



HU-210

[(6a*R*,10a*R*)-9-(hydroxymethyl)-6,6-dimethyl-3-(2-methyloctan-2-yl)-6a,7,10,10a-tetrahydrobenzo[*c*] chromen-1-ol] [Purported Ingredient of "Spice"]

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Introduction:

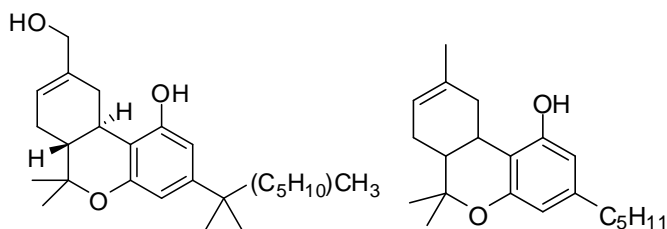
HU-210 is structurally and pharmacologically similar to Δ^9 -tetrahydrocannabinol (Δ^9 -THC), the main active ingredient of marijuana, and it was synthesized around 1988. It was recently purported to be found in the herbal mixture "Spice", sold in European countries mainly via internet shops. HU-210 is in schedule I of the U.S. Controlled Substances Act.

Licit Uses:

HU-210 is used in basic scientific research to identify cannabinoid receptors in the brain and study the mechanisms of action of Δ^9 -THC.

Chemistry:

HU-210 [(6a*R*,10a*R*)-9-(hydroxymethyl)-6,6-dimethyl-3-(2-methyloctan-2-yl)-6a,7,10,10a-tetrahydrobenzo[*c*] chromen-1-ol]; (-)-11-OH- Δ^8 -THC-DMH; Chemical Abstract Service Number 112830-95-2) is categorized as a tetrahydrocannabinol (THC) and is similar in chemical structure to Δ^9 -THC, Δ^8 -THC, and other THC substances controlled under the Controlled Substances Act (CSA). The CSA controls THC substances that have a similar chemical structure and pharmacological activity to THC substances that occur in *Cannabis sativa* L. (marijuana). The chemical structure of HU-210 (left) and Δ^8 -THC (right), a compound representative of THC substances that occur in marijuana, are shown below.



Based on the structural analysis, HU-210 is categorized as a THC substance and is similar to those THC substances that occur naturally in marijuana. Worth noting, the enantiomer HU-211, [(6a*S*,10a*S*)-9-(hydroxymethyl)-6,6-dimethyl-3-(2-methyloctan-2-yl)-6a,7,10,10a-tetrahydrobenzo[*c*]chromen-1-ol]; with the only distinguishing difference is the opposite orientation of two hydrogen atoms at positions 6a and 10a; is also structurally categorized as a THC substance, but it lacks THC-like pharmacological activity.

Pharmacology:

Behavioral pharmacology studies show that HU-210 has Δ^9 -THC-like activity in animals. In mice, it decreases overall

activity, produces analgesia, decreases body temperature and produces catalepsy. Together, these four effects are used by scientists to predict Δ^9 -THC-like psychoactivity in humans. HU-210's activity in all tests suggests that it is likely to have Δ^9 -THC-like psychoactive effects in humans.

In drug discrimination studies in rats and pigeons, HU-210 generalized to Δ^9 -THC, i.e., produced subjective effects similar to THC's and was found to be 66 times more active than Δ^9 -THC in the rat and 80 times more active than Δ^9 -THC in the pigeon.

In vitro studies show that HU-210 binds to both the brain cannabinoid receptor CB1 and the peripheral cannabinoid receptor CB2 with higher affinity than Δ^9 -THC suggesting that it would have the same effects as Δ^9 -THC in vivo.

A search in the literature resulted in no published studies of the psychotropic effects of HU-210 in humans.

Illicit Uses:

HU-210 is purported to be an ingredient in the herbal mixture "Spice" which may be smoked for its psychoactive effects. No information on the illicit use of HU-210 in the U.S. is available at this time.

User Population:

Information on user population in the U.S. is very limited and includes information from drug user internet forums. HU-210 abuse is not currently monitored by any national drug abuse surveys.

Illicit Distribution:

The System to Retrieve Information from Drug Evidence (STRIDE), a federal database for the seized drugs analyzed by DEA forensic laboratories, and the National Forensic Laboratory Information System (NFLIS), a system that collects drug analysis information from state and local forensic laboratories, contain a couple of reports of HU-210; one in 2011 and one in the first six months of 2012. Herbal mixtures containing HU-210 were reported in Ohio and Florida.

Control Status:

HU-210 is a schedule I controlled substance under the CSA.

Comments and additional information are welcomed by the Drug and Chemical Evaluation Section, Fax 202-353-1263, Telephone 202-307-7183, or Email ODE@usdoj.gov.