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THE LOST ART OF THE HASHISHIN

The Workshop: Part 6

Pressing - Packaging - Aging

We have covered the trichomes, the cannabinoids, and terpenes, traditional dry sieving techniques, the evolutionary advantages of using water and different drying methodologies.

We will now focus on pressing and the science behind traditional pressing methods, since, from a process perspective, pressing is a demanding procedure that everybody in their right mind would avoid at any cost if it were not absolutely necessary to the final quality of the resin.

Words by Frenchy Cannoli

There is much more to pressing resin glands than mere transportation and storage convenience or product marketing. It is a complex operation that profoundly changes the very nature of the resin glands, their psychoactive and medicinal properties; an art form with tens of thousands of years of evolution behind it.

The numerous personal experiences I have had with pressed resin over the course of my travels in producing countries has led me to believe that the transformation of loose resin glands into a resinous form brings out the fragrance of the flowers when breaking the membranes surrounding the resin heads and apparently "locks" the aroma and flavors into the resinous body of the hashish. The terpenes appear to "bound," for a better term, in the mass with the cannabinoids during the pressing process and are a key factor in the transformation of the resin over time. The resinous mass is "corrosive," meaning that it will gradually absorb the resin gland's membranes and most microscopic vegetal matter within the first few weeks after being pressed, resulting in a cleaner Hashish with a richer, more complex nose and a higher quality melt that will intensify through time.

Jean-Jaques Filippi, Marie Marchini, Céline Charvoz, Laurence Dujourdy and Nicolas Baldovini in their research paper Multidimensional analysis of cannabis volatile constituents: Identification of 5,5-dimethyl-1-vinylbicyclo[2.1.1] hexane as a volatile marker of hashish, the resin of Cannabis sativa L. determined that traditional hashish production creates over fifty rare monoterpenes that do not exist in the live cannabis plant, but their precursors are secondary metabolites compounds produced by the plant. "Most of the major terpenes present in fresh cannabis herb undergo various transformations during hashish manufacture, including isomerization, dehydration, cyclization, and more specifically, photo-oxidation." Certainly, the drying and curing processes are the major elements in the transformation; however, traditional pressing is undoubtedly another factor in the creation of these rare monoterpenes.

From Afghanistan to Morocco, local Hashish smokers actively press resin glands before smoking: the various pressing techniques applied around the world are all focused on enhancing potency as much as aroma and flavor; a source of heat is always applied to melt the resin heads into a mass.

I understood the basic principle of using low and high temperature to control the main characteristics of cannabis resin - its stickiness. It is as imperative to work in cold conditions to detach and separate the trichomes heads from the plant material as it is to use heat to press the loose resin heads into a mass of resin, and not only to facilitate the pressing process, as I had believed.

All cannabinoids are synthesized in the plant with a carboxylic acid group attached, symbolized by the letter "A" ending in all cannabinoid acronyms (THCA, CBDA, etc.). This carboxylic acid group inhibits the psychoactive properties of the cannabinoids; however, it can detach naturally from the cannabinoid compounds as CO gas when heat is applied. The process is known as decarboxylation, and the higher the temperature, the faster the response. Drying and curing cannabis plants in appropriate conditions will only create a minimal loss of the carboxylic acid.

The more heat applied, the faster the decarboxylation process occurs, within reasonable ranges.

There is another mechanism at play, however, which implies the need to control the decarboxylation temperature carefully. When we heat cannabis resin to convert the THCA and CBDA into THC and CBD respectively, we can also convert THC into CBN and CBD into CBND. At about 70% decarboxylation, we start converting THC into CBN at a faster rate than we are converting THCA into THC, beyond the 70% decarboxylation, the levels of THC actually begin to fall sharply while the CBN begins to rise and the medication is becoming more sedative. Need source footnote.

The decarboxylation process of Cannabis resin mostly used for edibles, tinctures and capsules in the U.S. can be applied to hashish, the temperatures generally range from 180° to 240°F (82.2°C to 115.5°C) for 30 minutes to an hour.

The temperature being such an important factor of quality, I wanted a pressing tool with some type of heating technology that would mimic traditional hand-pressing. I settled on simplicity by using boiling water in a transparent glass container to harness a source of heat in the 180°F to 210°F range that would give me an adequate control of the decarboxylation process while mirroring as closely as possible the traditional hand-pressing technique.

Pressing Frenchy Style

Room Requirements: similar to the drying room with a stable humidity level of 35%, a temperature of 55°F, air ventilation, shelving.

Note: A HEPA air purifier is recommended for the washing, drying, and packaging rooms.

Tools:

Solid wooden table, an electric teakettle, a transparent wine bottle with all labeling removed, 2 insulated potholders, oven bags (sometimes referred to as turkey bags. We use www.buddybagsco.com brand as they are made from food-grade nylon specifically for our industry.), and nitrile exam gloves.

Cut a turkey bag in four equal pieces.

Place the room-dried loose trichomes or a freeze-dried resin patty in the turkey bag and constrain the pressing to a limited area by loosely folding the bag like an envelope if you are working with loose resin.

Apply the bottle to the turkey bag with the resin inside. High-quality resin will start melting as soon as the bottle makes contact; slowly stretch out the resin like you would a piecrust by rolling the bottle over the surface of the bag. The amount of pressure necessary is also a good indicator of quality; the less pressure required, the higher the quality.

Flip the bag over to change sides and continue to spread the resin like a pie-crust but slightly wider.

Flip the bag again and press the resin still wider.

After a few pressings on each side, the resin will fuse partially into a mass showing the lighter sandy texture of un-pressed resin heads in its melted body, and often different shades of color will be apparent, from light to darker amber, especially when multiple washes are mixed together.

After half a dozen more pressings, the resin will be like a pancake still showing some sandiness but with a more homogenous coloration and texture.

Wait a few minutes to let the resin cool down. It will be easier to snap the turkey bag off the resin. Fold the resin back onto itself multiple times to create a small, flat, square surface and place it back in the turkey bag.

Press again with a bottle of newly-boiled water.

The pressing process lasts 7-to-10 minutes and is repeated three times so that approximately 20-to-30 minutes of optimal decarboxylation is completed. The color will be uniform, and no sandiness should be apparent after the final pressing.

Rolling the resin into a compact ball between the palms of my gloved hands until I have a perfectly smooth surface is the last step of the pressing; it is an amazing resin preservation technique from Nepal, traditionally done with Charas that I tailored to my needs. I let my "Temple Ball" rest on a drying rack for a few hours before storing. The mass of resin goes through a "chemical reaction stage" after pressing, a final transformation that needs time to "settle down" to a less-active aging stage.

Finally, I wrap the temple ball in natural cellophane (not polypropylene) to avoid oxygen degradation, I store the wrapped temple ball in a glass container that is kept in the dark and cool place low (60°F, 15°C - 17°C) for aging.

Cannabinoid stability is influenced by light, temperature, humidity, and oxygen availability; the choice of container and aging environment is crucial.

0.6% mark where there is not enough humidity to support microbial life.

The Moisture Analyzer works on the Loss on Drying principle (LOD). The moisture analyzer is made of a balance and a heating element. The weight of the sample is recorded, heat is applied, which dries the sample while the scale continually records the weight of the sample. When the sample is no longer losing weight, the moisture content is calculated. The total loss in weight represents the moisture content.

Most connoisseurs would agree that the aging process helps mellow the smoke and improves the flavors of hashish, but there is no scientific data available on the subject. However, there are plenty of first-hand reports about quality Hashish as old as 12 years, 3-to-5 years being typical. Like tobacco, wine, hard liquor or cheese whose essences are enhanced by their different aging process, hashish aged to perfection has no rival in quality. However, the road to greatness is unpredictable, beyond the craftsman's ability, aging creates the greatest wine, but even a Bordeaux can turn to vinegar.

The aging potential to transform hashish to a higher quality of resin and the added value it implies is too vast to define at the moment. We are at a point in history like the wine industry in the late eighteen-hundreds, good wines were made, but the knowledge of the fermentation process was still unknown to aid in mastering the process and create the great wines we enjoy today. While being a world apart from fermentation, the chemical reaction generated by pressing the loose trichomes heads with a source of heat into a mass which holds in its body the cellular matrix that created the resin, the cannabinoids, terpenes, and other organic matter, has a similar power of transformation, nonetheless. The natural corrosiveness of the terpenes has to be central to the process by dissolving and absorbing the membrane material, lipids and other compounds of the trichome heads into the resin mass.

A perfect drying process is mandatory to avoid the two main problems you will face when aging hashish.

Mold:

Mold will form if enough moisture is present on the trichomes heads before pressing. The problem is that a level of humidity of 0.6% is enough to start an outbreak. It is recommended to initially control the accuracy of your drying by testing the level of humidity of your resin with a moisture analyzer, whether it is air-dried or freeze-dried, until it is confirmed below the

However, it is necessary to take further steps to protect an aging temple ball from potential mold. While the resin may have been perfectly dried when pressed in a temperature controlled and dry room, a contaminated room or container, and favorable conditions will be enough to trigger an outbreak. Furthermore, hydrophilic terpenes are known to increase the chance of water entering the resin mass if it has been improperly stored.

I had a great deal experience dealing with mold in India bringing charas (hand-rolled live resin) from the feet of the Himalayas to Southern India. Mold is a fungus which develops under warm and moist conditions. It is a natural part of our environment. Mold reproduces by spreading spores that float in the air, when the temperature, moisture, and nutrient conditions are favorable, the spores form a colony on the surface where they landed. While I have hardly ever seen mold forming inside a mass of charas, and then mainly in charas that contained a large percentage of plant matter, mold forming on the outside was a yearly challenge. Mold feeds on dead or dying organic matter, which is always present in charas and hashish, the amount of organic matter collected within the resin is actually the primary defining factor of quality. The cultivars found in the Himalayas possibly contain high levels of hydrophilic terpenes. Cannabis resin is naturally a sticky surface where mold spores could collect in large numbers easily, waiting for the appropriate conditions. We had to clean the charas carefully, finger-by-finger, in a room with a charcoal heater burning to lower the humidity level before wrapping the resin in cellophane paper to protect it from oxygen degradation and any formation of mold which would need oxygen.

Note: Always use a natural fiber cellophane paper to wrap pressed resin for aging, proper storage is essential to the stability of the hashish.
Note: Storage container – Child-proof lids are not necessarily air-proof!

Nucleation:

Nucleation is when homogenized particles within the resin, contaminants, lipids, and cannabinoids begin to separate, it can be triggered by changes in temperature, humidity, hydrophilic terpenes, dense, waxy membranes of trichomes heads with higher lipid content, excessive agitation, and overexposure to oxygen over a period of time. During the nucleation process, the terpenes are pushed outward and are as such exposed to air, causing an inevitable loss which explains the apparent higher intensity of the smell of nucleated resin. The composition of the resin changes from a sticky texture hard to manipulate to a waxy and oily crumbly consistency. Once nucleation has taken place, the resin will not age properly anymore, it is recommended to keep it refrigerated.

I had never experienced cannabis nucleation in resin in all the years I traveled, whether at the feet of the Himalayas with live resin or in hashish producing countries with dried and cured resin which had me wondering about the cause behind the transformation. The stability of the resin was never affected at the feet of the Himalayas while the changes in temperatures and the high level of humidity were well above the parameters I work within in California, and that was without any packaging to protect the resin most of the time. My Afghan friends in New Delhi were working with the typical dense and waxy membranes of Kush Mountain genetics with high levels of ambient humidity, pressing in full sun with a small fire at their side to warm the resin patties they were hand-pressing. Nucleation never occurred in their pressed resin patties.

The only significant difference in basic farming practices I can see that could alter to such a level the stability of the resin is the regular, intense, and diverse foliage spraying done in the Western World.

The reintroduction of the smallest amount of humidity can nucleate resin in California, leaving dry trims or flowers in a plastic bag in the trunk of a car on a hot day for too long is enough to trigger the transformation. From personal experience, I have found that if the nucleation has taken place before you wash the material, a white spot will appear in the center of the patty during pressing, it will have a sticky and melty appearance while pressing, but the texture will be waxy and crumble when pressed further into a temple ball.

Note: Never rehydrate the dry flower or trim to maintain the stability of the resin.

The trichome heads have to be dried to perfection to ensure the stability of the pressed resin, and while pressing can be considered an agitation process, it is gentle and progressive and should not be a triggering factor. However, the optimal decarboxylation process range between 180°F to 210°F (82°C and 99°C), which is undoubtedly one of the main triggering factors of nucleation. The level of decarboxylation is also defined by the length of time the heat is applied, working at a lower temperature for longer periods solves the problem, and so the bottle technique has to be mechanized in order to control the temperature and pressing time optimally.

Live resin and high-terpene content resin have a tendency to nucleate easily. Furthermore, certain cultivars produce a resin that always nucleates regardless, while others will rarely change texture even though the working procedures and conditions are identical.

While the methodology of pressing loose trichomes heads into a mass of resin with a source of heat goes back tens of thousands of years and is practiced in all producing countries, we are not yet able to comprehend the potential of the process and all its ramifications.

This is the last article dedicated to my Ice Water Sieving methodology, I would like to dedicate these articles to all the Hashishins who gave me so much during my travels with the desire to give back to you the knowledge I have gained since.

DIY videos of the workshop are available online at www.youtube.com/c/frenchycannoli.

#fortheloveoftheplant

References

1 In chemistry isomerization (also isomerization) is the process by which one molecule is transformed into another molecule which has exactly the same atoms, but the atoms have a different arrangement e.g. A-B-C → B-A-C (these related molecules are known as isomers. Wikipedia

2 Drying process

3 Radical cyclization reactions are organic chemical transformations that yield cyclic products through radical intermediates. They usually proceed in three basic steps: selective radical generation, radical cyclization, and conversion of the cyclized radical to product. Wikipedia

4 Photo-oxidation is the degradation of a polymer surface in the presence of oxygen or ozone. The effect is facilitated by radiant energy such as UV or artificial light. This process is the most significant factor in weathering of polymers. Wikipedia

5 www.ncbi.nlm.nih.gov/pubmed/25454145

6 A carboxylic acid is an organic compound that contains a carboxyl group. The general formula of a carboxylic acid is R–COOH, with R referring to the rest of the molecule. Carboxylic acids occur widely and include the amino acids and acetic acid. Wikipedia

7 A hydrophilic molecule or substance is attracted to water. Water is a polar molecule that acts as a solvent, dissolving other polar and hydrophilic substances (https://biologydictionary.net/hydrophilic/)

Frenchy Cannoli is a consultant, educator, and writer in the Cannabis industry with special focus on hash making using traditional methods. Frenchy can be reached through his website at: www.frenchycannoli.com or seen on Instagram @frenchycannoli