

Novel Drugs of Abuse

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Disclosure

I have no actual or potential conflict of interest in relation to this program/presentation.



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Alabama Poison Information Center

- Established in 1958 at Children's Hospital of Alabama
- Covers the entire state of Alabama
- Receives calls about all ages
 - 4 hours old to 105 years old
- In 2022, APIC received >50,000 calls and made > 60,000 follow up calls



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What is a Novel Drug?

- Designer drugs
- Research chemicals
- Legal highs
- Psychoactive substances



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How are they distributed?

- Nondrug products
 - Incense
 - Plant food
 - Bath salts
 - Floor stripper
- Labeled as “Not for human use” or “For use in research only.”
- Produce chemicals that resemble illicit drugs
 - Slightly changed structure makes them difficult to detect



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Synthetic Cannabinoids

- 1964 THC isolated
- 1988 synthesis of HU 210
- 1995 synthesis of JWH 018
- 2004 first sold on the internet
- 2008 first SC identified in Spice
- 2009 Banned in Europe
- 2010 11,000 emergency department visit in U.S.
 - 75% adolescents and young adults (12-29 yo)
- 2010 banned in the United States



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Different than marijuana

Synthetic Cannabinoids	Marijuana
Unregulated mixture of compounds	Natural plant derived same compound THC
Longer duration of action (up to 24 hours)	Duration (2 to 3 hours)
Mixed and unpredictable symptoms	Well-known symptoms
Not readily able to detect in blood or urine	Detectable in the urine
Severe hallucinations	No hallucinations
Extreme anxiety	Relaxing (most of the time)
Nystagmus	No nystagmus



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Synthetic Cannabinoids Symptoms

- Mild
 - Ataxia
 - Mydriasis
 - Sedation
 - Tachycardia
- Severe
 - Psychomotor agitation, psychosis, hallucinations, delirium, rhabdomyolysis
 - Respiratory depression
 - Acute kidney injury



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Synthetic Cannabinoids Outbreaks

- Myocardial infarction - 2011 & 2016 (several states)
- Kidney failure - 2012 Blueberry spice – Wyoming
- Bleeding - 2018 Illinois, 2021 Florida



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Synthetic Cannabinoids Treatment

- Sedation to control psychomotor agitation – benzodiazepines and antipsychotics
- Supportive care for end organ toxicity



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Sedatives

- Tianeptine
- Phenibut
- Kava
- GHB



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Tianeptine

- Structure similar to a tricyclic antidepressant
- Approved in several European countries
- Not FDA approved in the United States
- Sold online or convenience stores as ZaZa or Tianna Red
 - Larger doses used as an opioid substitute



Tianeptine

- Made the controlled substance list in 2020 in Alabama then withdrawn in November
- Banned March 15 , 2021
- Overdoses - lethargy and agitation
 - Treated with naloxone and benzodiazepines
- Withdrawal – agitation, N&V, tachycardia, and tremors
 - Treated with benzodiazepines and dexmedetomidine
- Entered Phrenze Red - contains phenibut and kava



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Phenibut

- Beta-phenyl-gamma-aminobutyric acid HCL (aminobutyric acid)
- Used in Russia for alcohol withdrawals
- Acts on the GABA receptors
- Onset 2-4 hours, duration 24 hours
- Causes sedation, CNS depression and ataxia, and severe symptoms – hallucination, agitation, and seizures
- Treatment – Respiratory support
- Potential for withdrawal



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Kava

- Derived from the *Piper methysticum* – smoked or used as a tea to relax or to treat anxiety
- Exact mechanism of action is unknown
- Symptoms are not expected to be severe enough to require intervention
- Long term use may result in dermatitis, hepatotoxicity, indigestion, and nausea



Gama- hydroxybutyrate (GHB)

- 1990 FDA declared GHB unsafe, 1997 FDA declared GHB illegal
- 1,4 butanediol and γ -butyrolactone are metabolized to GHB
 - Can be found in ink, cleaning products, and automotive products
- Slang terms – floor stripper and water
- Symptoms – CNS depression, bradycardia and respiratory depression
- Treatment -Respiratory support
- Withdrawals - treat in an ICU, benzodiazepines



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Opioid Analogues

- Synthetics opioids – fentanyl analogues
- Loperamide
- Kratom



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Fentanyl

- Used in adulterated heroin
- Analogues – carfentanyl, sufentanil, and alfentanil
- Classic opioid symptoms - CNS depression, respiratory depression, and miosis
- Treatment with naloxone (high doses)



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Naloxone



Loperamide

- Insoluble meperidine analogue used to treat diarrhea
- Large doses of 100 - 200 tablets may cause euphoria similar to an opioid
- Symptoms – CNS depression, respiratory depression, miosis and serious cardiac events
- Treatment - naloxone



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Kratom

- Mitragyna species – native to Asia and Africa
- Low doses acts as a stimulant, at higher doses it causes euphoria
- Abused for euphoria, stimulant effect, to abate pain, and prevent opioid withdrawal
- Treatment - symptomatic and supportive care
 - Naloxone?



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Vaping



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History of E-cigarettes

- 2000 - Chinese pharmacist Hon Lik
- First cigarette containing nicotine but no tar
- 2003 – Ultrasound device nebulized nicotine dissolved in a solution of propylene glycol produced in China
- 2006 – Exported all over the world (2007 in USA) Korea – Marketed as a “healthy” alternative to cigarettes
 - Smoking cessation



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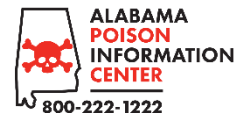
Other Ingredients

- Propylene glycol, glycerin, vitamin E oil
- Flavoring

- Metals?
- Chemicals?
- Drugs?



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Vaping other drugs

- Synthetic Cannabinoids
- Honey Oil
- THC and CBD



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Question?

A 16-year-old high school student is brought by EMS to the ED on a Saturday at 9 pm with acute onset of ataxia, sedation, mydriasis, tachycardia, hallucinations, and agitation. The patient is accompanied by her 16-year-old friend who tells you that they were at a party where many “designer drugs” were being exchanged. You suspect marijuana or a similar drug. A urine toxicology screen is performed and is negative. Which of the following best explains the reason why the detection of designer drugs is so difficult?



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Answer

- A. Designer drugs are metabolized very quickly and are largely out of the system in minutes.
- B. Polysubstance abuse causes interference in the assays.
- C. Slight alterations in the chemical formula compared with the parent compound cause them to be undetectable in standard urine drug immunoassays.
- D. The amount of drug in the system is too small for standard detection methods.
- E. The ingestion of alcohol masks designer drugs.



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Question

On further questioning of the friend who accompanied the patient in previous question to the ED, she states that the patient may have ingested "Spice" or "K2." In which of the following general categories of designer drugs does Spice belong?



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Answer

- A. Amphetamines
- B. Benzodiazepines
- C. Hallucinogenic drugs
- D. Opioid analogues
- E. Synthetic cannabinoids



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Question?

A 15-year-old boy is brought by EMS to the ED with CNS depression, miosis, and respiratory depression. There are no friends or family members present to provide further information about the substance ingested. You turn to your medical student and mention that this is a classic toxidrome for a certain class of drugs. Overdose with which of the following substances is most likely to present with the classic toxidrome seen in this patient?



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Answer

- A. Amphetamines
- B. Benzodiazepines
- C. Cannabinoids
- D. Hallucinogens
- E. Opioids



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DrugsData (formerly EcstasyData) is the independent anonymous laboratory analysis and drug checking program of [Erowid Center](#). Its purpose is to collect, review, manage, and publish laboratory testing results from our lab and republished from other analysis projects worldwide.

- > [Learn more About Us](#)
- > [Submit a sample for testing](#)

News

June 2023 — DrugsData is currently publishing analysis results 3-5 weeks from the date a sample reaches the lab.

Jun 9, 2023 — Published 33 DrugsData samples received May 19-24. Republished 12 results from other drug checking groups.

Jun 7, 2023 — Published 26 DrugsData samples received May 17-18.

Jun 1, 2023 — Help identify DrugsData's [unidentified substances](#).

Note — We're testing more opioid, cocaine, and meth samples. This doesn't indicate an increase in the use of these drugs.






16198 ENTRIES TOTAL







ENTRIES PER PAGE:

PAGE: 1 / 162 >

SHOWING ALL TESTING RESULTS

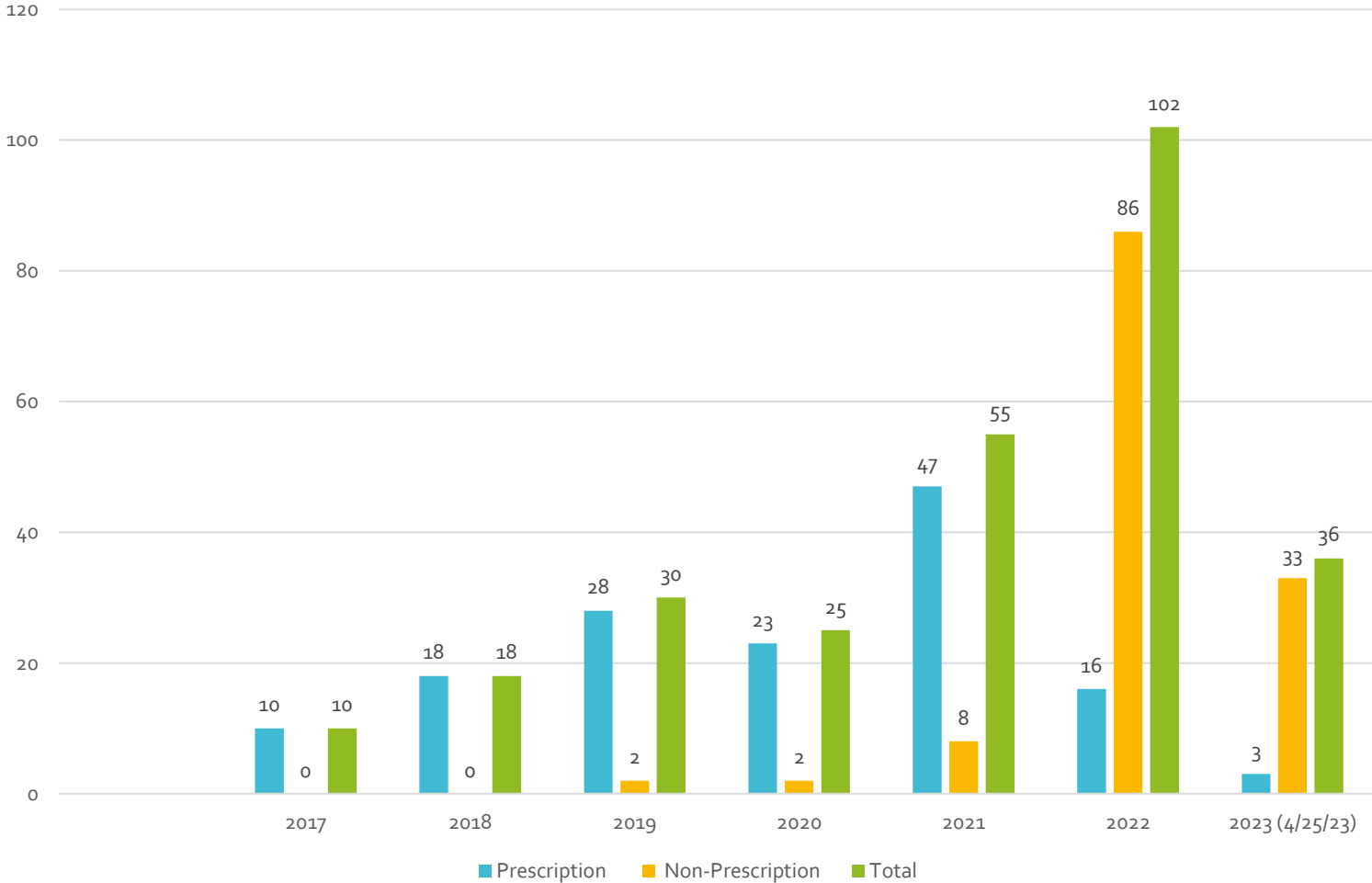
Quick Filter..

Photo	Sample Name ⁱ	Active Contents ⁱ		Date ^v ⁱ	Location	Data Source ⁱ
		Substance	Ratio / Amounts ⁱ			
	Purple Powder Code: BC13F Sold as: Molly	<ul style="list-style-type: none"> MDMA Cocaine 	<ul style="list-style-type: none"> 1 trace 	Jun 09, 2023	Seattle, WA	DrugsData
	M 30 Code: BC420 Sold as: Percocet	<ul style="list-style-type: none"> Acetaminophen Fentanyl Metamizole 4-ANPP 	<ul style="list-style-type: none"> 100 3 2 1 	Jun 09, 2023	New York, NY	DrugsData
	Cocaine Code: SMF231 Sold as: Cocaine	<ul style="list-style-type: none"> Cocaine Benzoylcegonine Methylecgonidine 	<ul style="list-style-type: none"> 12 3 1 	Jun 09, 2023	Tampa, FL	DrugsData
	Ecstasy Code: HD152 Sold as: MDMA	<ul style="list-style-type: none"> MDMA 	<ul style="list-style-type: none"> 1 	Jun 09, 2023	Portland, OR	DrugsData
	LSD Blotter	<ul style="list-style-type: none"> LSD 	<ul style="list-style-type: none"> 1 	Jun 09, 2023	Online	DrugsData

	<p>Crack Code: AC2023B2192A Sold as: Crack</p>	<ul style="list-style-type: none"> • Cocaine • Methylecgonidine • Tropacocaine 	<ul style="list-style-type: none"> • 50 • 5 • 1 	Jun 09, 2023	Boston, MA
	<p>Fetty Code: AC2023B2632A Sold as: Fentanyl</p>	<ul style="list-style-type: none"> • Fentanyl • 4-Fluorofentanyl • 4-ANPP • Despropionyl-4-fluorofentanyl 	<ul style="list-style-type: none"> • 14 • 9 • 5 • 1 	Jun 09, 2023	Boston, MA
	<p>Tan Powder Code: AC2023B2190 Sold as: Fentanyl</p>	<ul style="list-style-type: none"> • Xylazine • Fentanyl • 4-ANPP • Cocaine 	<ul style="list-style-type: none"> • 11 • 8 • 2 • 1 	Jun 09, 2023	Pittsfield, MA
	<p>White Powder Versace Code: AC2023B2289 Sold as: Heroin</p>	<ul style="list-style-type: none"> • Xylazine • Fentanyl • 4-ANPP • 4-Fluorofentanyl 	<ul style="list-style-type: none"> • 36 • 2 • 1 • 1 	Jun 09, 2023	Pittsfield, MA
	<p>White Powder Versace Code: AC2023B2202 Sold as: Fentanyl</p>	<ul style="list-style-type: none"> • Xylazine • 4-ANPP • Fentanyl 	<ul style="list-style-type: none"> • 27 • 1 • 1 	Jun 09, 2023	Pittsfield, MA
	<p>Off-White Powder Lemon Pepper Code: AC2023B2151 Sold as: Heroin</p>	<ul style="list-style-type: none"> • Fentanyl • Caffeine • 4-ANPP • Lidocaine • N-Propionylnorfentanyl • Tramadol • Xylazine 	<ul style="list-style-type: none"> • 13 • 5 • 4 • 1 • 1 • 1 • 1 	Jun 09, 2023	Pittsfield, MA

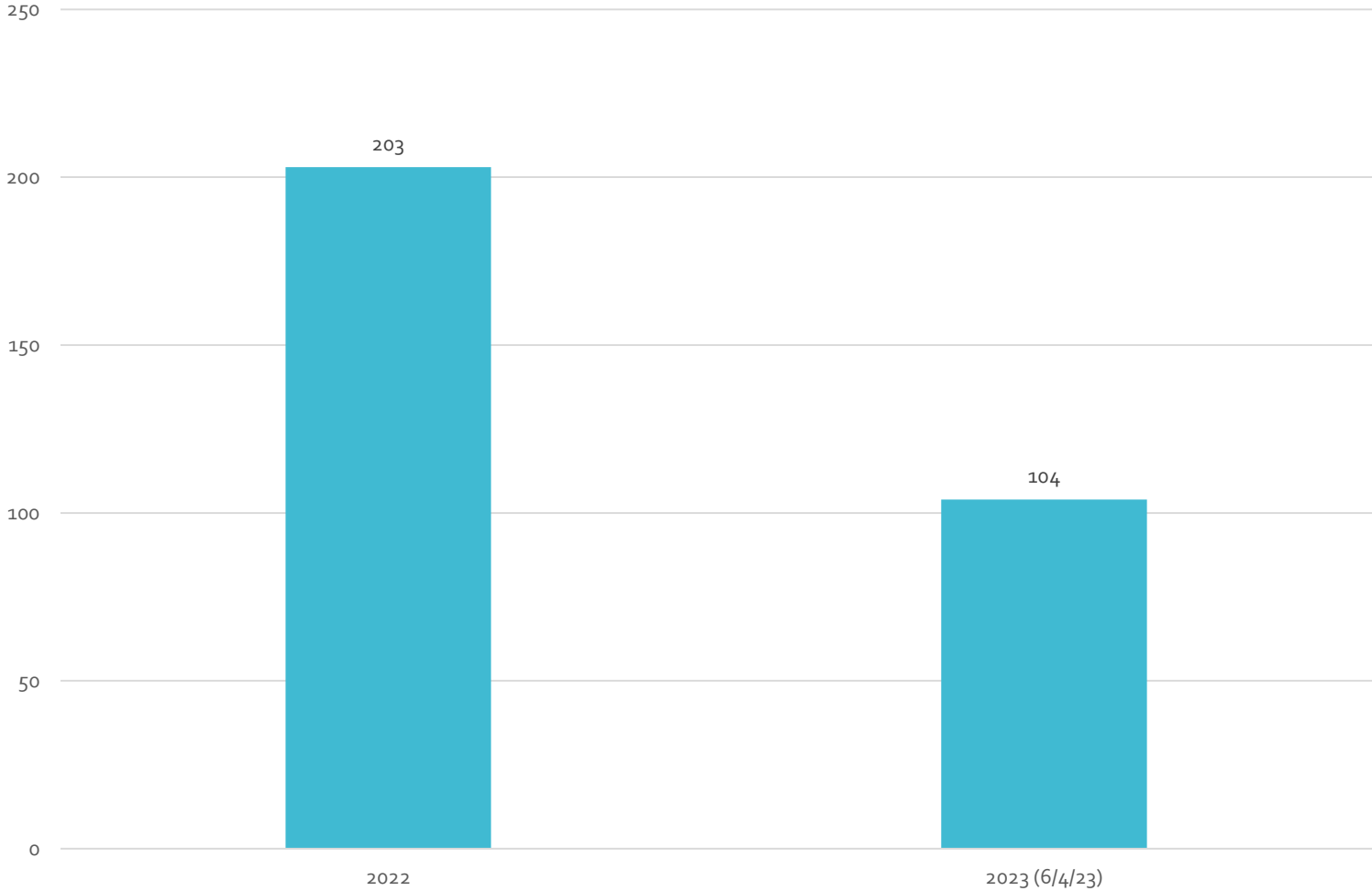
Fentanyl Exposures

Fentanyl Exposures Reported to APIC



Delta 8

Delta 8 exposures reported to APIC

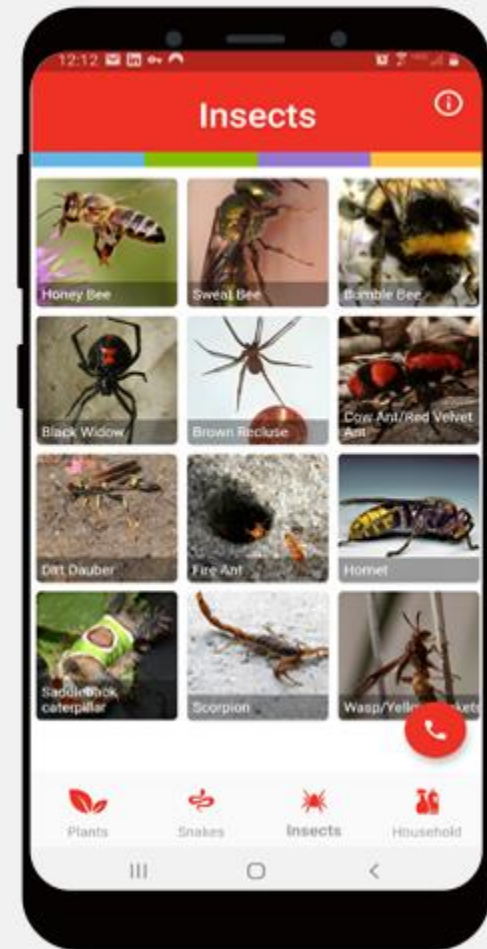


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