B20 Continuing Exploration of Cocaine Contamination of U.S. Currency

Thomas H. Jourdan, MS, MBA, PhD, Special Agent Examiner, FBI Laboratory, National Laboratory Detailee, Lawrence Livermore National Laboratory, Livermore, CA; Kristy Malak, BS, Research Chemist, Valerie Cavett, BA, Research Chemist, and Brian A. Eckenrode, PhD, Research Chemist Counterterrorism and Forensic Science Research Unit, FBI Laboratory, FBI Academy, Quantico, VA*

The goals of this presentation are to develop an understanding of the contamination of currency by the illicit cocaine trafficking trade and to establish concentration ranges characterizing background vs. money laundering and/or trafficking levels of contamination.

This study had its beginnings in response to a 1994 decision by the 9th Circuit Court of Appeals in the case of U.S. v. U.S. Currency (Alexander), 39 F.3d 1039, in which the court(s) acknowledged the wide-spread contamination of the U.S. currency supply by the illicit cocaine importation trade. Cocaine importation has increased in recent years, according to the U.S. government, to a level estimated at 521 metric tons during 2001. These authors have put forth the argument, and successfully so during expert witness testimony in federal court on several occasions, that the absolute amount of the drug on currency, and not its mere presence, is probative.

The ink on U.S. currency never really dries. In effect, one can conceptualize currency as in a microscopic sense a “sticky” surface on to which, as it is circulated; various oils (e.g., human sebaceous) and miscellaneous environmental dirt and grime (including residue amounts of drugs of abuse) become attached. In the case of cocaine, the authors submit that a person who has handled the drug the then handles currency transfers residue in the low hundreds of nanograms range to the bill(s), and that this amount over the course of subsequent circulation and manipulation is reduced to a steady state “background” level.

The writers are engaged in an on-going study of the currency in general circulation in the U.S. and on a regular basis examine currency specimens from urban as well as rural financial institutions. Quantifiable levels of cocaine have been encountered on approximately 90% of the bills thus far examined. Because it is unlikely that members of the illicit drug trade have actually physically handled this volume of bills, the authors suggest that some other agent is responsible for the extent of the distribution of the drug on currency in general circulation. It is submitted that this agent is the mechanical currency counters that are universally employed in financial institutions which have a “homogenizing” effect on the currency supply.

Currency is sampled ten bills at a time. The initial screening is performed with a Barringer Instruments (Toronto, Canada) IONSCAN ion mobility spectrometer (IMS), an instrument with nanogram sensitivity for a number of the commonly encountered drugs of abuse, and cocaine in particular. Confirmation and quantitation is accomplished using liquid chromatography-mass spectrometry with electrospray ionization (LC/MS-ESI) on a Finnigan LCQ instrument. A deuterated internal standard is employed in the quantitation process.

In addition to the survey of currency in general circulation in the U.S. for residue amounts of cocaine, the authors have analyzed currency from in excess of fifty (50) criminal cases. The processing of such a large number of criminal cases has allowed for the establishment of concentration ranges differentiating background, money laundering, and actual drug trafficking levels of cocaine contamination.

Additional areas have been explored, to include relative contamination levels (1) across denominations of bills, (2) between so called “high crime rate” versus “low crime rate” areas of several metropolitan cities, as well as, (3) between urban versus rural areas. The mechanism of the suggested homogenizing effect of mechanical currency counters has also been explored.

Cocaine on Currency, Cocaine Residue Recovery/Quantitation, Cocaine: IMS Screening-LC/MS Confirmation

 ** Presenting Author*