

Colorado Marijuana Study Finds Legal Weed Contains Potent THC Levels

By Bill Briggs

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This is not your father's weed.

Colorado marijuana is nearly twice as potent as illegal pot of past decades, and some modern cannabis packs triple the punch of vintage ganja, lab tests reveal for the first time.

In old-school dope, levels of THC — the psychoactive chemical that makes people high — were typically well below 10 percent. But in Colorado's legal bud, the average THC level is 18.7 percent, and some retail pot contains 30 percent THC or more, according to research released Monday.

"That was higher than expected," said Andy LaFrate, president of Charas Scientific. His Denver lab is licensed by the state and paid by marijuana businesses to measure the THC strength in their products before they go to market. "It's common to see samples in the high 20s."

What's really in — and not in — Colorado's retail weed surprised LaFrate. After analyzing more than 600 samples of bud provided by certified growers and sellers, LaFrate said he detected little medical value and lots of contamination. He presents those findings Monday to a national meeting of the American Chemical Society, a nonprofit scientific group chartered by Congress.

"We don't want to be alarmists and freak people out, but at the same time we have been finding some really dirty marijuana," LaFrate told NBC News.

Some green buds he viewed were covered in funghi — and he estimated that several marijuana flowers were "crawling" with up to 1 million fungal spores.

"It's a natural product. There's going to be microbial growth on it no matter what you do," LaFrate said. "So the questions become: What's a safe threshold? And which contaminants do we need to be concerned about?"

For example, he also examined more than 200 pot extracts or "concentrates" and found some contained solvents like butane. All the tests were done with high-performance liquid chromatography, a method to separate, classify and measure individual compounds.

What LaFrate didn't see, however, also astonished him. The 600-plus weed samples generally carried little or no cannabidiol, or CBD — the compound that makes medical marijuana "medical." The average CBD amount: 0.1 percent, his study reports.

CBD is anecdotally known to control depression, anxiety, and pain. About 200 families with ill children also moved to Colorado to access a strain called Charlotte's Web, which appears to control seizures in some kids.

"It's disturbing to me because there are people out there who think they're giving their kids Charlotte's Web. And you could be giving them no CBD — or even worse, you could be giving them a THC-rich product which might actually increase seizures," LaFrate said. "So, it's pretty scary on the medical side."

The majority of samples tested came from recreational-pot merchants. Under Colorado law, recreational weed must be tested for potency. Some medical-pot sellers voluntarily provided samples to LaFrate. Colorado does not require pre-sale testing of medical marijuana. LaFrate did not analyze any edibles.

"Really, there is very little difference between recreational and medical in terms of the THC-to-CBD ratio, at least at the aggregate level," LaFrate said.

What does that mean for buyers? There may be little difference in how various strains make users feel, even though some people claim one type induces relaxation and another hikes alertness, LaFrate said.

Three decades of cross-breeding pot strains — done to meet a demand for stronger weed — generally elevated THC and decreased CBD in many marijuana varieties, LaFrate said.

"These samples are representational, I think, of what's happening here in the state and, probably, across the country," LaFrate said. "Because most of the new states coming online with medical or retail marijuana have people from Colorado coming in to set up those markets.

"We found there's a tremendous amount of homogeneity within the genetics, at least as far as potency."

But some legal weed producers have launched new breeding projects, using different genetic combinations to boost CBD content, said Sean Azzariti, a cannabis advocate in Denver.

Azzariti also champions contamination testing as "an integral part of our industry."

"I personally am very excited to see technology in testing continue to advance. You would be very hard pressed to find a garden that hasn't at one point had some sort of issue, whether it's an infestation, microbial problems," said Azzariti, an Iraq War veteran. He uses cannabis to help treat post-traumatic stress disorder.

On Jan. 1, 2014, he became Colorado's first buyer of legal weed.

Meanwhile, pot-legalization opponents are using LaFrate's findings to compare retail weed to food raised or grown with genetically modified organisms or GMOs. And pot foes continue to link the rise of the marijuana industry to the long-ago advance of Big Tobacco.

"This study is further evidence that Colorado legalization is not working. It proves that even under government control, there's no way to ensure marijuana is free of bacteria and chemicals," said Kevin Sabet, president of Smart Approaches to Marijuana (SAM).

"This shows that marijuana is a GMO product just like other products sold by big business. And just like other industries, now you have a big marijuana industry determined to hide these findings from the public. Where is their outcry? Where are the promises to change the way they do business?" Sabet said. "I won't hold my breath. For years, the tobacco industry did the same thing. Welcome, America, to Big Tobacco 2.0 — Big Pot."