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RESIN
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PRESSING

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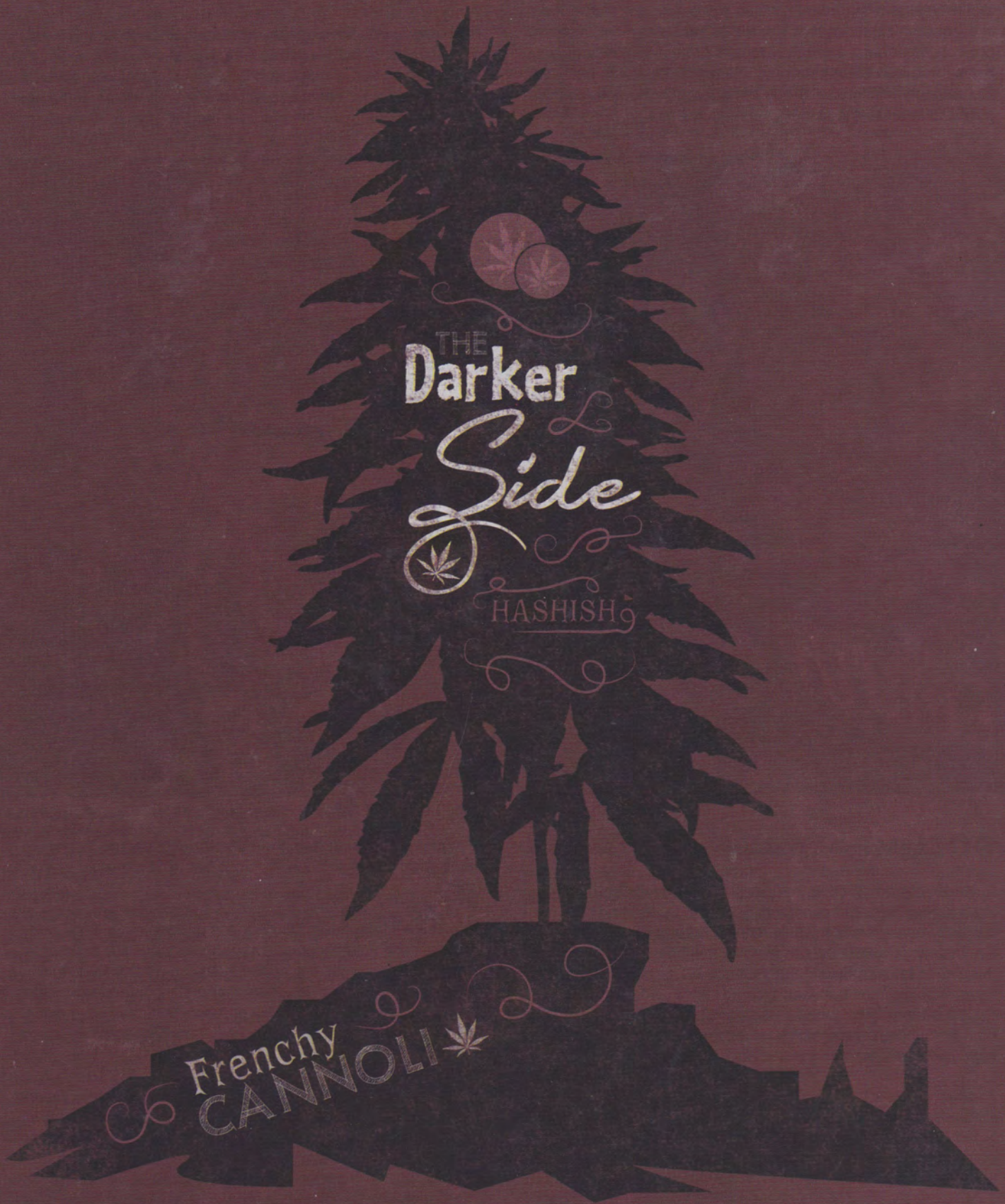


Why Press Your Resin?

When I decided to approach the legal side of Cannabis as a California registered patient a few years back, my first step was to educate myself on the legality of my decision before anything. I also wanted to know the history of the movement that gave me such an amazing gift as an expression of my reconnaissance and respect, but most importantly I was looking for the science, if any, behind everything I had experienced with local Hashishins while travelling in producing countries.

I had one question above all, a question that I had been asking myself for a very long time:

Why does everyone in Hashish producing countries press his resin before smoking?

I have had a callus in the palm of my left hand due to hand-pressing resin since my late teen years and the best answer I ever received when asking for the reason behind was that pressing resin makes good Hashish; I couldn't have agreed more with the result however I couldn't help but wonder why this was the case.

The best quality Hashish available in producing countries in the late 70s and 80s had been hand-pressed Hashish; only the best resin can be worked solely by hand; the Royal Temple Balls from Nepal, the Charas from India, the patties from Afghanistan or the creamy Double Zero from Morocco are prime examples of such quality. The craftsmanship and amount of work involved in creating the perfect mass of resin by hand has to be seen and experienced to grasp the depth of dedication it involves.

The answer to my question is decarboxylation, which is a seemingly simple process in which a molecule of carbon dioxide (CO_2) is removed[1] so that cannabinoid compounds can readily pass the blood barrier.

The procedure nonetheless requires precision and is a deciding factor of the final psycho activity of the cannabinoids and of its overall quality according to Brian Smith, Founder and Managing Director of Empathy Foundation of America.

"Decarboxylation occurs naturally with time and temperature, as a function of drying, but we can shorten the amount of time required considerably, by adding more heat.

The more heat, the faster it occurs, within reasonable ranges.

There is another mechanism at play however, which suggests that we need to control the decarboxylation temperatures carefully. When we heat cannabis to convert the THCA and CBDA into THC and CBD, we are also converting THC to CBN at a faster rate. At about 70% decarboxylation, we actually start converting THC to CBN at a faster rate than we are converting THCA to THC, after about 70% decarboxylation, the levels of THC actually start to fall sharply. That of course means that the CBN also begins to rise and the medication is becoming more sedative."[2]

I will have to be truthful here, I had not realized until reading the above quote that heat was such a vital element of the pressing process despite having used a source of heat, from sun to live coals, for over 30 years.

Pressing with a source of heat and in a hot environment had simply been a basic mandatory necessity in my eyes; I had never given much thought to the temperature I was applying while pressing, I needed heat to make the resin malleable and it was much easier to work into a mass in my hand and that was about it.

I had been nonetheless aware that the stronger the source of heat and the greater the amount of pressure necessary for the pressing procedure, the lower the resin quality; while instinctively working at lower temperatures for longer periods I had no understanding of the complexity of the decarboxylation process.

Press 2 Activate

Looking at the traditional pressing methods I learned and considering past experiences with such knowledge has given me an even deeper appreciation for the intuitive relationship that exists between traditional techniques, the plant and the resin.

The knowledge that an excessive decarboxylation is the main reason behind the heaviness of certain Hashish made me also aware of the reason behind the difference of quality and psychoactive effects I had experienced in the producing countries I visited, it wasn't all about terroir[3] and genetic.

The decarboxylation process of Cannabis resin is solely applied when intended for edibles, tinctures and capsules in the U.S., the temperatures applied generally range from 180° to 240°F (82.2°C to 115.5°C) for 30 minutes to an hour.[4]

However, when smoking, cannabinoid's compounds do need to lose their CO_2 molecules as well in order to pass the lungs' blood barrier.

I needed to eliminate as high a percentage of CO_2 molecules as I could without transforming THC into CBN while taking into account that the decarboxylation process also "occurs spontaneously when the material is burned or vaporized"[5]. However since the more heat applied, the faster the process and the higher the ratio of CBN, the previously mentioned reasonable range of optimum transformation[6] is a vital element to quality and to the final experience.

With temperature being such an important factor of quality, I wanted a pressing tool with some type of heating technology - I settled on simplicity by using boiling water in a transparent glass container[7] to harness a source of heat in the 220°F range that would give me an adequate control of the decarboxylation process while mirroring as closely as possible a traditional hand-pressing technique.

Pressing with a source of heat does degrade the THC, as the resulting darker color of the pressed resin indicate, but when the procedure is done properly the average amount of CBN is a quarter of a percent for a total average of cannabinoids ranging from 60 to 70%.

I am looking for a decarboxylation level of approximately 40 to 50% to minimize the degradation of the THC into CBN, the rest of the transformation will happen during combustion and logically, if at about 70% decarboxylation we are converting THC into CBN at a faster rate than we are converting THCA to THC, the least transformation happening during combustion above that level, the lower the level of last minute unavoidable degradation. Meanwhile we are always looking for a maximal decarboxylation.

Let's do the math. We have first to take into account that the boiling points of cannabinoids span between 314.6°F (157°C) for THC to 428°F (220°C) for THCV[8] and that "a maximum conversion of THCA into THC has been reported to occur by heating for 15 minutes, at 300°F (149°C) resulting in a 70% conversion rate[9] - the window of excellence is small.

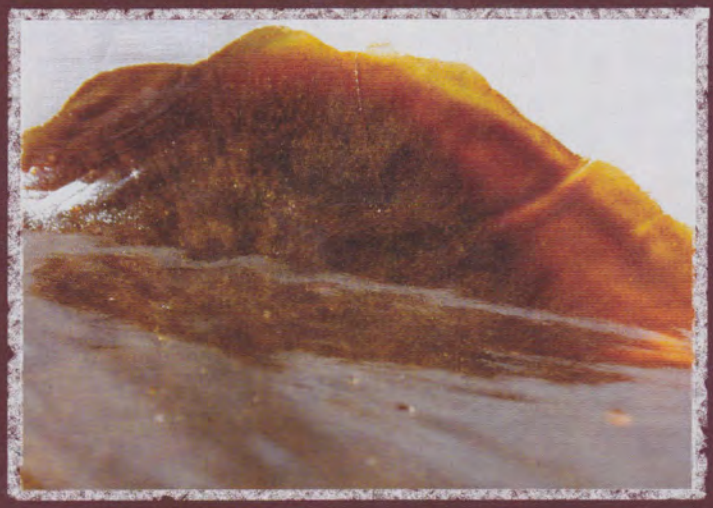
We have then to consider that most titanium e-nail are used at temperature ranging between 650°F to 800°F (343.3°C to 426.6°C) while ceramic and quartz bowl hold temperature in the high 500°F (260°F) and over. The degradation of THC in a joint is also quite important at temperature as high as 1652°F (900°C), "an average joint as a mass of 1000mg (1g) with a THC concentration of 15%, meaning there are 150mg of THC in this joint. The fact that 70% of THC is destroyed by combustion, means that only 45mg of THC would remain to reach the patient's lungs.[10]"

Which bring us to a very important question:

How much decarboxylation is actually possible at temperature over 400°F (204.4°C) when "degradation of THC into CBN start at 320°F (160°C) and become significant at 356°F (180°C)"[11]?

There has been no research done on maximizing the decarboxylation process for smoking concentrate as far as I know but science seems to indicate that a last minute decarboxylation at such a high temperature has to be far from optimum at best and that a slow approach to such a delicate operation would be the most effective way to an optimal activation of the cannabinoids.

The intuitive knowledge that is at the core of traditional Hashishin methodology comes from a time when humanity was deeply connected with the plant kingdom and the land, a relation most certainly beyond our modern conception of reality, the source nonetheless of our survival and evolution.



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2. http://empathyfoundationofamerica.nationbuilder.com/decarboxylation

3. The combination of factors including soil, climate, and sunlight that gives wine grapes their distinctive character http://www.merriam-webster.com/dictionary/terroir

4. http://www.marijuanagrowers hq.com/decarboxylating-cannabis-turning-thca-into-thc/

5. http://empathyfoundation ofamerica.nationbuilder.com/decarboxylation

6. Optimum decarboxylation temperature range from 180°F to 220°F

7. Transparent wine bottle

8. By Brian Smith Founder and Managing Director of Empathy Foundation of America.

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11. Controlled cannabis decarboxylation US 20120046352 A1 http://www.google.com/patents/US20120046352

Resin pictured is from Aficionado Estates. Photography by Frenchy.