B90 History of Microcrystal Tests for Drug Identification

Hiram K. Evans, MSc, San Bernardino County Sheriff's Department, Scientific Investigations Division, 200 South Lena Road, San Bernardino, CA 92415-0056*

Attendees will learn the extent of literature references regarding the use and validation of microcrystal tests for the identification of drugs and controlled substances.

This presentation will impact the forensic community and/or humanity by supplying a histoprical perspective of use of microcrystal tests for drug identification, including a bibliography.

The early history of microcrystal tests is the history of chemistry and microscopy. By the mid-1830's toxicologists needed something besides the drastic chemical treatments applied to heavy metal poisons for application to alkaloidal poisons. While any history moves forward in small steps, microcrystal tests in forensic science have a series of watershed dates. 1865 brought Helwig's *Das Mikroskop in Der Toxicologie* and Wormley's *Microchemistry of Poisons*. By 1921 and the publication of Behrens-Kley's *Organische Mikrochemische Analyse* and Stephenson's *Some Microchemical Tests for Alkaloids* forensic science had expanded to include the identification of controlled drugs. 1934 and 1935 saw the publication, respectively, of Amelink's *Schema zur Mikrochemischen Identifikation von Alkaloiden* and Rosenthaler's *Toxicologische Mikroanalyse*. From the 1920's through the 1960's, frequent collaborative work was performed and published in JOAC, expanding application and introducing acid reagent media. 1969 was probably the greatest year with publication of E. G. C. Clarke's *Isolation and Identification of Drugs* and Charles C. Fulton's *Modern Microcrystal Tests for Drugs*. Publications on microcrystal tests have decreased in number, concentrating on determination of isomeric forms, but the tests remain part of some training programs, are included in new ASTM Standard Guides, and are accepted by ASCLD/LAB for use in accredited laboratories.

Microcrystal Tests, Drugs, Identification

 ** Presenting Author*