Cannabinoids, Isomers, and Acetylation

Simplified Version-1/25/22

CBD, which is now federally legal today, can be converted --or "isomerized"--into various THC derivatives. These derivatives are also being made 3 times stronger by the "acetylation" process.

Because of the isomerization and acetylation processes, **federally legal CBD-based products are getting people mentally and physically impaired. Today, any person can easily purchase CBD derived Delta-8-THC, Delta-10-THC, and acetylated THC products, such as vape cartridges, either locally or online.**

How does the chemistry happen exactly? Let me explain...

To begin, the word "cannabinoids" refers to the many naturally occurring chemical compounds in cannabis plants, namely hemp and marijuana. There are thought to be hundreds of cannabinoids in hemp and marijuana ranging from small to large amounts. The two most well-known cannabinoids are CBD from the hemp plant and THC from the marijuana plant. THC is also known as Delta-9-Tetrahydrocannabinol or Delta-9-THC.

It is also important to know that an "isomer" is a molecule which has the exact same molecular formula as another molecule. What is different about these two molecules is the arrangement of the atoms, which causes each to behave somewhat differently in the human body. "Isomerization" is a chemical process whereby one isomer can be transformed structurally into another isomer by the use of other chemicals, such as an acid and solvent.

Today, CBD, which is now federally legal, can be isomerized into various THC derivatives. These derivatives include Delta-8-THC, Delta-9-THC, and Delta-10-THC. All of these have the exact same molecular formula and are therefore isomers of one another. The structural arrangement of the atoms of each molecule is what differentiates one from another. What is concerning about this process are the many byproducts and unknowns that remain behind after the isomerization process has finished.

Delta-8-THC and Delta-10-THC are considered to be legal because they are derived from federally legal hemp, but many states have recently banned or restricted the sale of these chemicals because of the expected health risks. Similarly, the FDA also recently issued a warning about the health risks of Delta-8-THC.

Another chemical process of note is called acetylation using the chemical acetic anhydride. Acetylation is the chemical process that is used to convert morphine into heroin. In the creation of heroin, acetylation increases the potency of morphine 2 to 4 times and also increases its addictiveness. Little is known if acetylated THC derivatives are more addictive, but increased addictiveness and potency are hallmarks of heroin when compared to morphine. We do know that acetylated Delta-9-THC is about 3 times more potent. Acetylated Delta-9-THC, also known as THC-O, THC-O acetate, or simply THC acetate, was found to be so potent that it was even considered as a possible chemical warfare agent that could be used to incapacitate enemy troops during the Cold War.

It is not a stretch to believe that the cannabis industry will begin to apply the acetylation process to a variety of the CBD & THC analogs in an attempt to make a family of very powerful and addicting drugs that can literally fly under the current regulatory framework because of the focus on only regulating Delta 9-THC. In fact, some manufacturers are already making THC-O acetate directly from synthesized Delta 8-THC versus naturally occurring Delta 9-THC. Given how the acetylation process generally increases the strength of a drug two to four fold, it is easy to see that Delta 8-based THC-O acetate will be just as intoxicating and addictive as marijuana derived Delta 9-THC. Sadly, few in government are doing anything about it.

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