



NATIONAL STRATEGIC
RESEARCH INSTITUTE
at the University of Nebraska

OPERATIONAL PULSE

APRIL 2021

Fentanyl: Powerful Drug, Deadlier Weapon

MARCH 25, 2021 | [REALCLEARHEALTH](#)

The threat of fentanyl extends beyond the drug cartels at our southern border and the opioid dealers in our communities. Because of its potency and portability, the deadly substance is ripe for use by terrorists and bad actors – across the globe, and in our backyards.

Adsorption and sensor applications of C₂N surface for G-series and mustard series chemical warfare agents

VOLUME 317, APRIL 2021, 110984 | [MICROPOROUS AND MESOPOROUS MATERIALS](#)

Adsorption of toxic chemical warfare agents (tabun (GA), sarin (GB), soman (GD), cyclosarin (GF), N-mustard (NM), S-mustard (SM) on carbon nitride (C₂N) surface is explored by employing density functional theory and molecular dynamics simulations.

Upper Macungie man charged with lying about effort to produce deadly poison ricin

MARCH 16, 2021 | [MORNING CALL](#)

Federal prosecutors say the man bought 100 packets of the seeds and other potentially toxic plants as part of a plot to cook up an undetectable poison in his kitchen.

A court document charging him with obstruction of justice says he visited a website selling an extract of lily of the valley, a common garden plant that can be used to produce convallatoxin, which can cause heart failure. Days later, he ordered six lily of the valley plants online.

Lily of the valley is a cardioactive herb mostly used in European herbal medicine. Its actions are considered similar to those of digitalis, although it is significantly less cumulative and apparently has a vastly broader therapeutic window. The plant contains approximately 40 glycosides, the principal three being convallatoxin, convalloside, and lokunjoside. The toxicity of this herb is often overemphasized, citing publication in the United States of 2,639 case reports of ingestion, with 6.1% of patients experiencing symptoms, but only 3 showing severe side effects. Lily of the valley, however, can induce side effects associated with cardiac glycosides including nausea and vomiting, although reported to be rare and mild.

Blount County police taking action against new drug ‘Phrenze Red’

MARCH 23, 2021 | [CBS 42](#)

Snead, Ala. — The Snead Police Department in Blount County is warning the public against a new drug called “**Phrenze Red**” that is making its way across the community. With the opioid-like tianeptine now banned across Alabama, some believe the new antidepressant may be serving as a substitute for the outlawed drug.

“This substance right here, Narcan won’t touch it. Poison control has no information on it and so we really can’t rely on them. All we can do is treat the patient and make sure they have an open airway breathing and make sure they have a heartbeat until they can be transported to a facility,” Fire Chief Lee Netherton said.

Man’s shed found to contain DMT drug lab, guns, explosive chemicals

MARCH 29, 2021 | [CBS 4](#)

The investigation began with Homeland Security intercepting [two packages from Lima, Peru, containing Mescaline] a hallucinogenic drug [to be delivered] to a home on Deer Springs Road, deputies say. On March 19, detectives went to the home to find a DMT extraction lab in the shed of Cody Clifford, 40.

DMT, or dimethyltryptamine, is a hallucinogenic drug similar to LSD. It was first synthesized in 1931 and demonstrated to be a hallucinogen in 1956. It is the most powerful and fast acting of the tryptamine class of hallucinogens. Dimethyltryptamine produces hallucinations, perceptual distortions and sympathomimetic effects that are similar to those of LSD, but of shorter duration. Diethyltryptamine (DET) and dipropyltryptamine (DPT) are related synthetic hallucinogens with longer actions but are less potent than dimethyltryptamine. Recently numerous synthetic tryptamines have emerged as recreational psychoactive substances.

FBI terrorism unit investigating poison powder mailed to Sedgwick County officials

MARCH 22, 2021 | [THE WICHITA EAGLE](#)

The FBI’s Joint Terrorism Task Force is investigating a potential biological attack aimed at Sedgwick County government. Investigators have determined the substance was diaminotoluene.

Diaminotoluene is used primarily in the production of toluene diisocyanate, which is used in the production of polyurethane. It is used as an intermediate in the synthesis of dyes and heterocyclic compounds. Diaminotoluene is also used to prepare direct oxidation black, a dye for hair and furs, and to prepare dyes for leather. Other uses of diaminotoluene include enhancement of thermal stability in polyamides, fatigue resistance and dye ability in fibers, and the preparation of impact-resistant resins, polyimides with superior wire-coating properties, benzimidazolethiols (antioxidants), hydraulic fluids, urethane foams, fungicide stabilizers, and sensitizers for explosives.

Diaminotoluenes are highly irritating to the skin and eyes, and the fumes are irritating to the respiratory tract. Diaminotoluenes are readily absorbed through the skin, and exposure may result in methaemoglobinaemia. Renal toxicity after oral administration of 2,4-diaminotoluene has been reported in experimental animals. 2,4-diaminotoluene has been shown to be carcinogenic for animals, but there is inadequate evidence to evaluate the carcinogenic potential of 2,5- and 2,6-diaminotoluene. All three of these isomers have been shown to be mutagenic. They are reproductive toxins in experimental animals, but human reproduction data is limited.

[EPA Resource](#) | [WHO Resource](#)

Featured Event: Multi-Agency Event Focused on Mitigation of CBRNE Hazards

NSRI is coordinating multiple teams for a 24-hour, scenario-based exercise. End-state driven and operationally focused, this experience will bring together multiple components of agency teams, realistic samples, an after action review and much more.

The exercise will take place in Q3 or Q4 2021. Connect with us ASAP to plan and participate.

[More Details](#)

2021 COURSE CATALOG

DOWNLOAD

Register for NSRI Pharmaceutical- Based Agents Course (16hrs) 7/21-7/22

Resident Courses are hosted at NSRI's
National Capital Region Laboratory
and Conference Center in Annapolis
Junction, MD. The 10,000 square-foot
facility allows for proper social distancing.

This blended two-day course combines practical hands-on learning with classroom instruction. Students will become familiar with the hazards and threats associated with synthetic opioids.

This course is designed to improve the safety and effectiveness of anyone who responds to an incident at a PBA laboratory. Participants will be provided with risk-based response guidelines on selecting personal protective equipment and decontamination equipment, and be able to recognize incident indicators.

Students will receive hands-on instruction on different fentanyl synthesis pathways, production and current trends and sophistication of synthetic opioid clandestine lab operations.

All participants will have the opportunity to test current detection and identification methods utilizing their equipment. The course concludes with a practical decontamination demonstration where students will examine the effectiveness of various decontamination methods using a visual stimulant.

REGISTER HERE



CONNECT WITH NSRI

Dan Polanski

DEPUTY DIRECTOR FIELD OPERATIONS AND TRAINING

📞 770-231-2905 ✉️ dpolanski@nsri.nebraskaresearch.gov 💻 nsri.nebraska.edu