

PORTABLE GAS CHROMATOGRAPHY– MASS SPECTROMETRY IN DRUG CHECKING: DETECTION OF CARFENTANIL AND ETIZOLAM IN EXPECTED OPIOID SAMPLES

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BACKGROUND

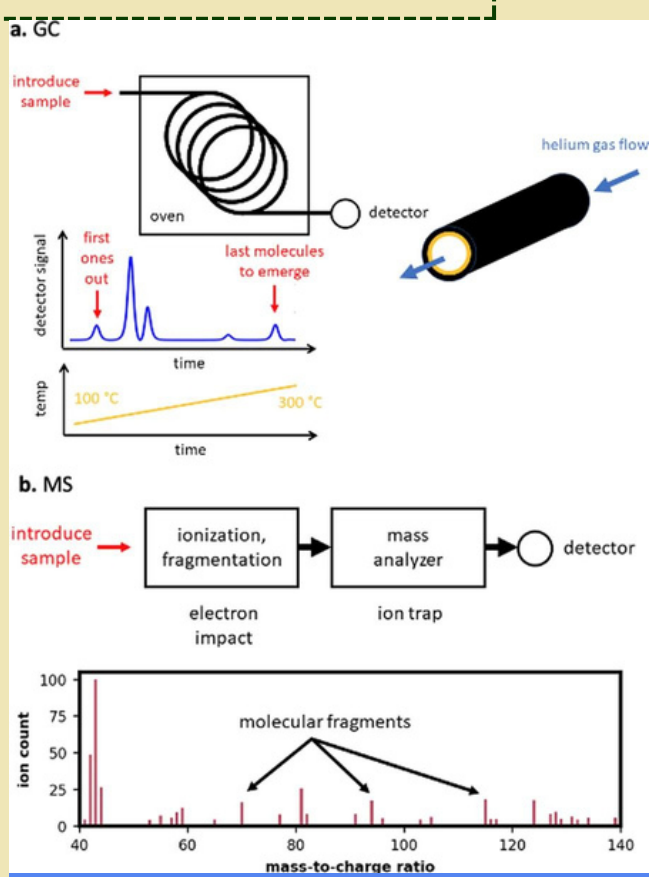
An increase of trace level adulteration of opioids or "down" samples with fentanyl analogues and benzodiazepines has shown the need for confirmatory lab-based testing. Portable gas chromatography-mass spectrometry (GC-MS) shows promise as a both sensitive and portable instrument for harm reduction applications.

METHODS

59 Samples were found to contain etizolam and/or carfentanil via paper spray mass spectrometry (PS-MS, a lab based confirmatory testing method). These samples were tested on both portable GC-MS and fourier transformed infrared spectrometer (FTIR) instruments.

TRACE-LEVEL DETECTION WITH GC-MS

- Portable GC-MS demonstrated no evidence of etizolam in the lowest concentration bracket (0.70-3%).
- 3% in a typical down "point" corresponds to an etizolam dose 3-6 times greater than a typical therapeutic dose (<1mg).

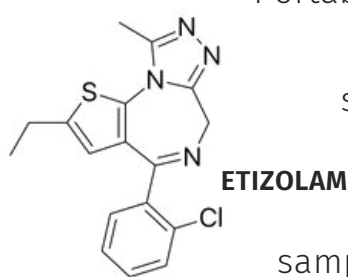
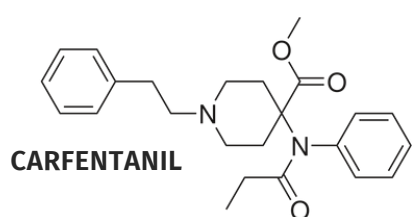


GC-MS

GC-MS couples gas chromatography (GC) as a separation technique with mass spectrometry, which offers excellent sensitivity to low concentration substances

RESULTS

- Portable GC-MS was able to identify 62% of samples containing carfentanil.



- Portable GC-MS was able to identify 36% of samples containing etizolam and 78% of the samples when etizolam concentration was above 3% by weight.

CONCLUSIONS

- FTIR is not sensitive enough to detect carfentanil at relevant concentrations.
- On-site MS analysis enables results to be delivered directly to people who use drugs at the time of testing and detect actives at concentrations well below the limits of detection offered by other mobile technologies, such as portable FTIR.



GC-MS



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