

From Chocolate to Cannabinoids: A Conversation with Alvin Berger, PhD

By Colby McCoy

With global changes sweeping across the cannabis industry, scientists are spearheading research into cutting-edge cannabinoid treatments. Yet, much of the basics of cannabis science comes from pivotal work that took place at the crossroads where chocolate meets cannabinoids.

Alvin Berger, PhD is a renowned lipid researcher who has contributed to pioneering cannabis research. I spoke to Dr. Berger to discuss his diverse body of work and patented products that utilize cannabidiol (CBD) to further enhance the efficacy of certain treatments.

Dr. Berger's interest in cannabinoids was sparked in 1996 after reading a study in *Nature*, which claimed that the endogenous cannabinoid, anandamide, was primarily responsible for the beneficial properties found in cocoa.[1]

"I looked at the paper and there seemed to be something wrong. The findings in the article didn't make sense. At the time I was working with Nestlé in Lausanne, Switzerland to study the molecular mechanisms that make chocolate so addictive," Dr. Berger noted.

His hands-on experience with chocolate would prove to be useful in his subsequent research. Dr. Berger collaborated on a project with Vincenzo Di Marzo, PhD and Raphael Mechoulam, PhD to test his hypothesis about the endogenous cannabinoid.[2]

"Anandamide is structurally N-arachidylethanolamine, and is synthesized from arachidonic acid. But since higher plants do not have arachidonic acid, this creates the vexing

problem of synthesizing an end product from a non-existing precursor," said Dr. Berger.

And, as Dr. Berger predicted, they found that anandamide is not, in fact, an active component within chocolate, effectively overturning the results of the *Nature* study. Dr. Berger and his colleagues went on to demonstrate that other non-arachidonyl-containing endocannabinoids in chocolate had rewarding properties.

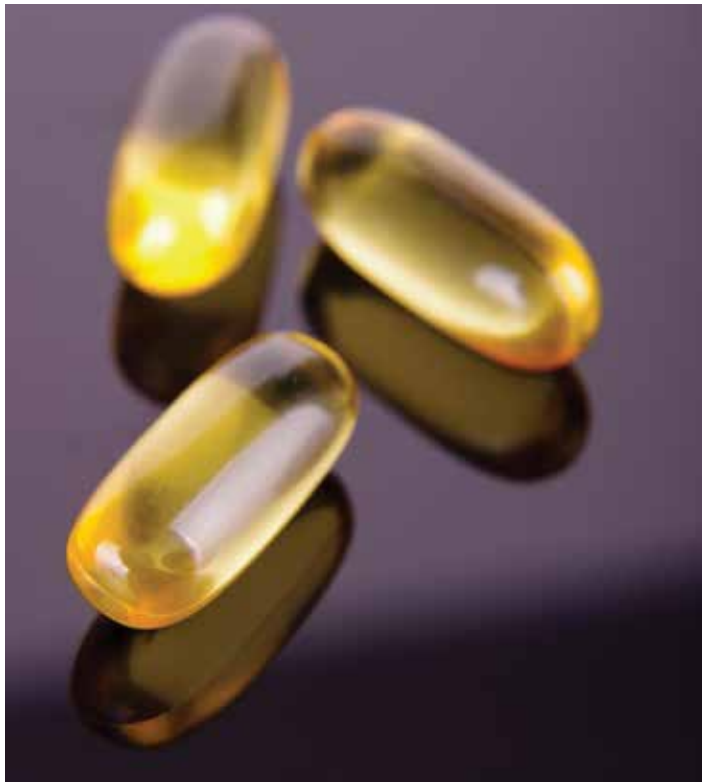
"Administering high levels of endocannabinoids in the diet resulted in a 'cannabis-like high,' which was shocking to me."

This "shocking" finding further propelled Dr. Berger's interest in endocannabinoids, kicking off his career in cannabis science.

Dr. Berger explained, "We opened up an entire new area of scientific enquiry in our landmark *PNAS* paper by demonstrating that common, but important, dietary fatty acids are converted to endocannabinoids; and subsequently can bind to CB₁ receptors affecting behavior." [3]

In addition to being a highly regarded researcher with a penchant for academic rigor, Dr. Berger also stands at the helm of two successful business ventures, the first of these being LifeSense Products, which sells ketogenic medium-chain triglycerides (MCTs). According to Dr. Berger, MCTs have been proven to be a reliable substitute for glucose due to their preferential conversion to ketone bodies at the liver for subsequent uptake by the brain. Producing MCT-based products proved to be another entry point into the burgeoning cannabis industry in the most unlikely of ways.





“CBD companies had been purchasing large quantities of our C-8 MCT oils for use as a solubilizing agent. Since CBD is generally hard to solubilize effectively, it makes sense that CBD companies would use the tricaprylin variant, C-8 MCT,” he added. “I have not seen formal papers demonstrating that C-8 MCT is more effective than other MCTs but that is what product manufacturers are telling me (and it is plausible since C-8 MCT would have a different polarity than other MCTs).”

Dr. Berger’s background as a lipid chemist served him well in developing another cutting-edge product, Delta-5, which is rich in an unusual fatty acid called sciadonic acid. Delta-5, manufactured by SciaEssentials LLC, a subsidiary of Sciadonics, Inc., has the potential to disrupt the mammoth cosmetic industry, which uses common plant oils for most of its products.

“Delta-5 is a groundbreaking skincare product with proven anti-inflammatory properties, and it is naturally derived from a very exotic conifer species. It has been designed as a topical product that is safe to use on both pets and people. We are currently awaiting approval for an oral version of the product.”

The development of Delta-5 has led Dr. Berger to pursue additional patents, this time for Delta-5 mixed with CBD.

“This newly developed mixture has the potential to add further legitimacy to an industry that is often called the Wild West. Products that are marketed might not have an efficacious dose. Ten milligrams may be needed to treat X condition but the product might only have one milligram doses in reality. Also, what is the workhorse in the solution? For example, a product marketed as CBD might have larger quantities of melatonin in comparison to actual CBD.”

When asked how we can combat the inaccuracies rife within the CBD industry, he said we are a long ways off from truly understanding the efficacy of CBD as a treatment.

For Dr. Berger, who describes himself as a “hard-ass scientist,” the goal of reputable researchers should be to ask questions about efficacy of CBD products in general.

That being said, there certainly is cause for optimism. CBD research is advancing rapidly. This progression comes with

an interesting caveat—more researchers relying on industry funding instead of government funding.

Hopefully, we will see a change in the government’s stance regarding CBD, which can only help propel research even further. Until that day, we will continue to follow Dr. Berger and other reputable researchers on their intellectual journey of tapping into the potential of CBD.

References

- [1] di Tomaso E, et al. Brain cannabinoids in chocolate. *Nature*. 1996;382(6593):677-678.
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