charas** (hashish) has been continuous in India since Vedic times. While hemp was used by European physicians in ointments, medicinal use of psychoactive *Cannabis* was most likely rediscovered by Europe via contact with India.

Bangué is a common substance in India, serving a similar purpose as Amson. It resembles hemp seeds, but is slightly smaller and less white. The plant on which it grows resembles hemp but lacks the necessary components for any practical use. The Indians consume the seed or its crushed leaves, claiming that it stimulates appetite and is known to enhance sexual desire. In the local shops, it is commonly sold mixed with powdered leaves and seeds. Additionally, they mix it with green Areca nut to induce intoxication or a state of frenzy. Sometimes, it is blended with Nutmegs and Mace, which also produce an intoxicating effect. The wealthy individuals mix it with Cloves, Camphor, Ambar, Musk, and Opium, which, according to the Moors, induces pleasure, makes a person forget their worries, and enables them to engage in strenuous labor effortlessly, while only experiencing laughter, playfulness, and peaceful sleep. Common women or prostitutes use it to enliven their spirits and set aside all cares when they seek companionship. It was initially devised by captains and soldiers who had spent prolonged periods in the field, fatigued and sleepless. They used Bangué as a remedy and a means of comfort, allowing their minds to settle. The consumption of Bangué causes those who indulge in it to stagger and appear as if they were intoxicated and partially foolish. They do nothing but laugh and enjoy themselves as long as its effects last. The Indians make extensive use of it, as do some Portuguese, but it is most popular among slaves as a means to forget their toil. In conclusion, it offers some solace to a melancholic individual.

-Van Linschoten 1598 Discours of Voyages into ye Easte & West Indies

Interestingly, while use of burned *Cannabis* as an inebriating incense is ancient, there is no history of smoking *Cannabis* or hashish in a pipe or in a cigarette until tobacco came to the Old World. The Hookah was only invented in the 1500's in Mughal India. Recreational use of hashish (both smoked and edible) is purported to have come to modern western Europe via France and Egypt, where Napoleon's folly at the Battle of the Nile left his defeated soldiers stranded in Egypt for 2 years before being forced to surrender. Apparently they were getting very stoned on Egyptian hashish, and they brought their love for it home with them in 1801. The 1800's saw a proliferation of psychoactive *Cannabis* in medicinal elixirs in Western Europe and the States, but this entered European society differently than smoked hashish.



*"When you smoke marijuana, it reveals you
to yourself."
-Bob Marley*

After slavery was made illegal in the early 1800's in British colonies, indentured servants came from India to work in Trinidad and Guyana. They brought **ganja** with them to the Caribbean. It is this cannabis that made its

way to the Spanish-speaking new world, places like Colombia, Panama, and México.



Bohemians of the 19th Century experimented extensively with hashish. Possibly the most famous crew of these early industrial-age psychedelic scenes was the Paris 'Club des Hashischins': Honoré de Balzac, Charles Baudelaire, Alexandre Dumas, Gérard de Nerval, and Victor Hugo. This subversive cultural tradition traces to the present in the West; it has existed underground while mainstream culture got high on eugenics, prohibition, and post-emancipation racism. The avant-garde 1920's saw increases of *Cannabis* use in Europe and the States, as documented by Walter Benjamin's hilarious descriptions of being stoned from the late 1920's and early 30's. Recreational use had increased to a point of public awareness by the time of the United States' paranoid and delusional Reefer Madness freakout of the 1930's, and this cultural dynamic continued in the West from swing kid, to beatnik, to hippie, to metal-head, to b-boy, to gangster, to raver, and finally to legality and the mainstream. *Cannabis* use saw ironic exponential

growth globally during the Drug Wars as misguided drug warriors mindlessly focused on pot.

“Alcohol and marijuana, if used in moderation, plus loud, usually low-class music, make stress and boredom infinitely more bearable.”

- Kurt Vonnegut



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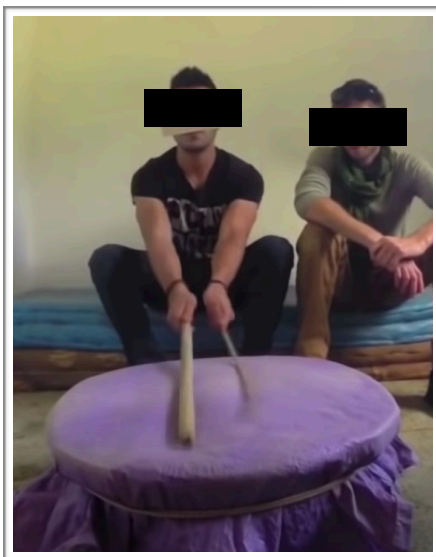
What is Hashish?

Although many new solvent-derived THC concentrates that have been developed in the last few decades are informally called “hash,” these products are *not* the same as traditional **hashish**. **Hashish** (Arabic), or **charas** (Hindi), as it is known in its true Central Asian homeland, is a mechanically produced *Cannabis* extract that uses no chemicals but air, water, and mesh screens to separate medicinal derivatives from unused plant material. Hashish is composed of microscopic waxy nodules found in flowering *Cannabis* that are filled with aromatic terpenes and psychoactive cannabinoid lipids. These nodules are the aforementioned trichomes, and they are found on the buds, small (sugar) leaves, and flower stems in plants during later growth stages. The trichomes are the only part of the *Cannabis* plant with measurable medicinal properties and pungent aromas; the rest of the *Cannabis* plant is less useful as medicine, and it can be unpleasant to ingest, especially if it is smoked.

In societies where *Cannabis* is legal for consumption, hashish makers go to great lengths to separate trichomes from the rest of the plant. The most traditional way to ‘make’ hashish is to rub one’s hands on fresh mature plants and then rub the resin collected into sappy balls. Obviously this is very inefficient, and there are few places in the world where this is a truly viable commercial production technique.

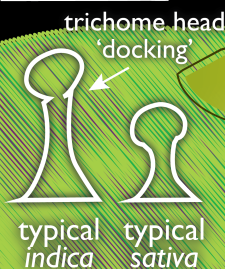
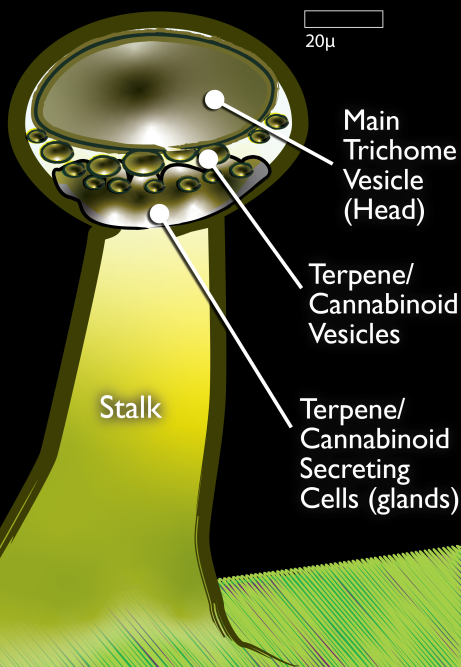
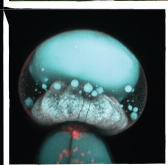
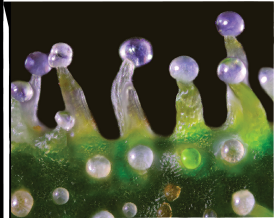
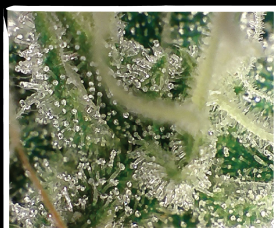
In traditional commercial hashish-producing countries, dry areas like India, Lebanon, Egypt, Morocco, Pakistan, and Afghanistan, dried flowers of domesticated *Cannabis* are transported in large quantities to production facilities.

Large, tightly-woven screens are stretched over wooden frames. The dried *Cannabis* flower is placed on top of the stretched screens, then covered with canvas. The canvas is then slapped strongly with light sticks, and the trichomes rain down through the screen. Several additional screens and shake-tables are used to further isolate the trichomes from un-



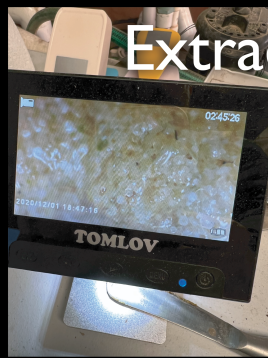
wanted plant material. Different grades of hashish emerge based on how much plant material can be separated.

High-quality hashish is virtually 100% trichomes. It has the consistency of soft caramel, almost rigid at room temperature, yet soft and malleable at body temperature. It will bend and break apart with fingers. It will not fall apart by itself. It will become workable by heating from a small heat source or warming to body temperature. Primo hashish will bubble when close to a flame. It will stick to fingers when hot, then fall off when it cools. When properly stored in the freezer, the microscopic, naturally waxy trichome heads (cuticles) that make up good hashish preserve the honey-like cannabinoid and terpene oil at their center for many years.



Capitate Trichome of Psychoactive Cannabis

Extracted Trichomes



What are Trichomes?

The trichome is where the active compounds of medicinal *Cannabis* are produced and stored. Trichomes of various types are found in about 1/3 of vascular plants, and they generally have glands that produce sticky, waxy saps full of bioactive chemicals. They are often used by plants in attracting or deterring insects and other animals that might help or hurt the plant. There are different types of trichomes in *Cannabis*. Those found on the flowers and adjacent leaves and stems of domesticated medicinal *Cannabis* (capitate trichomes) are more densely spaced, have larger heads, longer stalks with more tightly-docked heads, and higher concentrations of terpenes and cannabinoid lipids than their wild relatives. Trichomes and their stalks are composed of a sappy, waxy tissue that has different mechanical properties than the plant material they anchor on. When dried, and especially when frozen, trichome heads are readily shed, breaking away where docking reduces their contact area with the stalk. This property is the key to making hashish.

How do I make Hashish?

If you are detail-oriented and have good access to raw *Cannabis*, it is pretty easy to make very good hashish. In fact, it almost makes itself; you just have to help it along. Because *Cannabis* has been domesticated for several thousand years, artificial selection has produced traditional land-race '*indica*' strains with trichomes with all the characteristics necessary for good hashish. The main (capitate) trichomes are large, spherical, and consistent in size. Their stalks are long, their glands highly productive, and the resin they produce melts correctly. Domesticated trichomes ripen consistently and evenly; the terpenes start ripening just before the cannabinoids, giving the experienced farmer a very good olfactory sense of the right time to harvest. And the mystical old Central Asian land strains are well known for their characteristically pleasant and inundating psychoactive effects. The effects are more predictable and settled than some of the high-THC, heavily back-crossed '*sativa*' hybrids.

If you design a simple sifting (wet or dry) setup correctly and start with the right strains of *Cannabis* '*indica*', your hashish will be good. You can thank thousands of generations of Central Asian stoners.

This is not a step by step guide. If you partake of *Cannabis* you do not need a manual. You just have to get up there with **Jah** and think about it. Let ganja be your guide.

Here are a few of the main pointers:

1. **Trichome** - Understand the trichome. Use a microscope to study the material you are working with.
2. **Quality** - If you start with low quality you will end with low quality; If you start with gold you can make di-

amonds. The MOST IMPORTANT FACTOR in producing good hashish is high-quality, fully mature *Cannabis* with the right phenotype.

3. **Fresh Cannabis** - The closer to harvest, the more raw the flower, the better the hashish. Freezing raw, wet *Cannabis* is a good way to prepare it for water extraction. Dry extractions require very careful attention during curing to preserve trichomes. Never work with stale *Cannabis*; it cannot be resurrected.

4. **Cold** - At comfortable room temperature trichomes are sappy and stick to the plant material. Close to freezing the sap of trichomes becomes rigid and easily breaks away from the plant material.

5. **Wet** - Traditional hashish production methods use dried *Cannabis* and dry screens, but dry screening is not as effective at removing the trichomes from the plant and drying degrades terpenes. Also, trichomes start to shed from the moment the plant is cut, and *Cannabis* drops trichomes constantly while drying, so you lose yield by drying your *Cannabis* before making hashish from it. Use an ice water process if you can.

6. **Gentle** - Hash gurus around the world assault the *Cannabis* plant with sticks, vortices, mixers, scissors, grinders, graters, and anything else to get the trichomes to fall. The good ones **DON'T OVERWORK IT**. The more you pulverize the plant material, the more will be broken at the right size to get into your hashish screen.

7. **Screen** - The hole size (mesh opening size) of the screen is critical. Trichomes are generally 40-120 μ (μ =microns) in size (although they can vary). To make hashish you need to sift away the material that is bigger and smaller than this. In addition, different strains have different trichome sizes

(beginners should use a traditional 'indica'), so having many



screen sizes between 20µ and 160µ is essential. 220µ is

ideal for the top screen, often called the catch screen or catch bag. It will remove the plant materials but not trichomes. The most basic setup for making hashish is a bucket, ice, water, a stirring stick, and 4 nylon mesh screen bags: ~25µ, ~45-75µ, ~90-120µ, and ~220µ. Put the screen bags over/in the bucket, 25µ on the bottom, then 45µ, then 120µ, then 220µ on top. Put the *Cannabis* in the top 220µ mesh bag (which is nested in the other mesh bags). Put ice over the *Cannabis* and add water until the bucket is mostly full. Stir the bucket for about 20-30 minutes, then remove the screens, one at a time, and scrape the wet hashish off of the screens. Dry the hashish.

8. **Dry Hashish** - Once finished with washing off the trichomes, you must dry hashish carefully by cutting it into small bits or, preferably, by freeze drying it. USE A FREEZE DRYER IF YOU CAN. It makes a huge difference in quality.

9. **Creativity** - There are thousands of directions to go from this basic setup. Use the *Cannabis* for ideas and create the ultimate hashish-making kitchen!

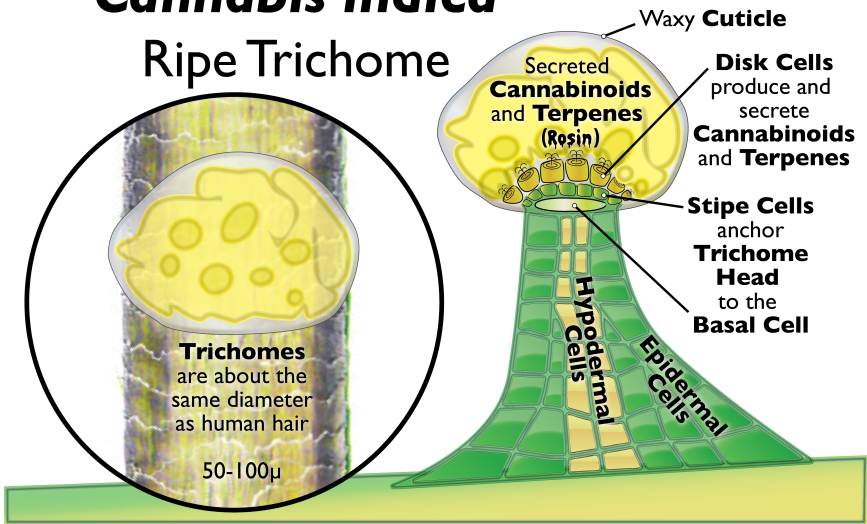
Finally... you don't really have to re-invent the wheel. Bubble Magic 20 gallon hash washing machines make EXCELLENT hashish.

What is Rosin?

Common industrial solvents like butane, CO₂, ethanol, ether, hexane, propane, and vegetable oils can all be used to dissolve and extract cannabinoids and terpenes from plant material, and solvent-based extracts exploded into

Cannabis indica

Ripe Trichome



the market almost immediately after California legalized medical *Cannabis* in 1996. Their popularity has not waned; they are capable producing concentrates with extremely

high percentages of THC very efficiently. But there are many problems with solvents. They are bad for nature; solvent production generates industrial chemical waste, as does their use. They strip away wonderful terpenes. Although legal *Cannabis* regulation has been effective in forcing the use of food-grade solvents in extraction processes, the use of much cheaper industrial-grade solvents is common in the rampant gray-market. Industrial grade chemicals often have significant traces of other chemicals inherent to the production process, most of which don't belong anywhere near a living human. Still, solvent-based extraction processes are capable of producing very high concentrations of THC (85-95%) cheaper than other methods, so they will continue to be used.

Mechanical (solventless) extraction processes have also evolved, fortunately, and we know much more about what is happening in the trichome on a microscopic level. THCa and terpenes are found in extremely high concentrations inside the waxy cuticle of the trichome, and the oily substrate can be squeezed through microscopic meshes to remove the waxy cuticle. The result is a cannabinoid and terpene rich oily-sap called rosin. Phil "Soilgrown" Salazar first developed rosin in 2015 in California using hair-straightening irons to squeeze the sap out of trichomes.

Vaporization of highly concentrated extracts is generally considered healthier than smoking, and, although more expensive, rosins and live resins are generally preferred to solvent-based extracts.

Decarboxylation

Decarboxylation (called ‘decarbing’) is a crucial part of *Cannabis* consumption, even if the consumer isn’t always aware of it. In *C. sativa* there are many naturally occurring cannabinoids, but psychoactive Δ^9 -THC is not one of them. Instead, we find THCA, which is not psychoactive and requires decarboxylation, usually by heating, to be converted into something that is.

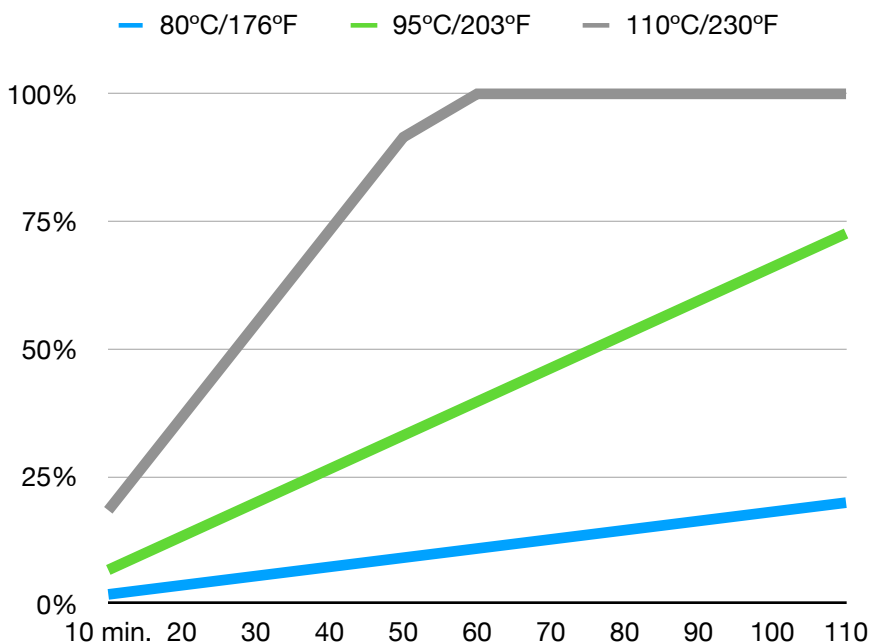
Thankfully, the good news is that we don't need to dwell on this too much. Both combustion and cooking effectively convert THCA into Δ^9 -THC. However, here's the catch: most stoners are unaware of this process, leading to pretty significant inefficiency. And this inefficiency leads to over-consumption. Best not let that happen!

Over time, THCA will decarboxylate to Δ^9 -THC only by exposure to light, but the same light will also oxidize the Δ^9 -THC into cannabinol (CBN) unless conditions are anaerobic. Heat is the best and quickest method, as both oxygen and light are the known archenemies of well-cured weed.

Decarboxylation will take hours and hours at about 175°F/80°C, about 20 minutes at 230°F/110°C, and much faster as we go higher. When we burn *Cannabis* flower, the high heat does an excellent job of turning THCA into Δ^9 -THC through decarboxylation. The flame also vaporizes (boils) the Δ^9 -THC, and it is thus inhaled with smoke.

However, when it comes to cooking with *Cannabis*, things can get a bit more complicated. The temperatures typically used for baking are high enough to vaporize Δ^9 -THC and send it right out the oven vent, as it has a boiling point of 314°F/157°C. But don’t worry too much, stoner

friends, because our cultural traditions have already come to the rescue with *Cannabis*-infused brownies. These delicious treats are tailor made for *Cannabis* consumption because they are baked at a lower temperature than the boiling point of Δ^9 -THC . This lower heat allows the desirable Δ^9 -THC to remain intact, and brownies became a traditionally popular choice among *Cannabis* enthusiasts without much understanding of why.



Linear model of %THCA > Δ^9 -THC conversion. THIS IS A ROUGH PROXY! The relationship is not actually linear. See Wang, et al.; Cannabis and Cannabinoid Research 2016

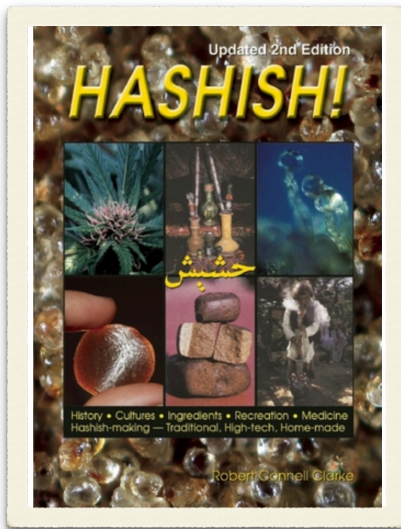
Now, let's travel back in time to the traditions of Old World hashish cultures. These deeply-rooted cultures have techniques for enhancing decarboxylation. One such tradition involves meticulous hand kneading and pressing of

hashish for an extended period before it is consumed. This process breaks open the tiny trichomes, releasing **rosin**, which is then evenly mixed into the hashish. As a result, the THCA in the hashish comes into direct contact with the heat source, facilitating effective decarboxylation into Δ^9 -THC. It's truly fascinating to see how different cultures and methods have found ways to optimize the transformation of *Cannabis* compounds for enhanced experiences, and by understanding the science behind the traditions we can design new ones.

Pre-decarboxylated hashish works better than raw hashish. It does not need to be vaporized at such a high temperature. Decarboxylated hashish can be eaten without any further preparation, and decarboxylated rosin can be easily boiled into an active vapor with a heat source. Vape pen rosin is all decarboxylated.

Professional hashish manufactures almost invariably use a slow decarboxylation process, sometimes heating for days at temperatures as low as 120°F/49°C. Like everything else with *Cannabis*, fortunately, decarboxylation is easy to do at home. You can do it in an oven (even a microwave) but you have to be careful not to overheat. Also, be aware that **some terpenes vaporize at lower temperatures than others**, so ovens always change taste. The best solution is a cheap kitchen decarboxylator for herbal extracts, which is easy to find in cooking stores and online.

Going Deeper



Hashish!
-Robert Connell
Clarke

Hashish! by Robert Connell Clarke (Mel Frank editor) is the best single tome about hashish we know. We highly recommend this book.

“I like your ‘Cannabis and Hashish’ booklet. We have finally reached a level where sinsemilla flowers can affordably be used for making hashish. Along with newly evolving ‘rosin’ and other mechanical concentration techniques both quality and accessibility have risen. These are troubling times for the *Cannabis* industry, but there are some silver linings.”

-Robert Clarke, 2023, after reading this booklet

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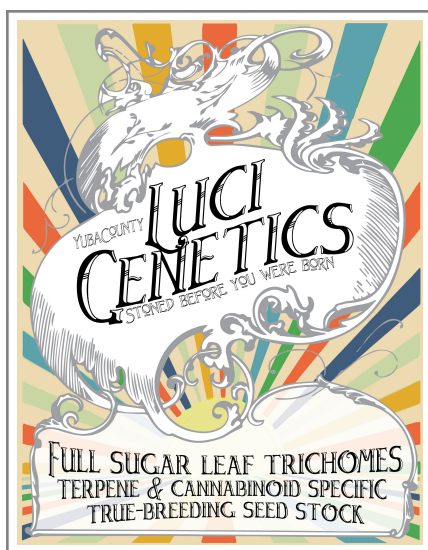
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**LUCI
HASH
CO.**



Afrocentrism - Science - Devotion to the Most High



“Until the philosophy which holds one race superior and another inferior is finally and permanently discredited and abandoned, And until there are no longer first-class and second-class citizens of any nation, until the colour of a man's skin is of no more significance than the colour of his eyes. And until the basic human rights are equally guaranteed to all without regard to race, there is war. And until that day, the dream of lasting peace, world citizenship, rule of international morality, will remain but a fleeting illusion to be pursued, but never attained... now everywhere is war.”

“I must say that black and white, as forms of speech, and as a means of judging mankind, should be eliminated from human society. Human beings are precisely the same whatever color, race, creed or national origin they may be.”

-His Imperial Majesty Oedamawi Haile Selassie

Dedicated are the people of the spiritual community of Shashamane, where all humanity can be one, dedicated to righteousness, dedicated to reality, to justice, to Jah.

Marcus Garvey identified Ethiopia as Eden for Africans, and science has shown that we are all African.

Ethiopia centers the humanity Africa gave birth to, and a unified humanity so unifies within the citadel of Zion. Only the humble will see; wisdom herb reveals.