

# Study explains why hemp and marijuana are different

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Genetic differences between hemp and marijuana determine whether Cannabis plants have the potential for psychoactivity, a new study by University of Minnesota scientists shows.

"Given the diversity of cultivated forms of Cannabis, we wanted to identify the genes responsible for differences in drug content," says U of M plant biologist George Weiblen. While marijuana is rich in psychoactive tetrahydrocannabinol (THC), [hemp](#) produces mostly a non-euphoric cannabidiol (CBD), but the genetic basis for this difference was a matter of speculation until now. The study was published in the July 17 online edition of *New Phytologist*.

The discovery of a single gene distinguishing the two varieties, which according to Weiblen took more than 12 years of research, could strengthen hemp producers' argument that their products should not be subject to the same narcotics laws as hemp's cannabinoid cousin. Since 1970, all Cannabis plants have been classified as controlled substances by the [federal government](#), but nearly half of all states, including Minnesota, now define hemp as distinct from marijuana. Efforts to revise hemp's U.S. legal status so that it could again be cultivated commercially have gained momentum in recent years.

The market for hemp seed and fiber in the U.S. surpassed \$600 million last year alone. But despite the plant's surging popularity as an ingredient in food, [personal care products](#), clothing and even construction, commercial hemp cultivation is prohibited by the federal government. Currently, all hemp products are imported to the U.S.

Research on hemp is tightly controlled by government regulations. Weiblen and his co-authors at the University of Mississippi are among few labs in the country with the federal clearance to study Cannabis.

"It's a plant of major economic importance that is very poorly understood scientifically. With this study, we have indisputable evidence for a [genetic basis](#) of differences among Cannabis varieties," says Weiblen, "further challenging the position that all Cannabis should be regulated as a drug."

## More information:

[onlinelibrary.wiley.com/doi/10.1111/nph.13562/full](http://onlinelibrary.wiley.com/doi/10.1111/nph.13562/full)

Provided by University of Minnesota

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