

## Simplified analysis of 11-hydroxy-delta-9-tetrahydrocannabinol and 11-carboxy-delta-9-tetrahydrocannabinol in human meconium: method development and validation

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We describe the development of a sensitive analytical method for the analysis of 11-hydroxy-delta-9-tetrahydrocannabinol (11-OH-THC) and 11-carboxy-delta-9-tetrahydrocannabinol (THCC) in meconium using a gas chromatography-mass spectrometry (GC/MS) platform. The method was validated according to protocols, which included assessment of accuracy, precision, robustness, stability in meconium and in-process stability, interference and sensitivity and specificity. The method consists of a solid phase extraction with alkaline hydrolysis and derivatization of the analytes with N, O-Bis(trimethylsilyl)trifluoroacetamide, followed by GC/MS analysis using selected ion monitoring. The method uses deuterated internal standards for both analytes. Calibration curves had r(2) values >0.998, and extraction efficiency was determined to be 84.7% for THCC and 78.6% for 11-OH-THC. The detection limit for both analytes was 5 ng/g. This confirmatory method was successfully applied to 183 meconium samples that had screened positive by enzyme-linked immunosorbent assay, and 67.2% were confirmed for THCC, and 2.2% were confirmed positive for 11-OH-THC. The mean (SD) and median (range) THCC (n = 123) concentrations detected were 55.0 ng/g ( $\pm$ 59.0) and 33.75 ng/g (5-265 ng/g), while the mean and median (range) for 11-OH-THC (n = 4) concentrations were 8.25 ng/g ( $\pm$ 4.71) and 6.5 ng/g (5-15 ng/g).

<http://www.ncbi.nlm.nih.gov/pubmed/25315472>,

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