

Decarboxylation Explained



Officer Dick Downey's Re-education Protocol

officerdickdowneyspotreport.com

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Have you ever made a batch of cannabis butter or a cannabis tincture only to discover that it has very little potency? Well, the likely culprit of such disappointing results is failure to properly “decarboxylate” the cannabis as part of the process. Let’s take a look at the process of decarboxylation and why it matters.

Why is Decarboxylation Important?

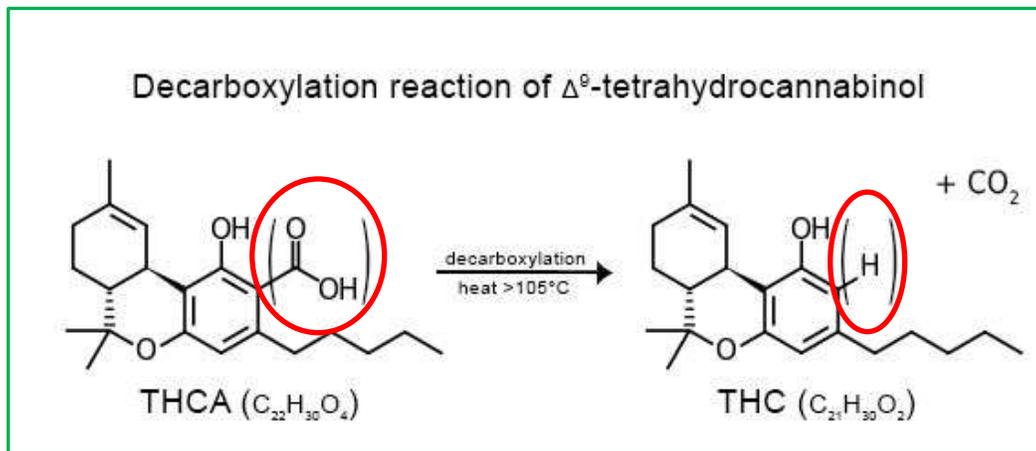
Cannabis naturally produces its cannabinoids in a carboxylic acid form (e.g., THCa, CBDa, etc.). In this acid form, the cannabinoids are not “active”, which means they don’t readily pass the blood-brain barrier in this form. As a result, you won’t experience the healing or psychoactive effects of THC, for example.

Since the human body does not possess an enzyme that can convert cannabinoids from their inactive to active forms, the cannabis needs to be “decarboxylated” at the molecular level to allow the cannabinoids to pass the human blood-brain barrier, bind to cannabinoid receptor sites (e.g., CB1, CB2) and express its euphoric and medicinal effects.

What is the process of Decarboxylation?

Decarboxylation occurs naturally, with time and temperature, as the cannabis plant material dries. For example, as a cannabis flower dries, it naturally converts, or decarboxylates, THCa into THC. Decarboxylation also takes place instantaneously whenever heat is applied through smoking cannabis. However, there are times when we want to speed up the decarboxylation process, such as when making cannabis butter, tinctures and Rick Simpson Oil (RSO) to ensure that the final cannabis product is fully activated.

In organic chemistry terms, the process of decarboxylation is a chemical reaction that removes the COOH carboxyl group of atoms from the relatively inert THCa, which then exits in the form of water (H₂O) and carbon dioxide (CO₂), as shown in this illustration:



Source: leafscience.com

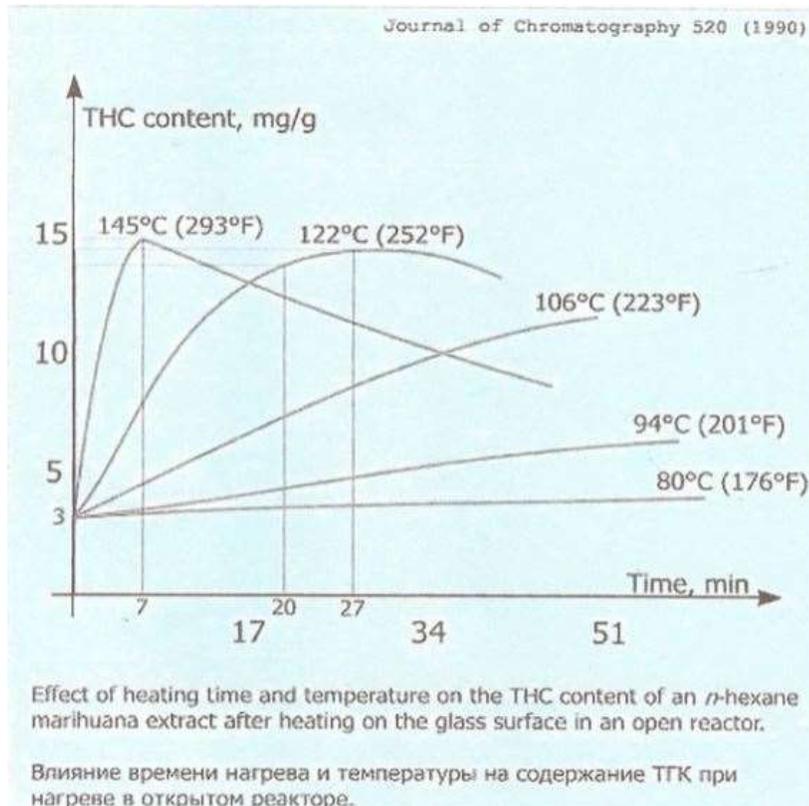


Too Much Decarboxylation Can Be Counterproductive

If you plan to decarboxylate cannabis, be aware that too much decarboxylation can be a bad thing.

“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.” (source: <https://skunkpharmresearch.com/decarboxylation/>)

Therefore, as you can see in the graph below, after about 70% decarboxylation, the levels of THC actually start to fall sharply. That means that the CBN also begins to rise and the medication is becoming more sedative. This graph is all over the internet, and it's quite dated; however, the information it expresses is relevant. (source: <https://skunkpharmresearch.com/decarboxylation/>)



How to Properly Decarboxylate Cannabis

There's a lot of contradictory information out there about how to properly decarboxylate cannabis. This document is not going to address all the various opinions within that debate. However, here's a great post that details a decarboxylation experiment in an effort to identify the optimal times and temperatures for decarboxylating cannabis. The results of this experiment indicate that the optimal time and temperature to decarboxylate cannabis kief or trim is 230-240F/110C-115C for 60 minutes.

Note: The author of this learning document happens to have been using this same temperature range and time (230-240F/110C-115C @ 60min) with great success for many years.

<http://www.marijuanagrowershq.com/decarboxylating-cannabis-turning-thca-into-thc/>