

JWH-073 1-Butyl-3-(1-naphthoyl)indole [Synthetic Cannabinoid in Herbal Products]

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DEA/DC/DP/DPE

Introduction:

JWH-073 is a synthetic cannabinoid agonist without the classical cannabinoid chemical structure. It is used in scientific research as a tool to study the cannabinoid system. JWH-073 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.

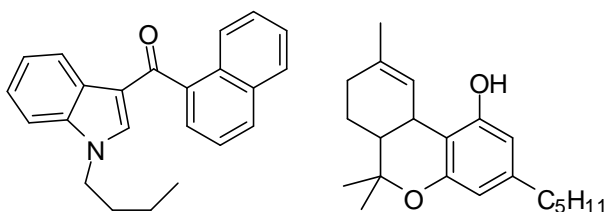
Licit Uses:

JWH-073 was designed and evaluated in basic scientific research to investigate structure activity relationships in the cannabinoid system.

Chemistry:

JWH-073 (1-butyl-3-(1-naphthoyl)indole or naphthalen-1-yl-(1-butyl-1*H*-indol-3-yl)methanone) [Chemical Abstract Service (CAS) Registry Number 208987-48-8] has been identified as a substance that has some pharmacological similarities to Δ 9-THC, the primary psychoactive constituent of *Cannabis sativa* L. (marijuana). However, it is not related in chemical structure to tetrahydrocannabinols, or other cannabinoids contained in marijuana.

The chemical structure of JWH-073 (left) and Δ 9-THC (right), a compound representative of THC substances that occur in marijuana, are shown below.



Based on the structural analysis, JWH-073 is not categorized as a THC substance.

Pharmacology:

Behavioral pharmacology studies show that JWH-073 has Δ 9-THC-like activity in animals. In mice it decreases overall activity, produces analgesia, and decreases body temperature. Together with the production of catalepsy (effect for which JWH-073 was not tested), these four effects are used to predict Δ 9-THC-like psychoactivity in humans. JWH-073's activity in the three tests conducted suggests that it might have Δ 9-THC-like psychoactive effects in humans.

In drug discrimination studies in rats, JWH-073 generalized to Δ 9-THC, i.e. produced subjective effects similar to those of Δ 9-THC.

In vitro studies show that JWH-073 binds to both the brain cannabinoid receptor CB1 with increased affinity relative to Δ 9-THC and the peripheral cannabinoid receptor CB2 with similar affinity as Δ 9-THC, suggesting that it would have the same effects as Δ 9-THC in vivo. JWH-073 has also been evaluated in functional assays.

The short and long term health effects of JWH-073 have not been evaluated in humans.

Illicit Uses:

JWH-073 has no known legitimate use outside of research and the substance has been identified spiked on plant material in numerous herbal products including "Spice", "K2", "K3", and others. These products 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)/STARLiMS 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, local, and federal forensic laboratories. JWH-073 exhibits identified by forensic laboratories increased from 2 in 2009 to 574 in 2011. In 2012, the number of JWH-073 identified exhibits decreased to 131 and continued to decrease to 3 and 4 drug exhibits in 2016 and 2017, respectively, and no exhibits for the first six months of 2018.

Control Status:

JWH-073 (including its salts, isomers, and salts of isomers) is controlled in Schedule I of the Controlled Substances Act.

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.