Drug stability in authentic oral fluid specimens collected with the Quantisal™ device
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Abstract

• An investigation into the stability of drugs in oral fluid collected with the Quantisal™ device was conducted
• Specimens routinely received into the laboratory were analyzed, then decanted and stored in borosilicate glass tubes in refrigerated conditions (4°C)
• After 3 months the specimens were re-analyzed
• Analysis included amphetamine, MDMA, MDA methamphetamine, cocaine, benzylecgonine, cocaethylene, ∆9-THC, morphine, hydrocodone, oxycodone, ketamine, methadone, and phencyclidine

Methods

• All LC-MS/MS and GC-MS analytical methods were fully validated in accordance with published guidelines
• GC-MS was used for ∆9-THC and PCP analysis and LC-MS/MS was used for all other drugs
• No sample contained any bacterial growth or noticeable decomposition

Results

• The average change in concentration for all drugs, including ∆9-THC was less than +/- 20% except for cocaine (COC) and benzylecgonine (BZE)
• Cocaine: COC had an average loss of 24% (n = 36), degrading as the BZE concentration increased significantly (average gain: 150%)
  • One COC positive sample dropped from 8ng/mL to 6ng/mL with no measurable BZE reported during either analysis
  • The figure shows a side-by-side comparison of original and 3 month results for authentic specimens. The total concentration does not change while the ratio of benzylecgonine to cocaine does

Conclusions

• All original positive samples (n=217) except one low level cocaine remained positive after 3 months
• Drugs present in authentic oral fluid samples collected with the Quantisal™ collection device, and stored in transportation buffer in glass vials at 4°C, are stable for at least 3 months