

Sample Differentiation: Cocaine Example

REFERENCE: Baugh LD, Liu RH: Sample differentiation: cocaine example; *Forensic Sci Rev* 3:101–115; 1991.

ABSTRACT: Since the analyses of drug samples in crime laboratories are often associated with investigations, potential differentiations of test samples are frequently requested and explored. Cocaine sample differentiation requires the determination of synthetic or natural origin. Synthetic samples are characterized by the presence of optical isomers, certain diastereoisomers and other by-products, and chemical residues used in synthesis. Samples derived from a natural origin (coca leaves) are characterized by the presence of certain natural products or their derivatives that are carried through the overall process and by residual chemicals reflecting the treatment procedures. Various approaches and analytical data available in the literature concerning the differentiation of cocaine samples are reviewed. Each sample must carry its own "signature"; however, true sample "individualization" cannot be accomplished using the technologies commonly available and used in crime laboratories, and is not usually needed. Alternatively, "classifying" cocaine samples in certain categories or groups can be accomplished routinely and often provides adequate information for investigatory purposes.

KEY WORDS: Cocaine, criminalistics, sample differentiation, sample signature.