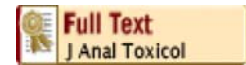


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A one-step extraction procedure for the screening of cocaine, amphetamines and cannabinoids in postmortem blood samples.

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Author information

Abstract

A gas chromatography-mass spectrometric (GC-MS) method was developed and validated for the simultaneous detection and quantification in postmortem whole blood samples of cocaine (COC), amphetamines (AMPs) and cannabis; the main drugs involved in cases of impaired driving in Brazil. The analytes were extracted by solid-phase extraction by means of Bond-Elute Certify cartridges, derivatized with N-methyl-N-(trimethylsilyl)trifluoroacetamide at 80°C for 30 min and analyzed by GC-MS. Linearity ranged from 10 to 500 ng/mL, except for ecgonine methyl ester, for which linearity ranged from 10 to 100 ng/mL. Inter- and intra-day imprecision ranged from 2.8 to 18.4% and from 1.5 to 14.9%, respectively. Accuracy values lay between 86.9 and 104.4%. The limit of quantitation for all drugs was 10 ng/mL and recoveries were >74% for all analytes, except for cannabinoids, which showed poor recovery (~30%). The developed method was applied to real samples collected from deceased victims due to traffic accidents. These samples were selected according to the results obtained in immunoassay screening on collected urine samples. Five samples were positive for the presence of COC and metabolites, four samples were positive for cannabinoids, six samples were positive for AMPs and two samples were drug negative. Some samples were positive for more than one class of drug. Results obtained from whole blood samples showed good agreement with urine screening. The developed method proved capable of quantifying all three classes of drugs of abuse proposed in this study, through a one-step extraction procedure.

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