

Synthetic Quantitative Cannabinoids (K2, SPICE)

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Test # 19155

Synonyms K2, Spice, JWH-018, JWH-073, JWH-250, JWH-122, JWH-398, RCS-4, AM-2201

Specimen Requirements

Specimen Aliquot of random or spot urine collection

Volume 10 mL
1.0 mL minimum volume

Handling Ambient temperature is acceptable for shipping and/or short-term storage (up to 3 days), specimen may also be refrigerated or frozen.

Assay Parameters

Methodology Liquid Chromatography with Tandem Mass Spectrometry (LC-MS/MS)

CPT Code Suggested 82542

Reporting Limit 1.0 ng/mL

As the manufacture and abuse of synthetic cannabinoids evolves, so evolves MEDTOX Laboratories' tests detecting the abuse of these drugs.

In March of 2011 the U.S. DEA enacted emergency powers to place specific synthetic cannabinoids into schedule I of the Controlled Substance Act. As a result, many manufacturers of synthetic cannabinoid products have replaced the active ingredients in their products with other, federally unscheduled synthetic cannabinoids. However many state legislatures and the U.S. Congress have enacted or proposed legislation banning much broader lists of these drugs.

By working with law enforcement, news media outlets, and by testing available products, we have ascertained the most common synthetic cannabinoids currently available and have developed a quantitative urine based test designed to detect their abuse.

Test **19155** detects the abuse of products containing **JWH-018, JWH-073, JWH 250, JWH-122, JWH-398, RCS-4, and AM-2201** by monitoring for specific urinary metabolites of each drug. This tests quantitatively reports urine levels of metabolites of JWH-073, JWH-250, RCS-4, and metabolites common to both JWH-018 and AM-2201. Metabolites of JWH-122 and JWH-398 are reported qualitatively.

The test utilizes an initial LC-MS/MS screening procedure; presumptive positive samples are then confirmed utilizing state of the art high performance liquid chromatography coupled with linear ion trap tandem mass spectrometry. Confirmation testing performed following the initial screen results will incur additional charges. Test **19155** is offered as an quantitative alternative to tests **19216** and **29210** where confirmation results are reported solely qualitatively.

General information of Synthetic Cannabinoids:

Originally developed as pharmacology research tools, most synthetic cannabinoids are not closely related in structure to natural cannabinoid compounds. However, they interact with cannabinoid receptors within the CNS to produce a spectrum of biological activities similar to ⁹ THC, the primary component in marijuana responsible for the psychoactive properties of the drug. Many synthetic cannabinoids are dramatically more potent than ⁹-THC. These powerful compounds are mixed into smoking blends which are often openly sold, masqueraded as potpourri or incense. Little is known about the health ramifications of acute or chronic use of synthetic cannabinoids. Synthetic cannabinoids are not detected by tests designed to detect marijuana use.

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Testing Highlights

FAQ's

1. What is "Spice?"

The terms *Spice*, *K2*, *Fake Pot*, *Mr Nice Guy Incense*, etc. refer to commercially available products that contain a class of research chemicals called *synthetic cannabinoids*; but these products do not contain any cannabis (marijuana) components. These products are generally sold as incense or potpourri, but are intended to be smoked for their psychoactive effects. The cannabinoid-like chemicals contained in these products were developed in research laboratories to study neuronal cannabinoid receptors distributed in the body and brain. Synthetic cannabinoids are potent agonists of cannabinoid receptors and when consumed produce effects and behaviors similar to those of marijuana. Very little is known about the health and safety of these research compounds.

The synthetic cannabinoids themselves are considered contraband in many European countries and their possession and use are also prohibited by an increasing number of local governments within the United States. In 2011, the DEA exercised their emergency powers to federally schedule 5 synthetic cannabinoids as Schedule 1, no legitimate use, narcotics. JWH-018, JWH-073, JWH-200, and CP-49,497 and its C8 homolog are currently scheduled. However, many more synthetic cannabinoids exist in the scientific literature and many of these compounds have found their way into smoking blends. It remains unclear if these compounds will be covered by the analog act.

2. What is MEDTOX actually testing for?

The MEDTOX assay for "Spice" is testing characteristic metabolites of the synthetic cannabinoids most commonly found in incense products. Unchanged parent drug is not found in the urine of users. The MEDTOX assays detect one or more metabolites of each of the above mentioned compounds. MEDTOX test number **19159** detects metabolites of the two most commonly found, federally scheduled synthetic cannabinoids **JWH-018** and **JWH-073** as well as a third less common but federally scheduled compound **JWH-200**. MEDTOX test number **19216** detects metabolites of **JWH-018**, **JWH-073** and **JWH-200** as well as additional prevalent but unscheduled synthetic cannabinoids **JWH-250**, **JWH-122**, **JWH-398**, **AM-2201**, and **RCS-4**.

3. How are positive results reported?

A *POSITIVE* result will be reported if the sample contains one or more of the targeted synthetic cannabinoid metabolites. The report includes the name of the specific detected metabolite.

4. Why is the MEDTOX assay believed to be superior to that of other laboratories?

MEDTOX Laboratories spice test utilize a two step screen and conditional confirmation procedure. The initial screening procedure utilizes a sensitive and specific high performance liquid chromatography tandem mass spectrometry procedure. If cannabinoid metabolites are detected in the first procedure, a second complimentary assay is performed. The confirmation assay utilizes a quadrupole linear ion trap mass spectrometer to provide full spectral library matching. The use of a two step confirmation procedure and library matching of mass spectral data provides the highest level of assurance in the accuracy of a *positive* determination.

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