



Pathology Biology Section – 2011

G114 First Reported Case of Bromo-Dragonfly Fatality in the United States, San Jose, California, County of Santa Clara

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The goal of this presentation is to educate the forensic community of overdoses with rare chemicals used by young adults.

This presentation will impact the forensic science community by illustrating and emphasizing the importance of a thorough scene investigation, keeping an open mind to the curiosity of young adults and drug experimentation, and good communication with the consulting laboratory.

Like LSD, Bromo-DragonFLY is a psychedelic hallucinogenic drug that is extremely potent. In 1998, Matthew Parker synthesized Bromo- DragonFLY and because the molecule's structure resembled a fly, it was nicknamed FLY. Bromo-DragonFLY is a psychedelic phenethylamine and a non-subtype selective 5-HT₂ (serotonin) agonist, considered less potent than LSD, but exhibits a longer duration of action and can last for up to two to three days.

The drug is ingested and the mechanism of drug toxicity is unclear, but based on numerous reports from individuals experimenting with this particular drug and their side effects, the mechanism of action appears to involve a severe peripheral vasoconstriction. Delayed onset of seizures, gangrenous extremity involvement, and extremely bad trips have been reported with one drug trip being described as "It was like being dragged to hell and back again many times. It is the most evil thing I've ever tried. It lasted an eternity."

In September 2009, the Santa Clara County Medical Examiner Office was called to the scene involving the sudden death of an otherwise healthy 18-year-old white male. According to the investigation, he was experimenting with and ingesting a new drug called 2C-B-FLY, which had been purchased through the internet, with his brother and his brother's girlfriend. The decedent's brother stated that the decedent ingested the least amount of the drug. Over the next two to three hours, the decedent appeared to be having a "difficult trip" then underwent seizure-like activity and became unresponsive. The decedent could not be resuscitated by emergency services and expired. The autopsy examination revealed an unkept white male whose autopsy was unremarkable except for marked pulmonary edema, a non-specific finding seen in drug overdose cases and a thymic cyst. Because the medical examiner had no experience with 2C-B-FLY, additional insight

to the drug and its effects was gained by searching a online library, a website suggested by the decedent's father. During this time, the comprehensive toxicology screen on the peripheral blood reported the presence of phentermine at a concentration consistent with therapeutic levels, marijuana, nicotine and cotinine, and atropine, most likely due to resuscitative attempts. The medical examiner remained suspicious that this death represented an acute drug overdose, especially in light of the circumstances surrounding the death, and consultation with a toxicologist was pursued.

Further information gathered later in the course of the investigation revealed that in October 2009, a batch of Bromo-DragonFLY, purchased from Denmark, was distributed as the less active compound 2C-B-FLY, with a packaging label of "batch b1," one of which was purchased by the decedent's brother. Toxicological analysis specifically for 2C-B-FLY and Bromo-DragonFLY was undertaken. The analytical technique used for this work was gas chromatography/mass spectrometry (GC/MS). 2C-B-FLY was not detected in any of the specimens. Only Bromo- DragonFLY was detected in each of the specimens at the following concentrations: in peripheral blood 22 nanog/mL; in gastric fluid 38 nanog/mL; in urine 28 nanog/mL; and in bile 350 nanog/mL. Bromo- DragonFLY levels in beta-glucuronidase treated urine and bile were 49 ng/mL and 470 ng/mL, respectively. Review of the literature revealed one paper from Denmark in 2009 of an 18-year-old woman who died of a fatal Bromo-DragonFLY overdose and the reported femoral blood concentration was 4.7 ng/mL (MF Andreasen et al., 2009).

Since October 2009, rare lethal overdoses were reported from the distributed batch and to our knowledge this case represents the only United States fatality resulting from Bromo-DragonFLY. The decedent's brother and his girlfriend were admitted to the hospital for observation, and luckily recovered from their drug trip, although both were experiencing effects of the drug hours later. Both parties reported the drug trip was long lasting and not a comfortable experience.

In summary, this case illustrates the combined efforts of the medical examiner-coroner office and the toxicologist to identify the substance which led to the sudden death of a young adult experimenting with a purchased, non-controlled drug from overseas. Although our case represents the only reported fatality from Bromo-DragonFLY in the United States, it serves to illustrate and emphasize the importance of the combined



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efforts of different agencies to help render a cause and manner of death.
Bromo-Dragonfly, Overdose, Drug Experimentation