

IRD 3 Application Note

Synthetic Cannabinoids

Introduction

In early 2011 the chemicals used to make synthetic marijuana were banned for at least one year by the Drug Enforcement Administration (DEA). The five synthetic cannabinoids included JWH-018, JWH-073, JWH-200, CP-47 and C8 homologue. Other state and federal agencies have banned one or more of these cannabinoids in the last year as well. The complexity and similarities of the chemical structures make identification of these compounds with GC-MS very challenging. The compounds presented in this document represent a list of synthetic cannabinoids that can be uniquely identified by the IRD.

Product Overview

The IRD 3 is designed from the chromatographer's point-of-view and is the only analytical infrared instrument that seamlessly combines the separating power of the Gas Chromatography with the molecular identification of FTIR.

- Dedicated FTIR for use with GC
- Low maintenance and easy to use
- Small footprint
- Software interfaces with GC control software
- Seamless integration with MS

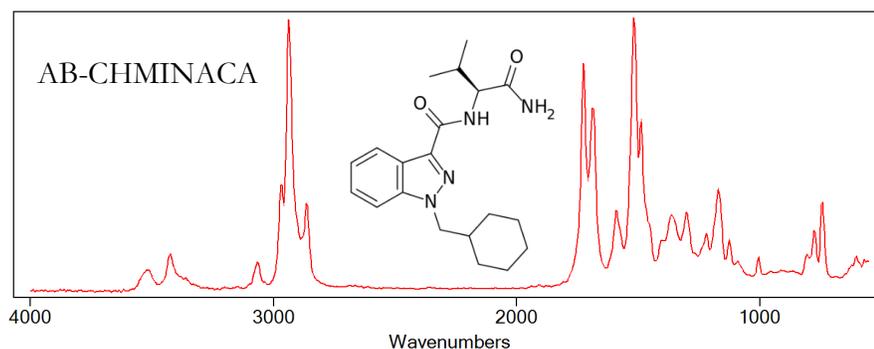
The IRD 3 is the perfect tool for the chromatographer looking to obtain more information about unknown samples. Using a heater light pipe flow cell, the sample is kept in a vapor state while interacting with IR. This allows the molecules to freely rotate in a low energy environment. Keeping the molecular geometry in tack during analysis provides unique and highly reproducible spectra.

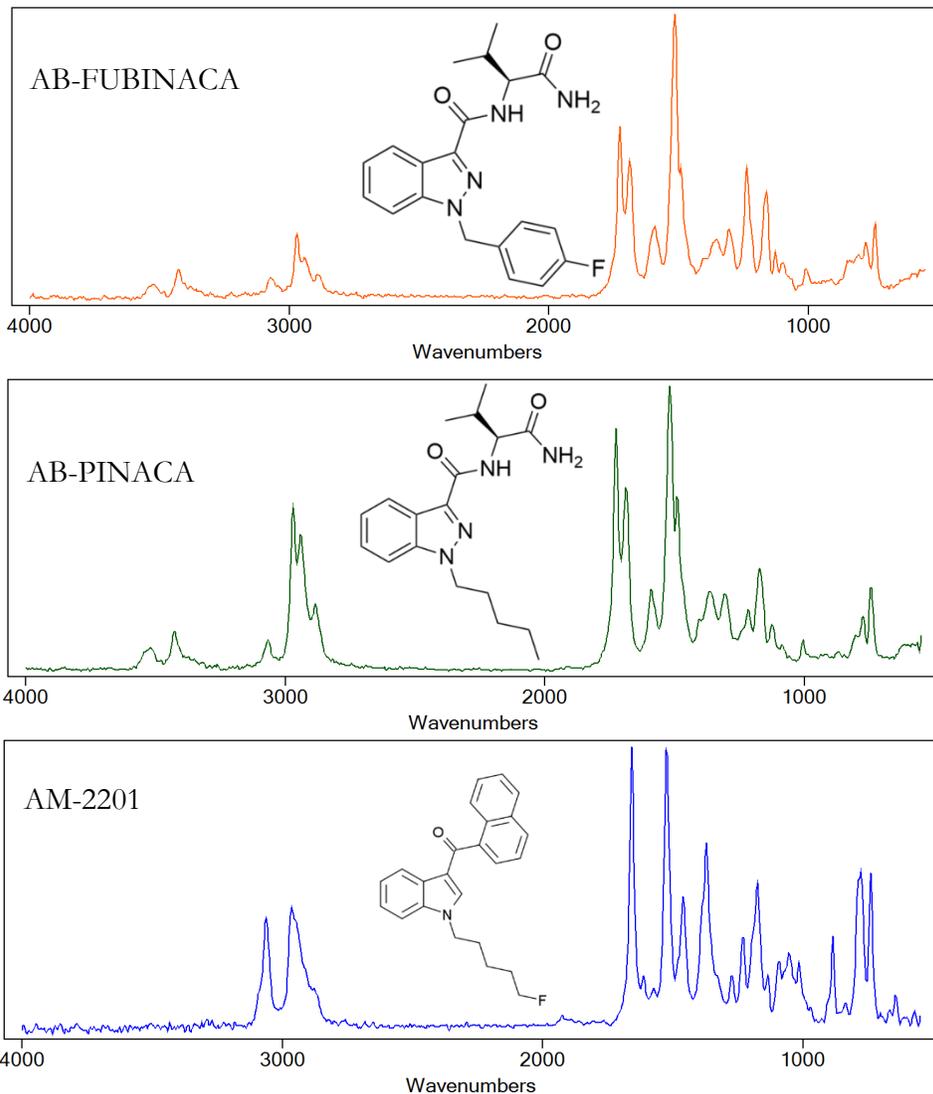


Results

Figure 1 shows the spectra for a selection of synthetic cannabinoids. The results show the ability of the IRD to differentiate between not only similar compounds but larger molecules.

Figure 1.





Conclusion

This example illustrates the tremendous power of the IRD to distinguish between compounds which are very similar structurally. It also points out the excellent complementary information that the IRD and MSD provide. The combination of these two instruments provide exceptional capability for qualitative analysis at a very high confidence level.