

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

James Tuyay, Margaux Garnier, Cynthia Coulter, Christine Moore, Immunalysis Corporation, Pomona, CA, U.S.A.

Jacob Matthew Vasquez, University of California at Riverside



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, benzoylecgonine, cocaethylene, Δ9-THC, morphine, hydrocodone, oxycodone, ketamine, methadone, and phencyclidine

Methods

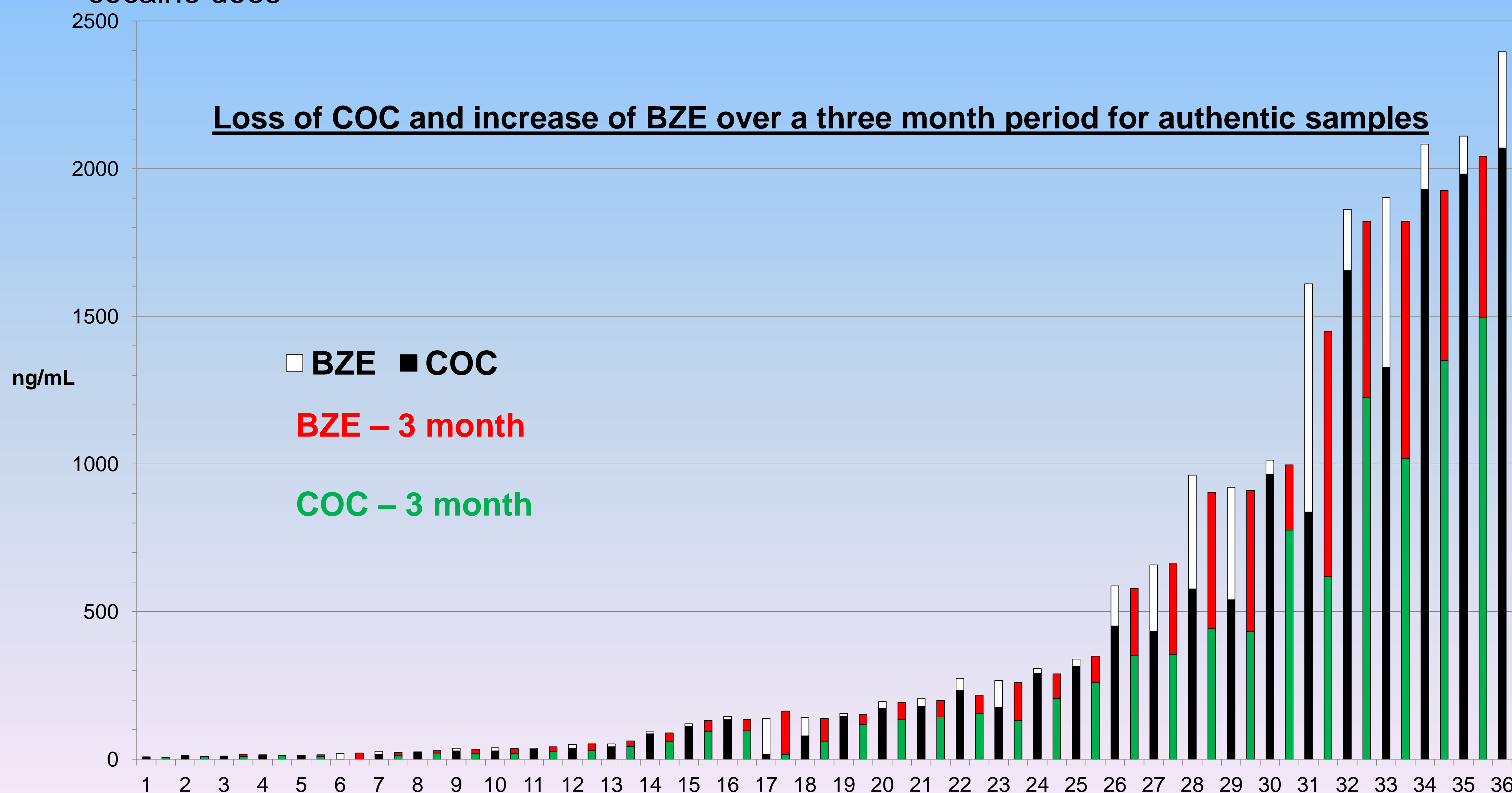
- All LC-MS/MS and GC-MS analytical methods were fully validated in accordance with published guidelines
- GC-MS was used for Δ9-THC and PCP analysis and LC-MS/MS was used for all other drugs
- No sample contained any bacterial growth or noticeable decomposition



Oral Fluid

Results

- The average change in concentration for all drugs, including Δ9-THC was less than +/- 20% except for cocaine (COC) and benzoylecgonine (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 benzoylecgonine to cocaine does



- Δ9-THC:** All samples analyzed for Δ9-THC (n=96) after 3 months still confirmed positively
 - Δ9-THC had a nominal average gain of 5.7%
- AMPS:** All reconfirmations for the amphetamine class were within +/-20% of the original value
 - No significant variance was seen for AMP (n=17), METH (n=20), MDMA (n=23), MDA (n=6)
- Opiates:** Opiate concentrations, as well as ketamine, methadone and PCP were unchanged over 3 months of storage

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

SOFT, Orlando, 2013