B161 DNA Analysis of Digested Seeds in Forensic Samples

Cheng-Lung Lee, MFS, National Tsing Hua University and Hsinchu Municipal Police Bureau, 1 Chung Shan Road, Taiwan 300, ROC; Heather Miller Coyle, PhD, Eric Carita, MS, Carll Ladd, PhD, Nicholas C.S. Lang, MFS, and Timothy M. Palmbach, Esq, Department of Public Safety, Division of Scientific Services, 278 Colony Street, Meriden, CT 06451; Ian C. Hsu, PhD, Nuclear Science Dept, National Tsing Hua University, 101, Section 2 Kuang Fu Road, Hsinchu, Taiwan 300, ROC; and Henry C. Lee, PhD, Forensic Science Department, University of New Haven, 300 Orange Avenue, West Haven, CT 06516*

Seed and other plant materials are valuable evidence not only for linking a suspect to a particular crime, but also important for the verification of an alibi, or to provide new investigative leads during criminal investigations. Currently, microscopic examination of the materials in vomit, stomach content, or feces is the only method of choice for the identification and association of seeds to possible sources.

In recent years, DNA has been successfully extracted and analyzed from a variety of plant materials. Many cases have been solved due to the DNA linkage of plant materials to their source. However, in reviewing the literature, very few studies have been conducted on the subject of recovery and analysis of seed DNA.

Our research results showed that high quality DNA could be extracted from a variety of seeds after they went through the human digestive system. DNA also was successfully recovered from seeds in human feces. A comparison of DNA yield on two types of extraction techniques (Hand grinding, Mechanical crushing-Mixer Mill method) will also be reported. Our preliminary data on DNA analysis with the AFLP technique on 5 types of tomato seeds and 4 types of pepper seeds indicates that DNA-AFLP is a viable procedure for the identification and individualization of seeds in forensic investigation.

Forensic Botany, Seed Evidence, AFLP

 ** Presenting Author*