

Research into the properties of cannabis is ongoing, and new discoveries are the order of the day. As exploratory technology advances, researchers are learning more about the profoundly fertile nature of the *Cannabis sativa* plant. One fascinating development is the recent discovery of a new pair of cannabinoids with similar chemical structures to [tetrahydrocannabinol \(THC\)](#) and [cannabidiol \(CBD\)](#). In fact, their chemical makeup is identical, except for one crucial modification that dramatically affects the way these substances impact the brain. These organic molecules have been dubbed Tetrahydrocannabiphorol (THCP) and Cannabidiphorol (CBDP), and it is the former in particular that has been generating so much buzz.

New Cannabinoids Discovered

In the December 30th, 2019 edition of the open-access journal [Scientific Reports](#), a team of Italian scientists formally introduced the new cannabinoids THCP and CBDP to the world. Using mass spectrometry technology, which allows researchers to precisely measure and analyze the chemical structure of minuscule bits of living matter, the researchers found two unique, organic molecules that mimicked the structure of THC and CBD almost perfectly, except for one critically important variation.

All cannabinoid molecules include attachments known as alkyl side chains, which are composed of a string of carbon atoms. It is these side chains that bind with CB1 and CB2 receptors in the brain, thereby allowing cannabinoid molecules to cause impactful changes in neural activity.

Regular THC and CBD molecules contain five carbon atoms in their alkyl side chains, and no naturally occurring cannabinoid had ever been found to contain more. Synthetic cannabinoids with longer chains have been created, but up to now, it wasn't known if *Cannabis sativa* plants could produce organic compounds matching this particular structure.

Now this question has been answered in the affirmative. While examining samples from a strain of medicinal cannabis called FM2, which was obtained from the Military Chemical Institute in Florence, the Italian researchers found THC and CBD analogs with seven carbon atoms in their alkyl side chains. It was already known that longer side chains would bind more actively and firmly with CB1 and CB2 neurochemical docking stations in the brain's endocannabinoid system, increasing the intensity of the brain's reaction to the presence of such molecules.

Further *in vitro* testing confirmed the hypothesis that THCP and CBDP would function like enhanced versions of THC and CBD. The researchers were especially interested in finding out more about THCP since the medicinal qualities and mind-altering capacities of THC are already well understood. Their tests revealed that the binding affinity of THCP with CB1 receptors was an astonishing 33 times stronger than that of THC, meaning its effects in the brain could be exponentially more significant. Doctors and patients already laud THC for its medicinal potency and effectiveness, which bodes well for the future of THCP as a medicinal ingredient.

Is THCP Already Helping Patients?

Medicinal cannabis products are known for having an unpredictable impact. Results vary from person to person and even from use to use.

“There exists an astonishing variability of subject response to cannabis-based therapy even with equal THC doses,” the Italian researchers note in their *Scientific Reports* article. “It is, therefore, possible that the psychotropic effects are due to extremely active phytocannabinoids, such as THCP.”

“In our opinion,” the Italian scientists continue, “this compound should be included on the list of the main phytocannabinoids to be determined for a correct evaluation of the pharmacological effect of the cannabis extracts administered to patients. In fact, we believe that the discovery of an extremely potent THC-like phytocannabinoid may shed light on several pharmacological effects not ascribable solely to THC.”

Even if THCP is ultimately found to exist in only trace amounts in a few random strains, genetic selection and careful breeding could create new strains that contain THCP in more significant numbers. Extracts high in THCP could also be taken as a way to harvest it in a more concentrated form for medicines targeted at specific illnesses or disorders against which THC is known to be effective.

So far, approximately [150 cannabinoids](#) have been discovered in different *Cannabis sativa* strains. Research like this most recent study leaves open the possibility that dozens more may yet be detected in the years to come, as research techniques sharpen further.

If there are many hidden cannabinoids awaiting discovery, it is possible, if not extremely likely, that some of the therapeutic or mind-altering effects prescribed to THC, CBD, and other already-identified cannabinoids may be related to the activity of these currently unknown compounds. Some of these substances may be as potent as THCP appears to be, although that is strictly a matter of speculation at this time.

The Future of THCP

One of the most common uses for THC-based medicinal cannabis is for treating chronic pain. Given the similarity of their chemical structures, it is conceivable that THCP might be even better at relieving pain than products that contain significant quantities of THC. If this is true, medicines manufactured to include high levels of THCP could eventually emerge as a superior alternative to opioids, which unlike cannabis-based medications are highly addictive and potentially deadly.

Anywhere [from 40,000 to 50,000 people will die of an opioid overdose](#) in the United States in any given year. This underscores how serious the opioid epidemic is, and how vital it is to find other potent painkillers that can replace these dangerous substances.

The discovery of THCP is brand new, and it will take much more research before scientists are confident of its characteristics and capacities. In the meantime, the treasure hunt for other new cannabinoids continues. From a historical perspective, medicinal cannabis is still a newcomer on

the American healthcare scene, and the *Cannabis sativa* plant continues to shelter many mysteries. Based on what is known so far, it's not outrageous to suggest that cannabis may eventually revolutionize medical practice, once its secrets have been fully unlocked.