

## Draft Abstract

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The synthetic drug craze, which began taking root just a few years ago, has been sweeping the nation. South Florida in particular has become an epicenter for synthetic drug use with its lively nightlife and vibrant club scenes. As of today, one of the most popular, and equally dangerous drugs, on the market is  $\alpha$ -PVP, commonly known as Flakka. Flakka is unique in its domination of Miami-Dade and Broward communities while hardly appearing anywhere else in the country. Flakka's influence in South Florida will be investigated in order to shed light on the origins of its popularity, its effects on the human body, and its impact on South Florida culture. The history of Flakka will be investigated by analyzing various news articles and reports, and by interviewing the Broward Medical Examiner's Lab and the Miami-Dade Police Crime Laboratory. The rapid detection and separation of synthetic drugs will also be attempted using Ion Mobility Spectrometry, portable Ion Trap Mobility Spectrometry, and Gas Chromatography Ion Mobility Spectrometry. It is hypothesized that a mixture of  $\alpha$ -PVP and similar designer drugs, ethylone and butylone, can be efficiently and effectively separated using the methods listed above. This project is significant because it will investigate the use of portable ITMS to detect synthetic drugs, which are notoriously difficult to detect in the field using standard drug detection methods. A portable instrument that is easy to use and provides very rapid and sensitive detection of drugs would revolutionize the way

that law enforcement officials carry out their ongoing investigation of synthetic drugs and would aid in their efforts to prevent synthetic drug distribution.