



Annual Workplace Safety and Health Conference



Drug Use Today:

“Legal high” designer drugs and emerging natural substances.

Presented by: Pat Pizzo, Director of Toxicology

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Who Am I?

- Director of Toxicology at Alere™.
- In the field for 45 years.
- Original training and experience was with the FBI crime laboratory in WDC.
- Qualified as an expert in forensic toxicology in 20 states.
- Guest speaker on many radio talk shows and featured in newspapers and magazines.
- Authored and co-authored several articles that have appeared in the United States and abroad.
- Member of international organization to establish drug-testing policies for the oil and gas industry worldwide.
- Former member of the Federal Drug Testing Advisory Board.



Pat Pizzo

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Cannabimimetics



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How Do These Plants Affect the User?

- Lion's Tail
 - Euphoria
- Baybean
 - Starry eyed
 - Smooth smoke
- Blue Lotus
 - Like Viagra
- Pink Lotus
 - Euphoria
- Dwarf Skullcap
 - Relaxing effect
- Siberian Motherwort
 - Cannabinoid-like effect
 - Narcotic effect in animals
- Maconha Brava (False Marijuana)
 - Sedative
- Indian Warrior
 - Tranquilizer
 - Aphrodisiac

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Synthetic Marijuana Compounds

- More than 450 synthetic marijuana compounds exist.
- The potential to make more is real.
- Federal guidelines have banned 27.
- Four emergency temporary bans since the original law was published.



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Synthetic Marijuana

Synthetic marijuana is now the **third most reported substance** used by U.S. high school students.

—2013 Center for Substance Abuse Research (CESAR FAX)



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Statistics and Trends

Monitoring the Future Study: Trends in Prevalence of K2/Spice (Synthetic Marijuana) for 8th Graders, 10th Graders, and 12th Graders; 2015 (in percent)*

Drug	Time Period	8th Graders	10th Graders	12th Graders
K2/Spice (Synthetic Marijuana)	Past Year	3.10	4.30	5.20

NIDA bulletin

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Reasons for Synthetic Marijuana Popularity

- Chemical compounds mimic effects of THC, but may be 4 to 100 times stronger than marijuana.
- Easily modified chemical structures allow “chemists” to stay in front of DEA regulations. Some newer-gen products still legal.
- Easily distributed and accessible online.
- Not typically ordered on routine lab test panel.
- Redwood Toxicology Laboratory averaged a 10% positive rate in 2013.



Synthetic Marijuana also known as K2/Spice. Product names continually change. Some common names include: K2, Spice, K3 Legal, Serenity, Bizzaro, Cloud-9, Avalanche, Sonic Zero, Warped, Haze, Myster, Rain, and many more.

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Duration of Effect

Compound	Duration of Effect
THC- Marijuana	2-4 hours
JWH-018	1-2 hours
CP47,497	5-6 hours
HU-210	~24 hours

Dr. Robert Kronstrand, SPFT WS9, Oct 2013 (1)

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What Are the Effects?

- Euphoria
- Sedation
- Perceptual distortions
- Appetite stimulation
- Depressed locomotion (URL44)
- Hypothermia (URL44)
- Hallucination and delusions
- Tachycardia
- Elevated blood pressure
- Nausea and vomiting
- Seizures – loss of consciousness
- Red eyes
- Dry mouth
- Increased pulse
- Thought disruption
- Kidney failure (XLR11)

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Federal Law

— Synthetic Cannabinoids as of 7.9.12

- July 2012, President Obama signs Synthetic Drug Abuse Prevention Act, (1) instituting federal ban on 31 designer drugs.
- The original ban identified 15 synthetic marijuana drugs and 5 drug classes as Schedule 1 drugs. (2)
- A conviction could bring serious criminal penalties for possession or sale—now punishable by up to 20 years in prison.
- Also increased the duration of time for emergency control.



1) The Synthetic Prevention Act of 2012 is part of Senate Bill 3187, the Food and Drug Administration Safety and Innovation Act passed by the U.S. Senate and House of Representatives.
2) Senator Schumer Press Release July 9, 2012

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Federal Law Banning Synthetic Cannabinoids

The Synthetic Drug Abuse Prevention Act, signed into law July 2012, bans five classes of synthetic cannabinoids and 15 specific drugs.

- 5 Classes
- Hydroxycyclohexylphenols
 - Benzoylindoles
 - Naphthoylindoles
 - Phenylacetylindoles
 - Naphthoylpyrroles

-
- 15 Drugs
- CP-47,497
 - JWH-019
 - AM2201
 - CP-47,497 C8-homolog
 - JWH-200
 - AM694
 - JWH-018 and AM678
 - JWH-250
 - SR-19 and RCS-4
 - JWH-073
 - JWH-081
 - SR-18 and RCS-8
 - JWH-122
 - JWH-398
 - JWH-203

Source: Senator Schumer Press Release July 9, 2012

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Legal High Abuse Trends in United States

2010 abuse patterns (Pre Ban)

- K2 was most popular brand in US
- Active Ingredients: JWH018, JWH073, JWH250 (few preparations)

2011 abuse patterns (Post Temporary Ban)

- Hundreds of other available brands developed
- Ingredients begin changing: JWH081, JWH201, RCS4, AM2201

2012 abuse patterns (Post Federal Ban)

- **Third-generation** brands available
- Active Ingredients: XLR-11, UR-144, JWH-122

2013 abuse patterns

- **Fourth-generation** brands available
- Active Ingredients: PB-22, BB-22, 5F-PB-22

2014 abuse patterns

- **Fifth-generation** brands available
- Active Ingredients: AB-CHMINACA, AB-PINACA, THJ-2201

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Screening Analysis

- Recent publication in JAT showed an Elisa screening kit for JWH 250 tested for JWH-250 metabolites but less than a 1 percent cross reactivity with any other compounds. An Elisa screening kit for JWH-18 however did cross-react with 10 metabolites of other synthetic marijuana metabolites at 50 percent or greater.
- Onsite test – One product will only cross react with JWH-018 and JWH-073 at 100 percent but does show low cross reactivity with 3 metabolites of other synthetic marijuana compounds.
- Labs cannot test for all of the products on the market because standards and methods are not available or have not been validated.

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Can It Be Detected by Drug Testing?

Synthetic Cannabinoid Screen Urine Lab Test (15 compounds)

Panel – Example of Screen Panel – Only cross reactive >50% listed

JWH 018 Pentanoic Acid (100%)	JWH 073 N4 Hydroxybutyl (100%)
JWH 018 Hydroxypentyl (111%)	JWH 073 6-Hydroxyindole (111%)
JWH 018 (80 %)	JWH 073 N-Butanoic Acid (100%)
JWH 018 4-Hydroxyindole (57%)	JWH 073 (80%)
AM 2201 N4-Hydroxypentyl (111%)	JWH 019 (80%)
AM 2201 6-Hydroxyindole (80%)	JWH 200 (80%)
AM2201 (80%)	3-(1 naphthyl)1-H Indol (80%)
JWH 007 (80%)	



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Can It Be Detected by Drug Testing? – Table 1

Synthetic Cannabinoid Standard Urine Lab Test (15 compounds)

Panel – Example of Standard Panel Covering Numerous Synthetic Cannabinoids.

JWH 018 Pentanoic Acid	JWH 073 4- Hydroxybutyl
JWH 018 4- Hydroxypentyl	JWH 073 Butanoic Acid
JWH 018 5- Hydroxypentyl	JWH 250 5-Carboxypentyl
JWH 081 5-Hydroxypentyl	JWH 250 5-Hydroxyindole
AM 2201 4-Hydroxypentyl	JWH 250 5-Hydroxypentyl
JWH 200 5-Hydroxyindole	RCS 4,5-Carboxypentyl
JWH 200 4 or 6-Hydroxyindole	RCS 4,5 - Hydroxypentyl
JWH 073 3- Hydroxybutyl	



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Can It Be Detected by Drug Testing? – Table 2

Synthetic Cannabinoid Expanded Urine Lab Test Example of an expanded panel (45 compounds)		
AB Pinaca Pentanoic acid	JWH-018 Pentanoic acid	JWH 250 5-hydroxypentyl
AKB-48	JWH-19 6-hydroxy hexyl	JWH 250 5-hydroxyindole
AKB-48 Pentanoic acid	JWH-073 3- hydroxybutyl	JWH 250 Pentanoic acid
AM-1248	JWH-073 4- hydroxybutyl	JWH 398 N-pentanoic acid
AM-2201 4 hydroxy-pentyl	JWH-073 Butanoic acid	MAM2201 N-Pentanoic Acid
AM-694	JWH-081 5-hydrox pentyl	RCS 4,5 - Hydroxypentyl
AM-694 Pentanoic acid	JWH 122 4-hydroxy pentyl	RCS 8-4 Methoxy
BB-22 3 carboxyindole metabolite	JWH-200 4-hydroxyindole	RCS 4 Pentanoic acid
HU 210	JWH-200 5-hydroxyindole	UR 144-Pentanoic acid
JWH-18 hydroxy-pentyl	JWH-200 6-hydroxyindole	URL-144 degradant Pentanoic acid
JWH-18,19,73,81,122,200, 203,210,250 and 398	PB-22 3 carboxyindole metabolite	XLR 11 N-4-hydroxypentyl
BB-22, PD-22	URL-144, XLR 11	MAM-2201, RCS-4

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Do You Recognize this Plant?



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Salvia Divinorum

- Historically used by religious healers
- Name means 'divine sage'
- Initial effect: lasts 2-5 minutes
- Hallucinations to uncontrollable laughter
- After-effects
- Calm, clear thinking
- Improved mood
- Higher confidence



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Coleus

- In traditional homeopathic medicine, coleus extract has been used for treating intestinal spasms, convulsions, lung disease, insomnia, and heart disease. General heart health, including reduced blood pressure, may be promoted by the plant.
- On the Internet it is reported as a substitute for Salvia Divinorum.
- Coleus – mild relaxing and/or hallucinogenic effects when consumed.
- Delivery systems – chewing the leaves or making tea.



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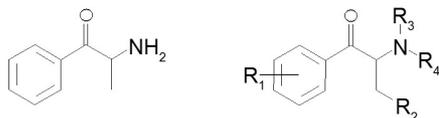
What Are Designer Drugs?

- Designer drug is a term used to describe drugs that are created (or marketed, if they had already existed) to get around existing drug laws.
- In early 2000s, there was a huge explosion in designer drugs being sold over the internet.
- The term and concept of "research chemicals" was coined by some marketers of designer drugs. The idea was that by selling the chemicals for "scientific research" rather than human consumption, the intent clause of the U.S. analogue drug laws would be avoided.

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Cathinone Compounds: What Does this Mean?



- Khat has six chemical compounds in addition to cathinone.
- You have 43 compounds that can be created by modifying the molecular structure of cathinone to different degrees.

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Khat or Qat?

- Contains an alkaloid called cathinone
- Amphetamine-like stimulate
- Cathinone – Schedule I
- Can be tested but few labs offer this drug
- Costs around \$50 - \$150 per specimen



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Mephedrone or Drone

- Derived from cathinone
- Sold on Internet as plant feeder
- Amphetamine-like stimulant
- Causing deaths in UK
- Recently banned and now considered a Schedule I substance (7/9/12)



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Bath Salts – MDPV (methylenedioxypropylvalerone)

- Inhaled
- Stimulant similar to cocaine
- Illegal in U.S.
- Illegal in U.K.
- Associated with several deaths
- Compulsive use
- **NOT FOR HUMAN CONSUMPTION**



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Effects of Cathinones

- Increased heart rate
- Hallucinations
- Depression
- Tremors
- Anxiety
- Paranoia
- Seizures
- Kidney Failure
- Violent behavior
- Death



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Federal law — Bath Salts Designer Stimulants as of 7.9.12

- July 2012, President Obama signs Synthetic Drug Abuse Prevention Act,(1) instituting a Schedule 1 federal ban on two designer stimulant drugs, nine synthetic hallucinogens, and 20 synthetic marijuana chemicals.(2)
- MDPV and Mephedrone, common active ingredients in "bath salt" drugs, are now banned by the DEA.
- A conviction could bring serious criminal penalties for possession or sale—now punishable for up to 20 years in prison.



- 1) The Synthetic Prevention Act of 2012 is part of Senate Bill 3187, the Food and Drug Administration Safety and Innovation Act passed by the U.S. Senate and House of Representatives.
- 2) Senator Schumer Press Release July 9, 2012

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Federal law — Two Designer Stimulants and Nine Synthetic Hallucinogens as of 7.9.12

- 4-methylmethcathinone (Mephedrone)
- 3,4-methylenedioxypropylvalerone (MDPV)
- 2-(2,5-Dimethoxy-4-ethylphenyl)ethanamine (2C-E)
- 2-(2,5-Dimethoxy-4-methylphenyl)ethanamine (2C-D)
- 2-(4-Chloro-2,5-dimethoxyphenyl)ethanamine (2C-C)
- 2-(4-Iodo-2,5-dimethoxyphenyl)ethanamine (2C-I)
- 2-[4-(Ethylthio)-2,5-dimethoxyphenyl]ethanamine (2C-T-2)
- 2-[4-(Isopropylthio)-2,5-dimethoxyphenyl]ethanamine (2C-T-4)
- 2-(2,5-Dimethoxyphenyl)ethanamine (2C-H).
- 2-(2,5-Dimethoxy-4-nitrophenyl)ethanamine (2C-N)
- 2-(2,5-Dimethoxy-4-(n)-propylphenyl)ethanamine (2C-P)

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The List of Compounds (15) Struck from the Bill

- 3,4-methylenedioxyamphetaminone (methydone)
- Naphthylpyrovalerone (naphyrone)
- 4-fluoromethcathinone (flephedrone)
- 4-methoxymethcathinone (methedrone; Bk-PMMA)
- Ethcathinone (N-Ethylcathinone)
- 3,4-methylenedioxyethylcathinone (ethylone)
- Beta-keto-N-methyl-3,4-benzodioxymethylbutanamine (butylone)
- N,N-dimethylcathinone (metamfepramone)
- Alpha-pyrrolidinopropiophenone (alpha-PPP)
- 4-methoxy-alpha-pyrrolidinopropiophenone (MOPPP)
- 3,4-methylenedioxy-alpha-pyrrolidinopropiophenone (MDPPP)
- Alpha-pyrrolidinovalerophenone (alpha-PVP)
- 6,7-dihydro-5H-indeno-(5,6-d)-1,3-dioxol-6-amine (MDAI)
- 3-fluoromethcathinone
- 4-Methyl-alpha-pyrrolidinobutiophenone (MPBP)

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The Face of the New Drugs on the Street



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Alpha-pyrrolidinovalerophenone (alpha-PVP)

- Street name is Flakka.
- Real problem in Southern Florida.
- CNS stimulant has similar impact on the body as the use of methamphetamine and cocaine. Detection times should be similar to that of cocaine and methamphetamine, 24-72 hours in urine.
- Studies on humans are not allowed in the United States. A review of websites listing users stated effects resulted in the following list.
- Negative Effects: sweating, anxiety, heart rate increase, palpitations, sleeplessness, unpleasant crash, minor vasoconstriction, addictive behavior, and urge to re-dose.

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Gravel (AKA Flakka)

Knoxville, TN

- Identified bath salts, methamphetamine, and Klonopin in Columbus Ohio.
- Identified bath salts, methamphetamine, and rat poison.

Kingsport, TN

- Identified alpha-Pyrrolidinopentiophenone (Alpha PVP) a synthetic stimulant.
- Ingested similarly to synthetic drug bath salts, through smoking or injection.
- Quote from Kingsport PD: "We're not seeing the crazy rages (like with bath salts), but the paranoia is the worst we've seen from any drugs."



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Superman (PMMA or PMA)

- PMMA –paramethoxymethamphetamine
- Being sold as MDMA or Molly
- Causes dangerous increases in body temperature and blood pressure
- Toxic at lower doses than MDMA
- Requires up to two hours in order to take effect
- Very nearly the perfect overdose drug
- Number of deaths in Europe and the United States
- Gaining popularity

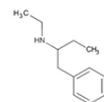


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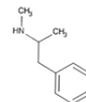


Craze

- A popular and controversial sports supplement widely sold in the USA and other countries is secretly spiked with a chemical similar to methamphetamine that appears to have its origins as an illicit designer recreational drug.
- Test results on samples of Craze, a pre-workout powder made by New York-based Driven Sports and marketed as containing only natural ingredients, raise significant health and regulatory concerns.
- U.S. researchers also said they found the same methamphetamine-like chemical in another supplement, Detonate, which is sold as an all-natural weight loss pill by another company.
- There is a methamphetamine-like stimulant in Craze, a synthetic drug called N,alpha diethylphenylethylamine.



N,alpha-diethylphenylethylamine
Chemical structure of emerging and potentially harmful contaminant N,alpha-diethylphenylethylamine (N-alpha-DEPEA)



methamphetamine
Chemical structure of methamphetamine, an illicit drug of abuse

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Eight Ballz

- Was sold as bath salts.
- Now marketed as glass cleaner.
- Contains pyrovalerone (a synthetic cathinone).
- Remember MDPV (methylenedioxyvalerone)
- **IMPORTANT:** cannot be shipped to the following states: AR, ID, IN, KS, LA, MI, MS, MN, ME, NC, ND, TX, WV.



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Bromo – Dragonfly – phenethylamine

- Developed as research drug in 1998
- Street names – Fly or 2C-B-fly
- Total duration of effect is 12-24 hours
- Serotonin agonist
- Effects similar to some hallucinogens



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SMILES – 2C-I or 2C-I NBOMe

- Marketed as 2C-I but believed to be 2C-INBOMe, a different, newer, more potent chemical
- Phenethylamine
- DEA Schedule 1
- Also sold under the name N-Bomb
- Several deaths reported throughout the US due to overdose



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What Is Molly?

- 1950s – 1970s Molly or Black Molly was used to refer to methamphetamine. It now has a new meaning.
- 2003: – DEA identified the contents of capsules called Molly as TFMPP 1-(3-trifluoromethylphenyl) piperazine.
- 2013: – Molly is a powdered form of MDMA, cut with almost anything from cocaine to heroin including methylone, TFMPP, and DHA (3-4 dihydroxyamphetamine).
- Very popular in EDM (electronic dance music), Hip Hop, and rap cultures.
- Numerous songs refer to Molly.



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Effects of MDMA

- The hug drug – empathy for others, reduces inhibitions
- Dehydration/dry mouth – drink water
- “Short circuit” signal to brain controlling temperature
- Teeth grinding – pacifiers
- Suppress need to eat or sleep
- Dilated pupils
- Overall stimulation
- Great Britain – researchers are investigating the use of MDMA in various treatment regiments

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MDMA Tablet Analysis

MDMA tablets purchased from the street and analyzed by an independent lab (EcstasyData.org) indicate the following results:

- Active ingredient not always MDMA
- Compound analysis detects wide range of drugs including other designer drugs, research chemicals, prescription drugs, stimulants, or designer stimulant compounds often associated with “bath salts.”

- Methylone
- mCPP
- TFMPP
- 4-Fluoroamphetamine
- 4-MEC
- 2C-E
- Methamphetamine
- Zolpidem
- Caffeine
- DXM
- Metoclopramide
- 2C-B



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DMT- Psychedelic Tryptamine

- DMT =N-N-dimethyltryptamine
- DEA Schedule I
- Delivery – smoked – 15-60 mg
- Cost – Single dose -\$10 - \$30
- Retail – \$60 - \$300
- Effect – in 10-60 seconds
- Duration – 5-20 minutes
- Back to normal – 1-2 hrs
- Documented as early as the 700s as snuff from grave sites



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DMT- Psychedelic Tryptamine

- DMT can also come from your back yard.
- Directions to extract DMT from plant material readily available on the Internet.
- Ingredients.....
 1. Sodium Hydroxide i.e. Caustic Soda (aka Lye) (minimum of 5g for extracting 20g of Mimosa root or bark)
 2. Naphtha (Ronsonol Lighter Fluid / Newport Lighter Fluid 4 Zippos or a similar type)
 3. Tap water
 4. Mimosa bark (20g minimum extraction)
<http://www.botanicalspirit.com>



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Can It Be Detected by Drug Testing?

Under the contract – the class amphetamines includes:

- Amphetamine, Methamphetamine, MDMA, MDA and MDEA
- Designer stimulants are an off-contract test

Standard Laboratory Panels

Ensure that your test panel includes the detection of Methylenedioxy-methamphetamine (MDMA).

Designer Stimulant Panel

Detects the presence of 21 designer stimulant drugs including Methylenedioxy-methamphetamine (MDMA).

NOTE: This will allow your facility to detect Molly if it is composed of MDMA and/or other designer stimulant compounds.

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Three More Research Chemicals to Add to the Mix

- MXE – methoxetamine
- 3-MeO-PCE – 3-methoxyeticyclidine
- 3-MeO-PCP – 3-methoxyphencyclidine
- Dissociative anesthetic “research chemicals”
- Hallucinogenic effects similar to PCP



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Phenazepam

- Developed in Russia
- Benzodiazepine
- Not controlled under federal law – this is a non-scheduled drug available on the Internet
- States can schedule this drug
- Louisiana and Arkansas have classified this drug as a schedule I
- Dosage – 0.5 mg X3 daily max 10 mg
- 1 mg phenazepam = 10 mg Diazepam
- Cost – \$28.00/gram or .01 per dose
- Mr. Smiley Bars– \$5.99/pack
- Not currently being tested by labs



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Even More “Research Chemicals”

Pyrazolam

- A benzodiazepine derivative which is water soluble
- Duration of action of approximately six hours
- activity approximately x12 that of diazepam (Valium)



Etizolam

- Etizolam is structurally related to benzodiazepines like alium and Xanax (Alprazolam)
- You can buy Etizolam and other research chemicals online and in person at locations in England, Scotland, Wales, and Ireland



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Krokodil

- Actual drug – Desomorphine
- Made from codeine
- Kitchen labs – 3 steps use gasoline, paint thinner, hydrochloric acid, iodine and red phosphorous
- Appeared in Russia in 2002; now in several European countries
- Usually an orange liquid – injected like Heroin
- Short high – 1-1.5 hrs; Heroin 6-8-hr. high
- Cheap – \$6-8; Heroin \$150 and up
- Takes about 30 minutes to make
- Causes a scaly, green skin irritation, destruction of the skin at the injection site, and eventually gangrene
- The drug that eats the user



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Kratom

Found in Thailand and Malaysia

- Powdered extract is \$66 per 2 g
- Powdered leaf is \$15 per 28 g

Effects

- Opiate-like sedation high dose 20-50 g
to coca-like stimulation low dose 10 g

Duration

- Initial effect in 5-10 minutes; max effect in 15-20 minutes, but some effects can be felt for 2-5 hours

Tea is common delivery



Photo © Erowid.org

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W-18 – Synthetic Opiate

- 1-(4-Nitrophenylethyl) piperidylidene-2-(4-chlorophenyl)sulfonamide (W-18)
- Reported to be 100 times more potent than Fentanyl
- Reported to be 10,000 times more powerful than Morphine
- Found on the streets in Canada in February 2016
- One of 32 synthetic opiates developed at the University of Alberta
- At this time we cannot test for this compound



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Krypton

Novel use of O-desmethyltramadol linked to Kratom: Sold as designer drug.

- O-desmethyltramadol has recently been marketed as a "legal substitute" to illegal opioid drugs of abuse, either in powder form or mixed into various other preparations.
- One such blend sold, under the brand Krypton and containing powdered kratom leaf (*Mitragyna speciosa*) laced with O-desmethyltramadol, was reportedly linked to at least nine accidental deaths from overdose.

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Do You Recognize This Plant?



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Morning Glory Seeds

- Duration of effects = 2-4 hours
Active ingredient
 - Lysergic Acid Amide (LSA)
- Closely related to LSD
- Acts as psychedelic or hallucinogen
- Schedule III, but sold in nurseries, etc.
- Used by the Aztec and still popular in southern Mexico
- Effects last 6-8 hours



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Wormwood

Wild plant in the daisy family and has small yellow flowers considered an herb. Seeds sell for about \$2.50 per 500.

Effects

- In 20 minutes if smoked
- In 1-2 hours is taken orally
- Lasts 3-4 hours

Include:

- Disorientation
- Euphoria
- Surreal feelings



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Absinthe

- 2007: The first legally available absinthe was approved for sale in the United States.
- The absinthe must have <10ppm of Thujone.
- Very potent alcoholic beverage.
- Originally produced as a medicinal elixir.
- Made from green anise, fennel, and grande wormwood.
- Grande wormwood contains high levels of Thujone.
- Thujone can cause:
 - psychoactive effects
 - seizures
 - renal failure
 - death



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Angel's Trumpet

- Also known as Borrachero Tree – same family as Jimson Weed
- Called Devil's Breath
- Contains: Belladonna alkaloids
- Atropine
- Scopolamine
- Drink as a tea in United States; used as powder in Columbia
- Hallucinogenic, zombie-like reaction
- 50,000 cases reported in Columbia – often deadly



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Hand Sanitizer

- Liquid hand sanitizer is 62-65 percent ethyl alcohol or approximately 120 proof. Vodka is 80 proof.
- American Association of Poison Control Centers reports 622 calls in 2011 and 203 for the first three months of 2012.
- Long-term use can cause brain, liver, and kidney damage.
- Some schools are banning hand sanitizers.



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Distillation Procedure

- 4 ounces of hand sanitizer
- 1 tsp. table salt
- Cheesecloth
- Mix, filter, and recover approximately 2.5 ounces of ethyl alcohol



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Drunken Gummies

- Any hard liquor will work. Vodka is the favorite because of less odor.
- Soak candy in alcohol in a sealed container for several days.



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Vanilla – Not Just for Baking

- Vanilla extract is 35 percent alcohol per volume, or 70 proof.
- Case – Female found slumped over the wheel of her car. Diet coke cans and empty vanilla extract bottles in car.
- Case – 16-year-old Asian boy drank 12 ounces of vanilla extract. 3 hours later, his blood alcohol level was 0.16.
- 0.08 is legal intoxication.



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Kombucha Tea

- Recipe
 - 1 cup sugar
 - 8 tea bags
 - 2 cups starter tea/gallon
 - 1 scoby – a mixture of bacteria and yeast
 - Let ferment



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Digital Drugs – i-Dosing

- Use binaural, or two-toned, technology to alter your brain waves.
- Disturbs your mental state in a manner similar to narcotics.
- Download “Gates of Hades” from YouTube.



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Smoking Nutmeg

- Contains Myrista oil (similar to mescaline) and elemicin (used to treat depression).
- Desired effect – hallucinations and delusion.
- Undesired effect – damage to the lungs, convulsions, fever, palpitations, and death.



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Caffeine Products

- Available on the Internet
- 33mg – 200 mg per dose
- K-Cup = 120 mg
- Cost \$2.99-\$10.99
- Effect – CNS stimulant
- High doses could cause death



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Desperate for a High?

- Sonoran Desert Toad
- Hallucinogenic compound secreted on the skin
- 5-MeO-DMT
- 5 methoxy-N, N-dimethyl tryptamine



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Questions?

Knowing now matters.™

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