A23 Presumptive Color Test for Piperazine Designer Drugs

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After attending this presentation, attendees will understand the development of a presumptive color test for piperazine designer drugs, the scientific principles underlying drug detection, and the results on detection of BZP and TMFPP using this technique.

This presentation will impact the forensic science community by introducing the new technique for law enforcement to effectively conduct the drug test in the field.

Presumptive color tests for drugs help investigators to narrow the possible identities of a substance. It is a quick and inexpensive chemical test, which is commonly performed by police officers on the street prior to the use of costly confirmative tests in the forensic science laboratory. This test is done to determine quickly on the scene if the police officer has probable cause for an arrest. Using this new technique, an investigator places the questioned substance in a disposable test tube containing ampules of chemical reagents necessary for the presumptive identification of piperazine drugs such as benzylpiperazine (BZP) and 3-trifluoromethylphenyl-piperazine (TFMPP).

Benzylpiperazine (BZP) and trifluoromethylphenylpiperazine (TFMPP) are synthetic phenylpiperazine analogues, which have stimulant and amphetamine-like properties.[1] As a result, they are commonly used as a recreational drug, and were legally available in a number of countries, particularly in New Zealand.[1] The drug was temporarily classified as a Schedule I controlled substance in the United States in 2002 because of its high abuse potential and lack of accepted medical use or safety.[2] On March 18, 2004, the DEA published a Final Rule in the Federal Register permanently placing BZP in schedule I. Several states have placed BZP in schedule I: Colorado, Idaho, Illinois, Indiana, Iowa, Kansas, Louisiana, Mississippi, Missouri, Oklahoma, Nebraska, Tennessee, and Wyoming.[2]

According to Office of Diversion Control, law enforcement officials submitted 48 drug items/exhibits to federal, state, and local forensic laboratories identified as BZP in 2004.[2] The number of BZP items/exhibits increased from 437 in 2007 to 6,088 in 2008. BZP items/exhibits submitted to forensic laboratories increased 127% from 6,088 in 2008 to 13,822 in 2009. BZP was smuggled internationally as powder by drug trafficking organizations. The bulk powder is loaded into capsules and pressed into tablets. BZP is encountered as pink, white, off-white, purple, orange, tan, and mottle orange-brown tablets. These tablets bear imprints commonly seen on MDMA tablets such as housefly, crown, heart, butterfly, smiley face, or bull's head logos and are often sold as "ecstasy." BZP has been found in powder or liquid form packaged in small sizes and sold on the Internet.[2] Because of the increasing trend in the distribution of these substances, the presumptive test for piperazine drugs is necessary to allow law enforcement to identify the controlled substances on the street within a minute.

Both BZP and TFMPP appear as a colorless solution when dissolved in deionized water. In this research, the BZP and TFMPP aqueous solution in the presence of our reagents will yield a yellow solution as a positive result. However, organic molecules containing primary amine functional group caused a severe interference. This presentation will discuss the principle behind the method and future plans to study this test method.

References:

1. Schep, L.J.; Slaughter, R.J.; Vale, J.A.; Beasley, D.M.; Gee, P (March 2011). "The clinical toxicology of the designer "party pills" benzylpiperazine and trifluoromethylphenylpiperazine". *Clin Toxicol (Phila)* 49 (3): 131–41.
2. Drugs and Chemicals of Concern: N-Benzylpiperazine". U.S. DEA. May 2010.

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