
Spice/K-2: Everything Old is New Again

Introduction

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Lecture & Question Format

The Deal

- n Established group of drugs gaining new popularity
 - n Designer Drugs
 - n Research Chemicals
-

The Deal

- n New compounds, some never tested, things made in labs can be deadly or debilitating
 - n Products can have multiple compounds present (10 or more) things they say are not
 - n World-wide delivery, sold locally
 - n Gray market, many recent DEA bans
-

Dependence- Producing Substances

n Alcohol

n Stimulants

n Opioids

n Sedative-Hypnotics

n Nicotine/Tobacco

n Hallucinogens (MJ)

Hallucinogens

- n Messy group, includes Cannabis
 - n Classical Hallucinogens (LSD)
 - n Hallucinogen-Related & Other Drugs
-

Hallucinogens

- n Classic Hallucinogens

 - q Indolealkylamines & Phenylalkylamines

- n Hallucinogen-Related & Designer Drugs

Hallucinogen-Related & Other Drugs

n “Legal Highs”

n “Herbal Highs/Incense”

n “Research Chemicals”

n Made from pre-existing research molecules

Products





Phenethylamines

Related to: phenethylamine

2C-x

Related to: mescaline

2C-B 2C-D
2C-I 2C-P
2C-E 2C-T-x

2C-B-FLY

Psychedelic amphetamines (DOx)

Related to: 2C-x, amphetamine

DOB DOM
DOC DON
DOI DOET

Bromo-DragonFLY

β-ketones

Related to: cathinone,
MDMA, amphetamine

Mephedrone Butylone
Methylone Flephedrone
Methedrone MDPV
Naphthylpyrovalerone

Cyclized amphetamines

Related to: MDMA,
amphetamine

2-AI 2-AT
MDAI MDAT
MDMAI MDMAT

MMAI

Ergolines

Related to: LSD, LSA

PRO-LAD
ETH-LAD

Tryptamines

Related to: psilocin, DMT, serotonin

5'-substituted

Related to: psilocin, serotonin

5-MeO-DMT 5-MeO-DALT
5-MeO-MIPT 5-MeO-MET
5-MeO-DIPT 5-MeO-DPT

5-MeO-AMT
5-MeO-AET

4'-substituted

Related to: psilocin

4-AcO-DMT 4-HO-DPT
4-AcO-DET 4-HO-DALT
4-HO-MIPT 4-HO-DIPT

4-MES-DMT

NMT MIPT
DET DALT DIPT
DPT

AMT
AET

Synthetic Cannabinoids

Functionally related to naturally occurring cannabinoids

Found in a number of branded products, most notably Spice

CP-47,497

CP-55,940

HU-210

JWH family

JWH-017 JWH-073

JWH-018 JWH-081

JWH-019 JWH-200

JWH-250

WIN-55,212-2

CB-25

CB-52

Piperazines

Related to: piperazine

BZP mCPP
MBZP pFPP
DBZP MeOPP
MDBZP TFMPP

Opiates

α-methylfentanyl
3-methylfentanyl
para-fluorofentanyl
MPPP
O-desmethyltramadol
7-acetoxymitragynine

Research Chemicals

n 2008

n Recent bans

Designer Drugs / Research Chemicals

n 1920's- altering forms of opiates

n 1960's synthetic hallucinogens (LSD)

n 1970's MPP/MPTP

n 1980's MDMA , MDA

n 1990's Anabolic Steroid analogues

HR 1254/Synthetic Drug Control Act- 2011

- n Charles Dent, R-PA 3/30/11
 - n Amend CSA '86, to include CB1r agonists, “bath salts” and tons of RCs
-

S. 605 Dangerous Synthetic Drug Control Act 2011

- n Senator Chuck Grassley, IA 3/17/11
 - n Amends CSA to include tons of RCs incl AM2201
 - n “David Mitchell Rozga Act”
-

David Mitchell Rozga- The parents of David Rozga of Indianola, Iowa say their son took his own life after smoking K2 purchased at a suburban shopping mall. (Courtesy the Rozga family)



Recent DEA bans

- n Unprecedented activity
 - n March 2011- 5 substances “Spice/K2”
 - n September 2011- 3 substances “Bath Salts”
-

DEA Ban March 2011

- n 5 Synthetic Cannabinoids banned
 - n JWH-018, JWH-073, JWH-200, CP-47,497 and cannabicyclohexanol (CP-47, 497 C8)
-

DEA Ban- September 2011

- n 3 substances “Bath Salts”, “Plant Food”
 - n Mephedrone, Methyldone and MDPV
-

What's the danger?

- n Little or no formal study on most of these
 - q Adverse reactions are a mystery
 - q Doses are a mystery
 - q Interactions are a mystery
-

RC adverse effects

n Dry sore throat

n Headache

n Diarrhea

n Vomiting

n Psychosis

q “freak out”

n Insomnia

n Lethargy

Research Chemicals

n HU Family

n CP Family

n JWH Family

n Plus others...AM, WIN

An Aside

- n Nicotinic receptors
 - n Cannabinoid receptors
 - n Opioid receptors
-

Endocannabinoid System

n Anesthesia

n Anti-inflammatory

n Analgesia

n Immune Function

n Gastric emptying

n Neural Development

Synthetic Hallucinogen Groups

n HU Family

n CP Family

n JWH Family

HU Family

- n 1960s-late 1980s
 - n Raphael Mechoulam, Hebrew University
 - n Ex HU-210, 100-800x more potent than mj
 - n HU-210 banned CSA, HU-211 not
-

HU Family Members

- HU-210
 - HU-211
 - HU-243
 - HU-308
 - HU-320
 - HU-336
 - HU-345
 - HU-331
-

CP Family

- n 1970s-1980s
 - n Pfizer (CyclohexyPhenols)
 - n CP-47,497 and CP-47, 497 C8
 - n “Spice”/ “K2”- banned
-

CP Family Members

n (C8)-CP 47,497

n CP-50,556-1

n CP-55,244

n CP-55,940

JWH Family

- n 1990s
 - n John W. Huffman, Clemson SC
 - n 450 compounds, ex JWH-250 in “Spice”
-

DEA Emergency Ban March 2011

n JWH-018

n CP-47, 497

n JWH-073

n CP-47, 497 C8

n JWH-200

DEA Emergency Ban September 2011

n 9/7/11

n Mephedrone

n Methylone

n 3,4 MDPV

Conclusions

- n Two herbal blends were analyzed for the presence of synthetic cannabinoids
 - n Both samples had high levels of JWH-250 and low(er) levels of JWH-018
 - n Although JWH-018 is now a DEA Schedule 1 compound, it is still present in some “herbal” formulations
 - n JWH-250 illegal in NC per HB 12 6/23/11
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7-acetoxymitragynine

Strategies for Parents

- n Talk with your child
 - n Suspicious packages
 - n Monitor internet
 - n Behavior/Friends
 - n Track spending, esp credit card
 - n Mood changes, HAs
 - n Repeated requests for cash
 - n Monitor Grades
 - n Drug Testing
-

NC HB 12- RC Drug Forum Mod

- n “The NC legislation plugs two of the most obvious holes in this UK legislation...these holes were plugged using information on this forum, as both these weaknesses in the UK law have been pointed out repeatedly since the UK law change over a year ago. You have to give them some credit though... if the intent is to control all synthetic cannabinoids then this is by far the most effective attempt at legislation of any of the states thus far.”