



DECARB MYTHS DEBUNKED

The Definitive Guide to Cannabis Decarboxylation

Introduction

Decarboxylation is such an important yet misunderstood aspect of cannabis consumption. Decades of prohibition have allowed incomplete, inaccurate, or just plain wrong information to proliferate, not only to the detriment of patients, but to the cannabis movement as a whole.

To shed light on this topic and combat farce with data, we've compiled this guide, just the tip of our research, to address the most common decarboxylation myths.

This undertaking was personal for us, and all about the patients. How can we expand access and acceptance of cannabis for health and wellness when the basics are shrouded in mystery and urban legend? So we decided no more myths - just facts. And a guide to using cannabis better and more effectively.

Love,



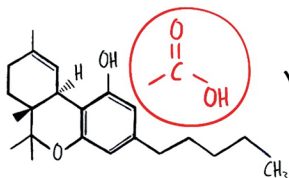
ardent

what is decarboxylation?

Natural cannabinoids in the cannabis plant are acidic. In order to bind with our body's receptors and have the desired therapeutic effect, they need to be decarboxylated; which means the acidic molecule must be removed or "decarbed" for short.

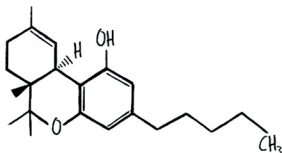
THCA

Can't bind to CB receptors



THC

Bioavailable and ready to bind
with CB receptors



Decarb is a function of time, temp, and atmosphere. But it isn't as simple as sticking bud into an oven, toaster, crockpot, or even lighting it on fire. Fully activating without destroying valuable cannabinoids is a scientific and precise process. Done correctly, patients get so much more out of cannabis and have infinite ways to use it. This is exactly why we developed a decarboxylator that encapsulates all of the science and transforms a complicated process to one that is easy, discreet, and reliable.

We realized pretty quickly though, that many years of misinformation still left a lot of patients confused about decarboxylation and the right way to approach cannabis in general. So we've compiled answers to some of the top questions we've encountered, to shed light on these processes and make those parts simple too.

Myth #1

Fresh and cured bud needs to be treated differently when it comes to decarboxylation.



This myth takes a few different forms. Most commonly it comes as "fresh and cured bud decarb at different rates" or "fresh bud won't decarb - you have to remove the moisture" and sometimes it's really crazy like "drying and curing the bud decarbs it so why do I need to do anything after that"?

All of these are myths.

Fresh bud can be decarbed easily in the right conditions, in fact it's a good way to preserve more terpenes in the final product (think about the smell of fresh vs. dried flowers). Decarbing fresh bud takes the same amount of time to decarb as cured bud in a controlled setting. And (most importantly!) properly cured bud has not been decarboxylated as a function of the drying and curing process.



Dried and cured cannabis flower

Strain 1	Active THC 0%	Inactive THCA 18%
Strain 2	Active THC 1%	Inactive THCA 20%
Strain 3	Active THC 0%	Inactive THCA 21%
Strain 4	Active THC 1%	Inactive THCA 15%
Strain 5	Active THC 1%	Inactive THCA 17%

In these examples above of dried and cured cannabis flower, notice that proper curing never leads to significant decarb.

No more more than 1% THC observed, average range of 0-6% of total available THC decarboxylated.

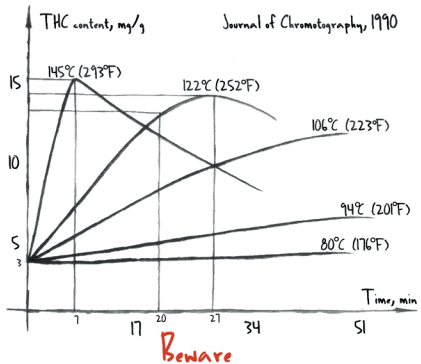
Only when cannabis has been improperly stored and exposed to excessive light and heat is slightly more decarb and/or degradation observed, and even in those extreme circumstances the decarb is nowhere near complete.

Fact: All bud, fresh and cured, needs to be decarbed in order to be active and bioavailable. Decarbing fresh and cured bud involves the same process.

Myth #2

It's impossible to get more than 70% decarb before you start to destroy THC.

This myth comes from one of the most widely promoted and most inaccurate decarb fables and it stems from this often referenced yet largely inapplicable graph.



For many years the inhabitants of the internet have treated this graph as gospel. A quick review, though, shows why it's not a reliable source.

First, it's the decarb of a hexane extract in an open container on a hot plate. And yes, with this material in these circumstances you can't get full decarb without destroying THC.

Fact: We can do better than relying on an inapplicable graph from the early 90's. And we know it's possible to get full Decarb without degradation. Read on.

Myth #3

It's easy to decarboxylate just using what's in your kitchen.

It's hard out there for patients. When they want to start using cannabis they encounter wildly different opinions on the best way to decarb and long and detailed instructions on how to get it right. Any of these sound familiar?

- Crockpot for 3 hours. Wait, or is it crockpot for 12 hours?
- Tied down pressure cooker
- Monitoring ovens with laser thermometers

Really how can a patient not be overwhelmed? In the end, not one of these methods allows patients to reliably get the most of their cannabis, and it's important to understand why.

Crock Pot AKA Water Bath Method

One of the most popular methods, the idea behind using the crock pot/ water bath method is that water boils at a constant temperature (212F) and therefore provides better control than the fluctuations of the oven. Unfortunately, the temperature of boiling water will just never be hot enough to achieve efficient and full decarb.

Decarb at this temp progresses slowly, and because decarboxylation is not a linear process (meaning that converting the tail end of the THCA takes longer) we begin to see degradation due to the excessive amount of time exposed to heat.





Raw plant before decarb

THC - 1% THCA - 19%

Maximum
THC 18%

Oven decarb 240F for 40 min

THC - 12% THCA - 0%

Maximum
THC 12%

33% loss

Oven Decarb

Ovens aren't designed for lab grade precision heating, and within an oven cavity temperatures fluctuate an average of 10 degrees in either direction.

For a process as sensitive as decarboxylation, these variations lead to either burning off cannabinoids or failing to fully activate. In either case it's a waste of valuable money and medicine.



Toaster Oven Decarb

Similar to the oven, the toaster oven's lack of tight temperature control coupled with the operation and location of heating elements can easily damage bud or under-decarb, making it impossible to get reliable results.

Raw plant before decarb

THC - 1% THCA - 19%

Maximum
THC 18%

Toaster oven decarb 220F for 40 min

THC - 15% THCA - 0%

Maximum
THC 15%

16% loss

To find the maximum theoretical amount of THC in a sample, add the amount of THC present in the sample to the amount of THC that can be created from THCa by the formula:

Max THC = THC + THCa * 0.877

Nova Decarb

Equipped with advanced logic, dual sensor technology and a hi tech thermal blanket, Nova uses precision heating cycles to achieve full decarb without loss.



Raw plant before decarb

THC - 0% THCA - 21%

Maximum

THC 19%

Nova precision decarb

THC - 19% THCA - 0%

Maximum

THC 19%

Full Conversion No Loss

Fact: Kitchen appliances aren't equipped to create the conditions needed for full, reliable decarb, so we developed a device that is.

Myth #4

Concentrate decarboxylation is different than flower decarb OR you can only decarb concentrate by watching CO2 bubbles evaporate.

Concentrates that have been prepared professionally, extracted and purged under the right conditions have not been decarboxylated and need to be activated before being ingested or used topically. The time and temperature parameters for the best flower decarb also apply to concentrate. As seen below BHO extracts can become slightly more concentrated during decarb, likely from evaporation of residual solvents and moisture.



Nova decarb of BHO extract

Before decarb

THC 1% THCA 80% Maximum
THC 7%

THC 0% THCA 79% Maximum
THC 79%

Like with properly cured and stored cannabis flower, properly prepared and purged concentrates have undergone little or no decarboxylation, less than 5% of total THC decarbed.

Fact: Decarbing concentrate involves the same science as decarbing flower.

Myth #5

Its necessary to grind cannabis before decarboxylating.

We actually suggest that you don't. This myth arose as an attempt to provide more even heating and combat temperature fluctuations when using the oven for decarboxylation. With precision decarb, there's no need to disturb the trichomes by grinding. The Nova's thermal cycles permeate the buds evenly, and intact buds provides more options for use post decarb and can increase the longevity of the material. All Nova tests feature non ground material.

Fact: There's no need to grind cannabis before precision decarb, and leaving the trichomes intact can increase shelf life.



Myth #6

Fats and alcohols are required to prepare cannabis.

There is no doubt alcohol and fats can be helpful for preparing and administering cannabis in certain circumstances, and we'll get to that. But to start, there's an overemphasis on the role of alcohol or fat extraction that leads to patients unnecessarily spending hours, days, and even weeks preparing their medicine. It's easy to understand the origins of this myth, because it is based in science but often misapplied.

It's true that cannabis is fat and alcohol soluble but not water soluble, meaning that THC won't seamlessly bind with a water based substance the way it will with a fat and an oil.



Somehow this fact has been twisted into an insistence that patients need to extract into butters and oils or use an alcohol based solvent. Unfortunately for patients, these processes are complicated, time consuming, and in the end, inaccurate. It much easier for patients to activate flower or kief and use it directly.

It's possible to bypass the hassle and prevent waste, all while getting the full benefits of a whole plant therapy.

Direct activation and infusion gives so many more options on how cannabis can be used, and allows patients to quickly create accurate topicals, sublinguals, and edibles. The instant substitute for hours of extraction: take the dose of decarbed flower or kief and mix it with 1/2tb of good fat like coconut oil and administer. Substitute butter if you prefer.

The purpose of the fat when mixed with the active cannabinoids is to help with absorption during digestion or application, which is a perfectly useful way to incorporate fats when dosing with cannabis.

What patients quickly realize is that with precise decarb, so little flower or kief is needed that direct infusion is like sprinkling pepper on an entrée or adding vitamin powder to a smoothie. For patients who want a butter or oil to use for canna culinary purposes, a quick extraction after decarb is all it takes for maximum ease and potency.

Fact: Fats and alcohol aren't needed in order to decarb or administer cannabis, but they can be useful to pair with activated cannabis to aid in digestion and absorption.

This guide is beginning of a continuing conversation on the best ways prepare cannabis for health and wellness. Embrace cannabis as a useful herb. It will change your life.

Shanel Lindsay is founder of Ardent Cannabis and creator of the Nova decarboxylator, edible caps, and sublingual wraps. She is certain that with increased education, research, and reliable clinical data, patients and doctors – even those who have not previously considered cannabis as an option – will discover it is a legitimate, viable, and safe treatment.



A special thanks to our testing provider, MCR Labs, who performed the HPLC testing outlined in this guide at their ISO accredited cannabis testing facility in Framingham, MA. Contact shanel@ardentcannabis.com regarding access to testing data.