

## JWH-018

### 1-Pentyl-3-(1-naphthoyl)indole

### [Synthetic Cannabinoid in Herbal Products]

May 2013  
DEA/OD/ODE

#### Introduction:

JWH-018 is a synthetic cannabinoid agonist without the classical cannabinoid chemical structure. It was used in scientific research as a tool to study the cannabinoid system. JWH-018 has been identified in herbal incense mixtures, with names including "Spice", "K2", and others, sold via the Internet, gas stations, convenience stores, tobacco shops and head shops.

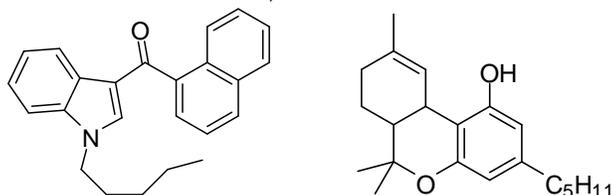
#### Licit Uses:

JWH-018 was developed and evaluated in basic scientific research to study structure activity relationships related to the cannabinoid receptors.

#### Chemistry:

JWH-018 (1-pentyl-3-(1-naphthoyl)indole or naphthalen-1-yl-(1-pentyl-1*H*-indol-3-yl)methanone) [Chemical Abstract Service (CAS) Registry Number 209414-07-3] has been identified as a substance that has some pharmacological similarities to the primary psychoactive constituent in marijuana (*Cannabis sativa* L.),  $\Delta^9$ -THC. However, it is not related in chemical structure to  $\Delta^9$ -THC or other cannabinoids contained within the cannabis plant.

The chemical structure of JWH-018 (left) and  $\Delta^9$ -THC (right), a compound found in marijuana and representative of the THC structural class, are shown below.



Based on the structural analysis, JWH-018 is not categorized as a THC substance, and is not similar in chemical structure to other substances controlled under the CSA.

#### Pharmacology:

Behavioral pharmacology studies show that JWH-018 has  $\Delta^9$ -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  $\Delta^9$ -THC-like psychoactivity in humans. JWH-018's activity in all four

tests suggests that it is likely to have THC-like psychoactive effects in humans.

In drug discrimination studies in rats, JWH-018 generalized to  $\Delta^9$ -THC, i.e. produced subjective effects similar to those of  $\Delta^9$ -THC.

In vitro studies show that JWH-018 binds to the brain cannabinoid receptor CB1 with increased affinity relative to  $\Delta^9$ -THC and displays agonist properties in functional assays, suggesting that it would have the same effects as  $\Delta^9$ -THC in vivo.

#### Illicit Uses:

JWH-018 substance has no known legitimate use outside of research and is purposely spiked on plant material. It has been identified in numerous herbal incense products including "Spice", "K2", and other similar products which are smoked for their psychoactive effects.

#### User Population:

The primary abusers are youth purchasing these substances from Internet websites, gas stations, convenience stores, tobacco shops and head shops.

#### Illicit Distribution:

The System to Retrieve Information from Drug Evidence (STRIDE) is a federal database for the seized drugs analyzed by DEA forensic laboratories and the National Forensic Laboratory Information System (NFLIS) is a system that collects drug analysis information from state and local forensic laboratories. JWH-018 exhibits identified by forensic laboratories increased from 21 in 2009 to 3,264 in 2011. In 2012, the number of JWH-018 identified exhibits decreased to 982.

#### Control Status:

On March 1, 2011, JWH-018, its salts, isomers, and salts of isomers, were temporarily controlled in Schedule I of the Controlled Substances Act. Control of these compounds became permanent on July 9, 2012, via passage of the Synthetic Drug Abuse Prevention Act of 2012 (Public Law 112-144, Title XI, Subtitle D).

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