

## Spice

“Spice” is used to describe a diverse family of herbal mixtures marketed under many names, including K2, fake marijuana, Yucatan Fire, Skunk, Moon Rocks, and others. These products contain dried, shredded plant material and presumably, chemical additives that are responsible for their psychoactive (mind-altering) effects. While Spice products are labeled “not for human consumption” they are marketed to people who are interested in herbal alternatives to marijuana (cannabis). Spice users report experiences similar to those produced by marijuana, and regular users may experience withdrawal and addiction symptoms.

Spice mixtures are sold in many countries in head shops, gas stations, and via the Internet, although their sale and use are illegal throughout most European countries. Easy access has likely contributed to Spice’s popularity.

### How Is Spice Abused?

Some Spice products are sold as “incense” but resemble potpourri rather than popular, more familiar incense products (common forms include short cones or long, thin sticks). Like marijuana, Spice is abused mainly by smoking. Sometimes Spice is mixed with marijuana or is prepared as an herbal infusion for drinking.

### What Are the Health Effects of Spice Abuse?

Presently, there are no studies on the effects of Spice on human health or behavior. A variety of mood and perceptual effects have been described, and patients who have been taken to Poison Control Centers in Texas report symptoms that include rapid heart rate, vomiting, agitation, confusion, and hallucinations.

#### Public Health Concerns

Marketing labels often make unverified claims that Spice products contain up to 3.0 grams of a *natural* psychoactive material taken from a variety of plants. While Spice products do contain dried plant material, chemical analyses of seized spice mixtures have revealed the presence of synthetic (or designer) cannabinoid compounds.\* These bind to the same cannabinoid receptors in the body as THC (delta-9-tetrahydrocannabinol), the primary psychoactive component of marijuana. Some of these compounds, however, bind more strongly to the receptors, which could lead to a much more powerful and unpredictable effect. Notably, these compounds have not been fully characterized for their effects and importantly, their toxicity, in humans.

Because the chemical composition of the various products sold as Spice is unknown, it is likely that some varieties also contain

substances with dramatically different effects than those expected by the user. There is also concern about the presence of harmful heavy metal residues in Spice mixtures. However, without further analyses, it is difficult to determine whether these concerns are justified.

### Legal Status

The U.S. Drug Enforcement Administration (DEA) recently banned five synthetic cannabinoids by placing them in Schedule I status under the Controlled Substances Act. Schedule I status means that the substance is considered to have a high potential for abuse and no known medical benefits; and as such, it is illegal to possess or sell products that contain the substance. This ban went into

effect December 2010, and will continue for 1 year while the DEA continues to gather information about the chemicals.

A number of States have also instituted bans on Spice and Spice-like products and/or synthetic cannabinoid-containing products, and many others are considering legislation forbidding the sale or possession of Spice.

### Other Information Sources

For more information on Spice and Spice-like products, see Understanding the 'Spice' phenomenon, which was produced by the European Monitoring Centre for Drugs and Drug Addiction: <http://www.emcdda.europa.eu/publications/thematic-papers/spice>.

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### Notes

\* Such as **JWH-018** [1-Pentyl-3-(1-naphthoyl)indole] and **HU-210** [(dexanabinol, (6aS,10aS)-9-(hydroxymethyl)-6,6-dimethyl-3-(2-methyloctan-2-yl)-6a,7,10,10a-tetrahydrobenzo[c]chromen-1-ol)]

### Resources

Department of Justice, Drug Enforcement Agency. Microgram Bulletin. March 2009. Available at <http://www.justice.gov/dea/programs/forensicsci/microgram/mg0309/mg0309.pdf>.

Huffman, J.W. Cannabimimetic indoles, pyrroles, and indenes: Structure-activity relationships and receptor interactions. *Curr Med Chem* 6(8):705-720, 2009.

Vardakou, I. Pistos, C. and Spiliopoulou, Ch. Spice drugs as a new trend: Mode of action, identification and legislation. *Toxicol Lett* 197(3):157-162, 2010.