



June 2011

Cannabimimetics (Synthetic Cannabinoids)



Schedule I Cannabimimetics

On March 1, 2011 the Department of Justice, Drug Enforcement Administration (DEA) announced the temporary placement of five synthetic cannabinoids into Schedule I of the Controlled Substance Act. The DEA determined that the action was necessary to avoid an imminent hazard to the public safety. These substances will be controlled for at least 12 months, with the possibility of a six month extension.

At the time the Notice was published, several HHS-certified laboratories reported that they were testing for one or more of the five compounds. The correct chemical names and the common designator for the five scheduled substances are:

1. JWH-018: 1-pentyl-3-(1-naphthoyl) indole
2. JWH-073: 1-butyl-3-(1-naphthoyl) indole
3. JWH-200: 1-[2-(4-morpholinyl)ethyl]-3-(1-naphthoyl) indole
4. CP-47,497: 5-(1,1-dimethylheptyl)-2-[(1R,3S)-3-hydroxycyclohexyl]-phenol
5. Cannabicyclohexanol; CP-47,497 C8 homologue: 5-(1,1-dimethyloctyl)-2-[(1R,3S)-3-hydroxycyclohexyl]-phenol

Cannabimimetics (Synthetic Cannabinoids)**Background**

Note: The following information is from the DEA Notice published in the March 1, 2011 Federal Register. <http://www.gpo.gov/fdsys/pkg/FR-2011-03-01/pdf/2011-4428.pdf>

First, these substances are not intended for human consumption, but there has been a rapid and significant increase in abuse of these substances in the United States. As a result of this abuse, synthetic cannabinoids are banned in at least 18 states in the United States and several countries, and all five branches of the U.S. military prohibit military personnel from possessing or using synthetic



cannabinoids. Second, law enforcement has seized synthetic cannabinoids in conjunction with controlled substances and based on self-reports to law enforcement and health care professionals, synthetic cannabinoids are abused for their psychoactive properties. Third, numerous state and local public health departments and poison control centers have issued health warnings describing the adverse health effects associated with synthetic cannabinoids. Based on scientific data currently available, these five substances have the potential to be extremely harmful and, therefore, pose an imminent hazard to the public safety.

History and Current Pattern of Abuse

A “cannabinoid” is a class of chemical compounds in the marijuana plant that are structurally related. The cannabinoid Delta-9-tetrahydrocannabinol (THC) is the primary psychoactive constituent of marijuana. “Synthetic cannabinoids” are a large family of chemically unrelated structures functionally (biologically) similar to THC.

Two of the five synthetic cannabinoids (CP-47,497 and cannabicyclohexanol) now regulated were synthesized in the early 1980s for research purposes in the investigation of the cannabinoid system. The remaining three (JWH-018, JWH-073, and JWH-200) were prepared in the mid-1990s and evaluated to further advance understanding of drug-receptor interactions regarding the cannabinoid system. Developed and evaluated as research tools, no other known legitimate uses have been identified for these five synthetic cannabinoids. Furthermore, these five synthetic cannabinoids are not intended for human consumption.

Cannabimimetics (Synthetic Cannabinoids)

The emergence of these five synthetic cannabinoids represents a recent phenomenon in the U.S. designer drug market. Since the initial identification of JWH-018 by U.S. forensic laboratories, many additional synthetic cannabinoids including JWH-073, JWH-200, CP-47,497, and cannabicyclohexanol have been identified in related herbal incense products and plant food. These synthetic cannabinoids have purported psychotropic effects when smoked or ingested. These substances are typically found in powder form or are dissolved in appropriate solvents, such as acetone, before being sprayed on the plant material contained in the herbal incense products.

The popularity of these THC-like synthetic cannabinoids has significantly increased throughout the U.S., and they are being abused for their psychoactive properties as reported by law enforcement, the medical community, and through scientific literature.

Commercial Products

Some of the product names include, but are not limited to, “Spice,” “K2,” and many more. Due to sophisticated marketing, the products that contain these five THC-like synthetic cannabinoids are perceived as “legal” alternatives to marijuana despite the fact that they are typically advertised as herbal incense or plant food (Bonsai-18) by Internet retailers, tobacco shops, head shops, and other domestic brick and mortar retail venues, and labeled “Not For Human Consumption.” No evidence exists that these synthetic cannabinoids have value as an additive to herbal incense products due to the absence of odor associated with the substances.



Based on law enforcement encounters, these five substances are typically found laced on plant material. The plant material is packaged in small pouches or packets, and is being sold over the Internet, in tobacco and smoke shops, drug paraphernalia shops, gas stations, and convenience stores as herbal incense products, giving customers of all ages direct access to these five substances. Research articles propose that the packaging is professional and conspicuous, targeting young people, possibly eager to use cannabis, but who are afraid of the judicial consequences and/or association with illicit drugs.

According to Internet discussion boards and law enforcement encounters reported directly to DEA, these five synthetic cannabinoids are being both abused alone and/or being sprayed on plant material (which is then smoked). The most common route of administration of these synthetic cannabinoids is by smoking (using a pipe, a water pipe, or rolling the drug-spiked plant material in cigarette papers).

Cannabinimimetics (Synthetic Cannabinoids)**Conclusion**

These five synthetic cannabinoids alone or spiked on plant material have the potential to be extremely harmful due to their method of manufacture and high pharmacological potency. There is little information regarding the pharmacology, toxicology, and safety of these substances in humans given the minimal amount of pre-clinical investigations undertaken regarding these substances; therefore, the full danger of these drugs has not yet been determined.

As of January 31, 2011, 18 states in the United States and other countries have controlled one or more of the five synthetic cannabinoids. Moreover, all five branches of the military prohibit their personnel from possessing or using synthetic cannabinoids associated with products such as Spice and K2.

Reference:

Department of Justice, DEA, 21 CFR Part 1308 Schedules of Controlled Substances: Temporary Placement of Five Synthetic Cannabinoids Into Schedule I (Federal Register, Vol. 76, No. 40, p11075 -11078).

