

SYNTHETIC DRUGS

BATH SALTS

CANNABINOIDS

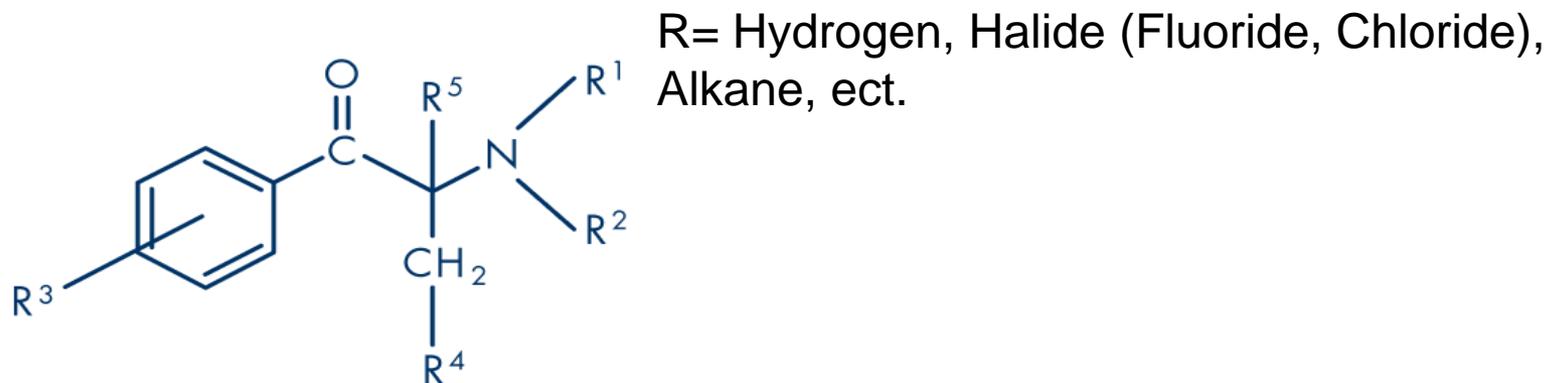
Why Care

- 2011 6138 calls for exposures to Bath Salts to poison control centers.⁸
- 2012 as of April 30, 1007 calls.⁸
- ER admissions in Vermont attributed to these substances
- Its easy to obtain these and not easy to test for.

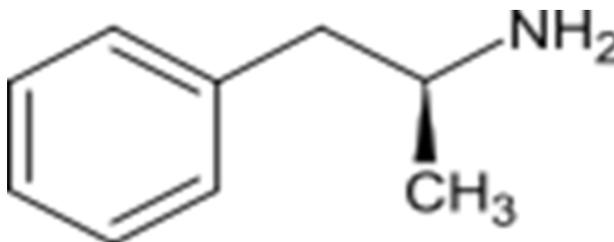
Lets Start with BATH SALTS

WHAT IS A BATH SALT

- Cathinone Derivatives:



Amphetamine:

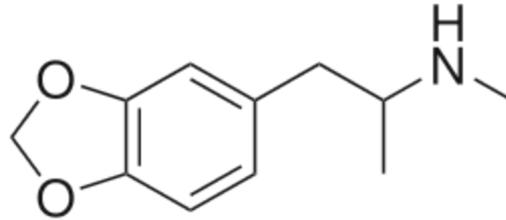


Amphetamine like substances used as a replacement for or with MDMA (Ecstasy), methamphetamine, cocaine

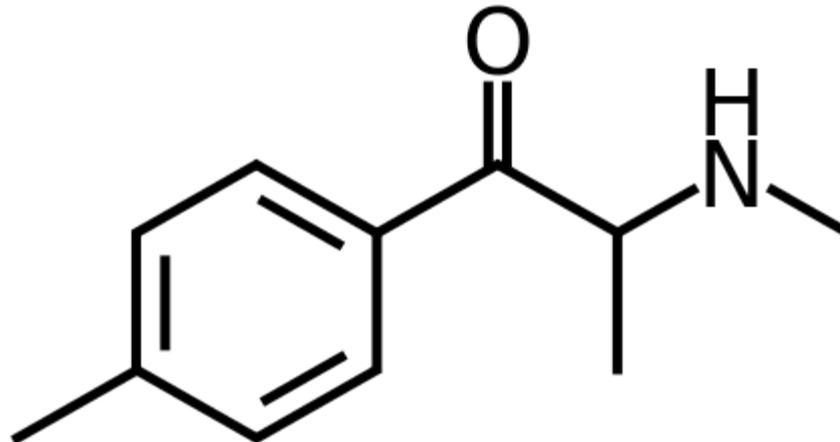
- **Common Names:**

- Ivory Wave
- Blizzard
- Bath Bubbles
- Pond Cleaner
- Plant Vitamins
- Plant Food
- Burial Powder
- Bliss
- Star Dust

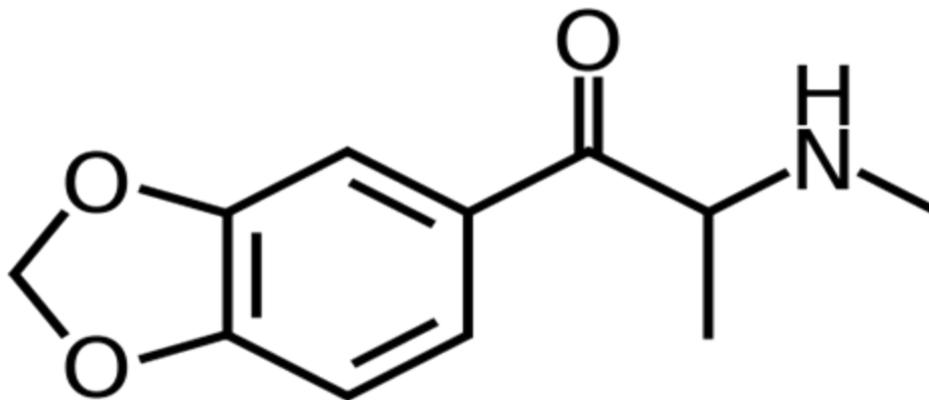
MDMA Structure



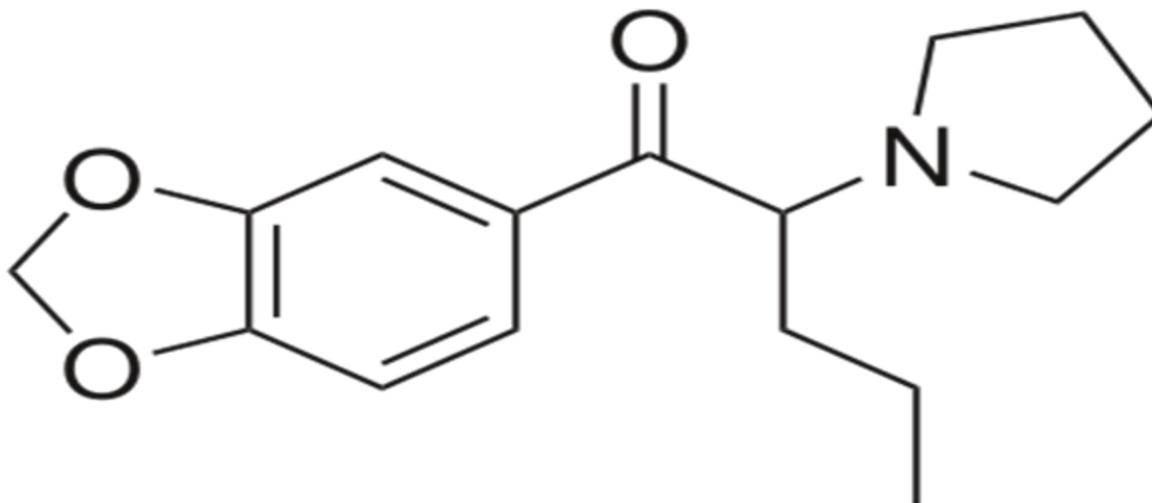
- **Mephedone**



Methylone:



• **MDPV:**



Physiological and Psychological Effects^{1,8}

- Aggression
- Agitation
- Breathing difficulty
- Bruxism
- Confusion
- Dizziness
- Extreme anxiety, sometimes progressing to violent behaviour
- Fits and delusions
- Hallucinations
- Headache
- Nausea, stomach cramps and digestive problems
- Nosebleeds
- Euphoria

And More

- **Psychotic delusions**
- **Pupil dilation**
- **Renal failure**
- **Rhabdomyolysis**
- **Severe paranoia**
- **Suicidal thoughts**
- **Tachycardia**
- **Tinnitus**
- **Vasoconstriction**
- **Hypertension**
- **Increased body temperature, chills, sweating**
- **Insomnia**
- **Kidney pain**
- **Lack of appetite**
- **Liver failure**
- **Loss of bowel control**
- **Muscle spasms**
- **Empathic**

Clinical Symptoms for Self Reported Mephredone Use²

- Over 52% had agitation
- 20% had Palpitations
- 12% had Seizure or Vomiting or Sweating
- **The clinical exams of these individuals**
- Tachycardia >100bpm 48%
- Tachycardia >140bpm 16%
- Hypertension (>160mmHg) 16%
- GCS \leq 8/15 16%
- Bruxism 4%
- Hyper-reflexia 4%

Clinical Symptoms for Self Reported Methylone Use²

- **Modest to Moderate Symptoms**
- Increase in Heart rate and blood pressure
- General Change in consciousness (as with most psychoactive)
- Pupil dilation, blurred vision
- Difficulty in focusing, restlessness
- Trouble with time perception
- Elevated body temperature
- Bruxism, muscle tension and aching trismus
- **Most Severe Symptoms**
- Insomnia

Clinical Symptoms for Self Reported Methylone Use²

- **Most Severe Symptoms**
- Insomnia
- Hyperthermia and sweating
- Dizziness, confusion
- Depersonalization, hallucinations, paranoia, fear (with high doses)
- Unwanted life-changing spiritual experiences
- Skin rashes
- Hangover may include exhaustion, depression, headache, amnesia

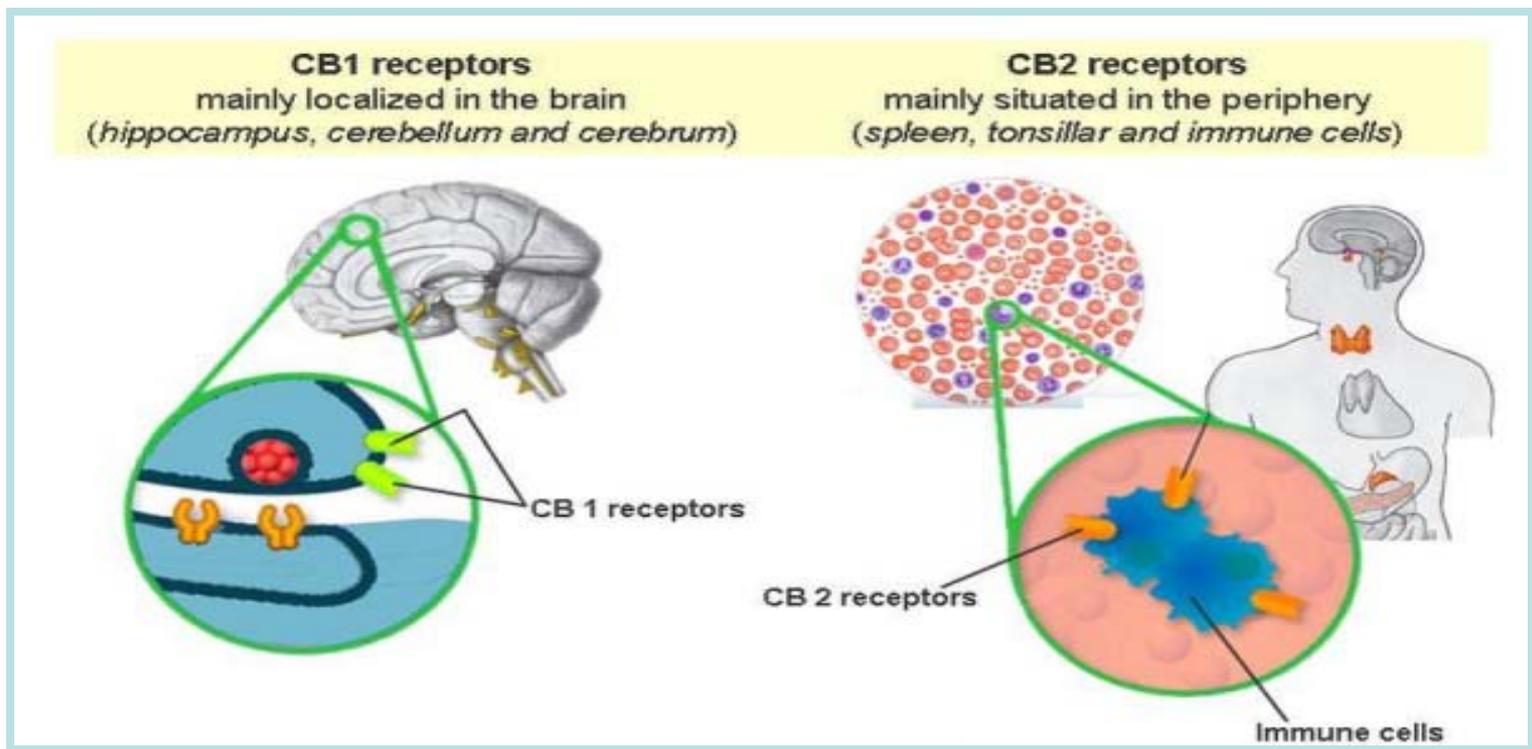
The UGLY Truth

- Neurotoxicity of these compounds is unknown



Part Two “SPICE”⁶

- What is “SPICE”.
- Well, it may be one or more synthetic cannabinoids.
- One of the first was synthesized over 25 years ago to study therapeutic uses in pain management.
- Binds at CB1 (CNS and cardiovascular) and CB2 (primarily immune system) receptor.
- 10 to 100 times more potent than THC from cannabis.



- Cannabinoid: refers to a chemical class
- Cannabimimetic: refers to mode of action
 - Cannabimimetic Agents means, collectively, any chemical that is a cannabinoid receptor type 1 (CB1) or cannabinoid receptor type 2 (CB2) agonist, or any salts, isomers, derivatives, or analogues of these chemicals
- 64 chemicals added

Synthetic Cannabinoids

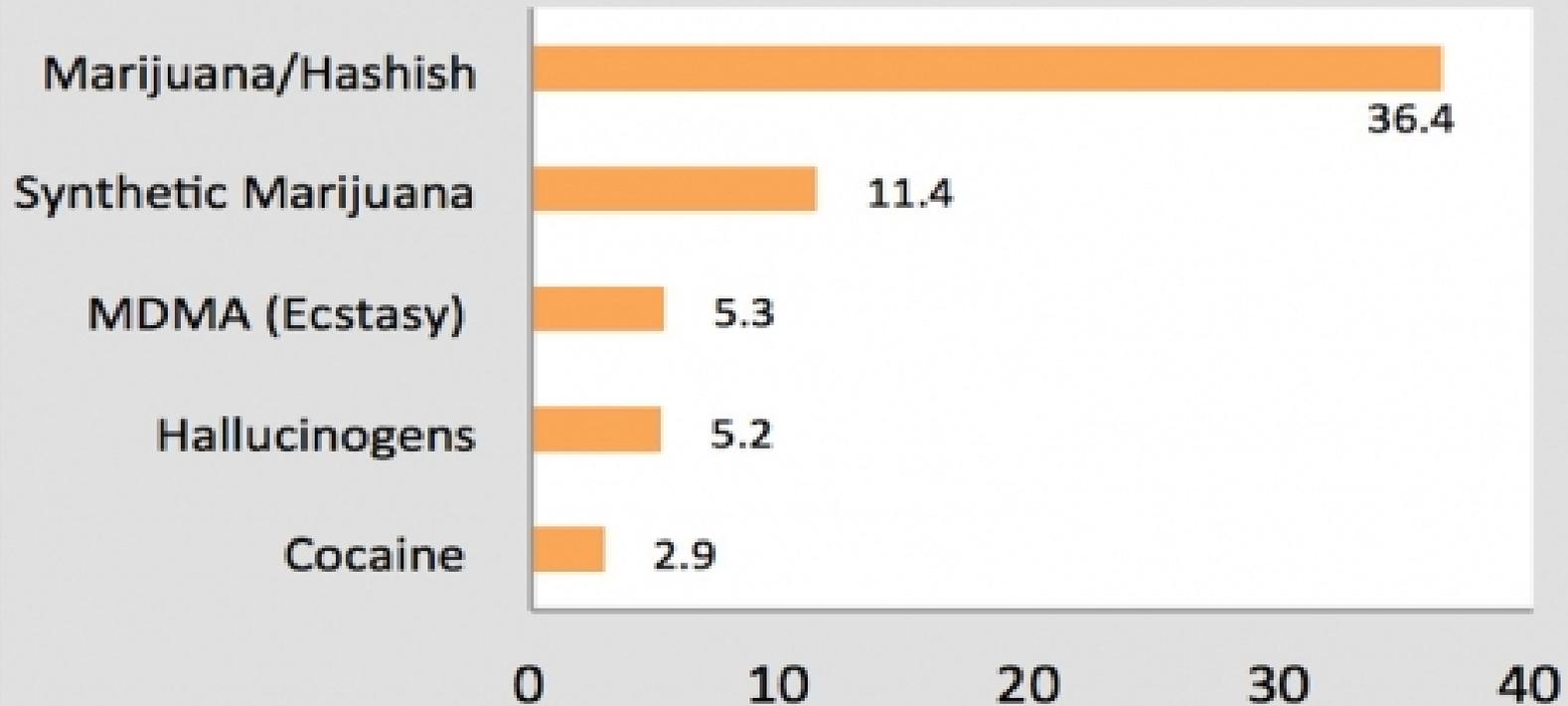
- **Some of the compounds found**
- JWH-133, JWH-073, JWH-081, JWH-122
- JWH-200, JWH-210, JWH-398, HU-210, HU-211
- WIN55, 212-2
- **Common Names**
- Spice, K2, Kronic, Skunk, Space, Sence
- All state on the package “Not for Human Consumption”

Some Signs and Symptoms of Use⁸

- Agitation
- Alteration of Time perception
- Amnesia
- Anticholinergic effects
- Anxiety
- Apathy
- Dysphoria
- Hallucinations
- Hypertension
- Nausea
- Tachycardia
- Paranoia
- Seizures

A disturbing thought

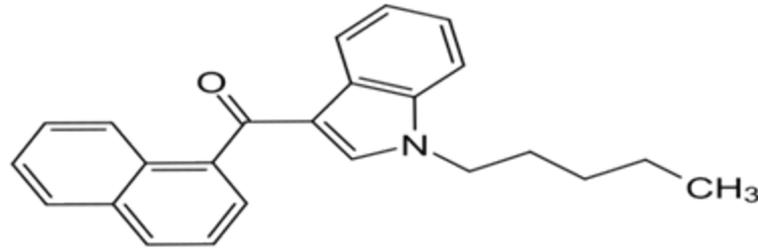
Past-Year Use of Illicit Drugs by High School Seniors (percent)



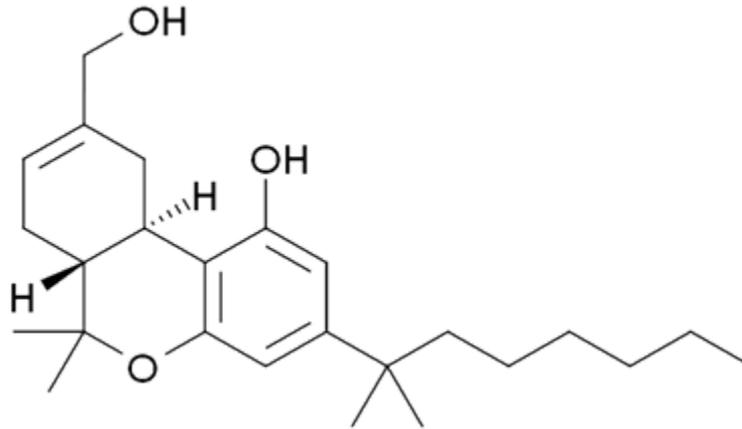
SOURCE: University of Michigan, 2011 Monitoring the Future Study

Major Ingredients of SPICE

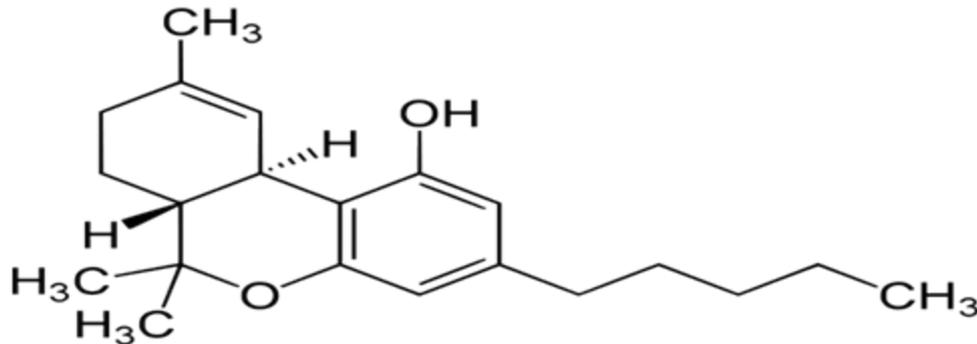
- JHW-018



HU-210



THC



What has the Vermont Health Dept. Done

- **12-E03** Emergency Rule banning the sale/possession of 33 specific “Bath Salt compounds, 47 specific synthetic cannabinoid type compounds and 9 mescaline analogues
- **But... manufacturers are fast.** Barre City Head shop already has 2 compounds not in rule. So we are in the process of second emergency rule.
- **Second Emergency Rule.** This has added compounds and more generic chemical descriptions to head off new compounds showing up in these products.

Vermont Dept. of Health Lab Here to Serve Vermont

- What Classes of Drugs we test for in Urine
 - Opiates
 - Amphetamines
 - Cocaine
 - Tricyclic Antidepressants
 - Benzodiazepines
 - THC
 - Methadone
 - Buprenorphine
 - PCP
 - Barbiturates
 - Ethanol
 - Including metabolites of the above

Testing

- Is there testing available for Bath Salts and Synthetic Cannabinoids?
- Yes...but who?

Bibliography

- 1 <http://fortox.org/targeted-lc-qqq-ms-screening-of-designer-drugs-in-serum/>
- 2 <http://www.homeoffice.gov.uk/acmd1/acmd-cathinodes-report-2010>
- 3 <http://www.emcdda.europa.eu/publications/drug-profiles/synthetic-cathinones#physical>
- 4 http://www.justthinktwice.com/drugs/bath_salts_or_designer_cathinones_synthetic_stimulants.html
- 5 Maskell, P. D., De Paoli, G., Seneviratne, C. and Pounder, D. J. 'Mephredone Related Deaths', Journal of Toxicology 35, April 2011, pp. 188-191.
- 6 <http://www.atk.gov.tr/pdf/huestissyntheticcannabinoids.pdf>
- 7 <http://www.drugabuse.gov/publications/drugfacts/spice-synthetic-marijuana>
- 8 Knoll, James, L. "Bath Salts" and "Herbal Incense": Legal Highs-Medical Lows", Psychiatric Times, July 2012, pp. 12-13.

Questions

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Thank You for Your Time