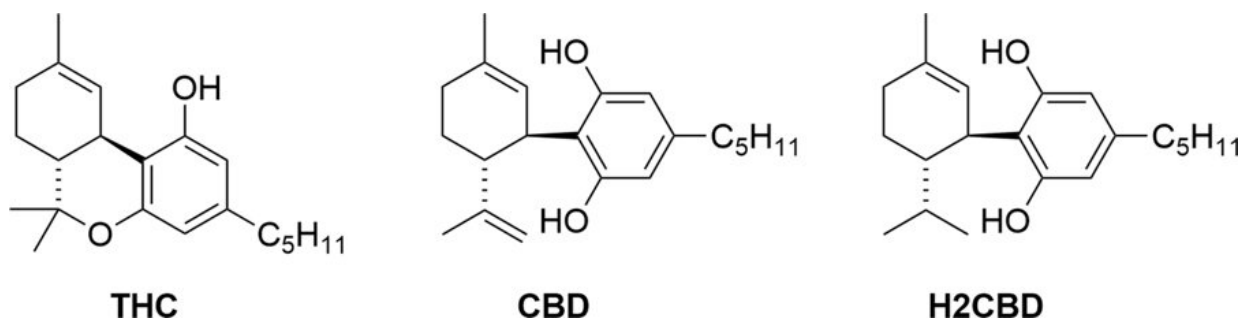


Synthetic version of CBD treats seizures in rats

May 28 2019, by Andy Fell



CBD from extracts of cannabis or hemp plants could be used to treat epilepsy and other conditions. UC Davis chemists have come up with a way to make a synthetic version of CBD and showed that it is as effective as herbal CBD in treating seizures in rats. Left to right: chemical structures of THC and CBD from plants, and of synthetic H2CBD. Credit: Mascal laboratory, UC Davis

A synthetic, non-intoxicating analogue of cannabidiol (CBD) is effective in treating seizures in rats, according to research by chemists at the University of California, Davis. The synthetic CBD alternative is easier to purify than a plant extract, eliminates the need to use agricultural land for hemp cultivation, and could avoid legal complications with cannabis-related products. The work was recently published in the journal *Scientific Reports*.

"It's a much safer drug than CBD, with no abuse potential and doesn't

require the cultivation of hemp," said Mark Mascal, professor in the UC Davis Department of Chemistry. Mascal's laboratory at UC Davis carried out the work in collaboration with researchers at the University of Reading, U.K.

Products containing CBD have recently become popular for their supposed health effects and because the compound does not cause a high. CBD is also being investigated as a pharmaceutical compound for conditions including anxiety, epilepsy, glaucoma and arthritis. But because it comes from extracts of cannabis or hemp plants, CBD poses legal problems in some states and under federal law. It is also possible to chemically convert CBD to tetrahydrocannabinol (THC), the intoxicating compound in marijuana.

8,9-Dihydrocannabidiol (H2CBD) is a synthetic molecule with a similar structure to CBD. Mascal's laboratory developed a simple method to inexpensively synthesize H2CBD from commercially available chemicals. "Unlike CBD, there is no way to convert H2CBD to intoxicating THC," he said.

One important medical use of cannabis and CBD is in treatment of epilepsy. The U.S. Food and Drug Administration has approved an extract of herbal CBD for treating some seizure conditions and there is also strong evidence from animal studies.

The researchers tested synthetic H2CBD against herbal CBD in rats with induced seizures. H2CBD and CBD were found to be equally effective for the reduction of both the frequency and severity of seizures.

Mascal is working with colleagues at the UC Davis School of Medicine to carry out more studies in animals with a goal of moving into clinical trials soon. UC Davis has applied for a provisional patent on antiseizure use of H2CBD and its analogues, and Mascal has founded a company,

Syncanica, to continue development.

More information: Mark Mascal et al, Synthetic, non-intoxicating 8,9-dihydrocannabidiol for the mitigation of seizures, *Scientific Reports* (2019). [DOI: 10.1038/s41598-019-44056-y](https://doi.org/10.1038/s41598-019-44056-y)

Provided by UC Davis

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