

A new urine test could help curtail the use of the latest synthetic cannabinoids to enter the drug scene

September 30 2022



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A first-of-its-kind study published today in AACC's *Clinical Chemistry* journal shows that a novel drug test detects a new class of synthetic

cannabinoids called OXIZIDs. This test could enable drug enforcement agencies to identify OXIZID users and could play a critical role in efforts to stop the spread of these drugs.

Synthetic cannabinoids are manmade drugs that have been rising in popularity over the last several years. This is largely due to the fact that new [synthetic cannabinoids](#) are constantly emerging, making it difficult for law enforcement agencies to keep up with identifying and classifying these drugs as illegal. However, in spite of the fact that people use these drugs as legal alternatives to marijuana, synthetic cannabinoids can actually be more dangerous than marijuana, and are known to cause psychosis, seizures, and even strokes. It is imperative that drug enforcement agencies have the ability to test for these drugs, as tracking their use is one of the keys to curbing it.

OXIZIDs are one of the latest classes of synthetic cannabinoids to enter the drug scene, and little is currently known about how to detect them. A team of researchers from the National University of Singapore therefore set out to develop a [urine test](#) for these drugs. Led by Eric Chun Yong Chan, Ph.D., the team first incubated human liver microsomes with four different OXIZIDs to get a preliminary idea of what metabolites are produced when the human body breaks down these drugs. From this, the researchers identified 42 to 51 metabolites for each of the OXIZIDs.

As a next step, Chan's team tested four [urine samples](#) from known OXIZID users for both the parent drugs and these metabolites. In the samples, the researchers detected the parent OXIZIDs known as BZO-HEXOXIZID, BZO-POXIZID, and 5F-BZO-POXIZID, along with their *N*-alkyl and phenyl mono-hydroxylated metabolites. This shows that these compounds can be used together in a urinary drug panel to conduct routine monitoring for OXIZID abuse. Additionally, it's important to note that the metabolites were present in urine at higher concentrations than the parent drugs, showing the necessity of including these

metabolites in a drug test for OXIZIDs.

"In summary, the ever-evolving scene of drug abuse calls for prompt interventions to prevent newly emerging [illicit drugs](#) from escalating to a state of rampancy," said Chan. "A detailed understanding of their metabolic profiles will facilitate drug agencies in identifying their abusers based on urinary biomarkers. Critically, the parent drugs and mono-hydroxylated metabolites were identified ... as urinary biomarkers of BZO-HEXOXIZID, BZO-POXIZID, [and 5F-BZO-POXIZID] for routine screening efforts to diagnose their consumption and mitigate their abuse."

More information: Keane Zhi Hao Lee et al, Identification of Optimal Urinary Biomarkers of Synthetic Cannabinoids BZO-HEXOXIZID, BZO-POXIZID, 5F-BZO-POXIZID, and BZO-CHMOXIZID for Illicit Abuse Monitoring, *Clinical Chemistry* (2022). [DOI: 10.1093/clinchem/hvac138](https://doi.org/10.1093/clinchem/hvac138)

Provided by American Association for Clinical Chemistry

Citation: A new urine test could help curtail the use of the latest synthetic cannabinoids to enter the drug scene (2022, September 30) retrieved 6 May 2024 from <https://medicalxpress.com/news/2022-09-urine-curtail-latest-synthetic-cannabinoids.html>

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