

NON-CANNABIS THERAPY

Cannabinoid Therapy Without Using Cannabis: Direct Effects™ Topical β -Caryophyllene

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THE CONTROVERSY OF MEDICAL CANNABIS

Cannabis is arguably the most controversial of known therapeutic entities. No class of compounds is associated with more controversy and stigma. While its benefits have been known for thousands of years, dating to ancient civilizations in China and Egypt; and, while it was at one point widely marketed and prescribed in traditional medical practice in the United States in the 1800s, it remains to date identified by the DEA as Controlled Substance Category 1 along with heroin: "highly addictive and of no medical use." Nonetheless, US Patent No. 6630507 was granted in 2003 to the US Department of Health and Human Services for use of cannabinoids to treat a wide range of diseases. It claims exclusive rights for using cannabis to treat Alzheimer's, Parkinson's disease, stroke, and other states of oxidative stress.¹

In late 1890, Eli Lilly and Parke-Davis joint-ventured to breed Cannabis Americana in Greenfield, IN, as alternative to Cannabis Indica. On August 2, 1937, after the lifting of alcohol prohibition, Congress made cannabis illegal.²

In view of many documented medical benefits of cannabinoids, but with widely persisting regulations, misinformation, and stigma associated with cannabis, it was appropriate to search for a non-cannabis-derived source of cannabinoid therapy, such as found in β -Caryophyllene.

A COMMON NON-CANNABIS-DERIVED CANNABINOID RECEPTOR AGONIST

Caryophyllene is a natural constituent of many essential oils, especially those of clove, rosemary, hops, and Cannabis sativa. Caryophyllene is one of the chemicals responsible for spiciness of black pepper. It is considered a dietary cannabinoid.³

To what extent Caryophyllene modulates inflammatory and other therapeutic processes in humans via the endocannabinoid system, ECS, is not known. Caryophyllene does not bind to centrally expressed cannabinoid receptors type-1 (CB1) or exert psychoactive effects. Caryophyllene was first synthesized in 1964.⁴

Of naturally occurring sources, West African black pepper (*Piper guineense*) has the highest concentration of caryophyllene in essential oil at 58%. Others are as follows:

- Cannabis, Hemp, Marijuana (*Cannabis sativa*): Up to 38% of Cannabis Flower Essential Oil
- Cloves: 20%
- Hops: 15%
- Basil: 20%
- Oregano: 16%
- Black Pepper: 7%
- Lavender: 5%
- Rosemary: 8.3%
- True Cinnamon: 11%