

INSTITUTE OF ENVIRONMENTAL SCIENCE AND RESEARCH

## WHY ARE SYNTHETIC CANNABINOIDS HAVING SUCH A DRAMATIC IMPACT IN 2017?

The evolution of synthetic cannabinoids over the last five years has been rapidly changing. Synthetic cannabinoids such as AMB-FUBINACA have gained popularity in recent years. AMB-FUBINACA was not seen in New Zealand prior to January 2016, but it is now the most prevalent synthetic cannabinoid in the country.

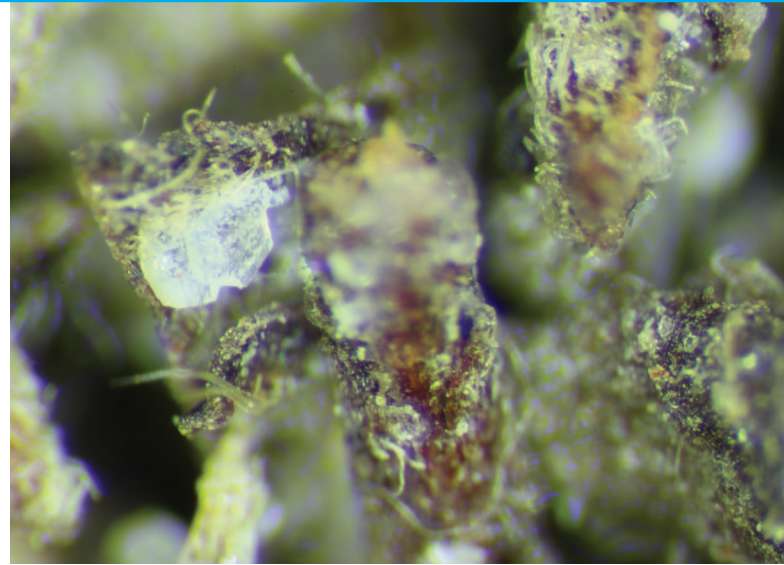
These chemicals have been synthesised in a laboratory and act on the same part of the brain as the active ingredients of cannabis plant material. Material ready for smoking is typically prepared by dissolving the chemicals in a solvent then spraying the solution onto dried plant material. However, there is limited information available on the amount of synthetic cannabinoid applied or the variability in the application process. The ESR Drug Chemistry Team has developed a method to determine the approximate concentration of synthetic cannabinoids in plant material. The concentration is measured in terms of how many grams of synthetic cannabinoid has been applied to 1 kilogram of plant material, and is commonly reported as "g/kg".

Results have been obtained for plant material submitted predominantly by NZ Police to ESR for routine casework between May and December 2017. AMB-FUBINACA was the synthetic cannabinoid detected most frequently.

	AMB-FUBINACA
Average Concentration (g/kg)	59
Range of Concentrations (g/kg)	7 – 417

Of note and by comparison, a recent scientific publication entitled "Zombie" Outbreak Caused by the Synthetic Cannabinoid AMB-FUBINACA in New York, reported the concentration of AMB-FUBINACA in the offending plant material as 16 g/kg (represented by the red line in the graph). Of the plant material analysed so far by ESR, 75% had a concentration of AMB-FUBINACA over this level, with nearly 10% of samples being greater than 10 times this strength.

When some samples of plant material were examined under a microscope, visible crystals could be seen. These samples were associated with very high levels of AMB-FUBINACA (see Photograph 1).



Photograph 1. Plant material containing the synthetic cannabinoid AMB-FUBINACA, with microscopic image showing visible crystals.



Photograph 2. A sample of plant material as seen by the naked eye.

Other synthetic cannabinoids detected between May and December 2017 include:

- ▀ 5Cl-AB-PINACA
- ▀ 5F-ADB
- ▀ 5F-MDMB-PICA
- ▀ ADB-FUBINACA
- ▀ BB-22
- ▀ CUMYL CYB7AICA
- ▀ MMB-CHMICA
- ▀ NM-2201

