



TENNESSEE BUREAU OF INVESTIGATION

Forensic Services Division

Forensic Chemistry Standard Operating Procedure Manual

Opium and Heroin

27.0 OPIUM AND HEROIN

27.1 *Opium Identification*

Opium is derived from the unripe seed pod of the poppy plant, *Papaver somniferum L.*, and naturally contains over 35 alkaloids. The most prevalent of these are morphine, codeine, thebaine, papaverine, and noscapine.

The alkaloids in opium may be divided into two classes: phenanthrene alkaloids and benzylisoquinoline alkaloids. The phenanthrene alkaloids (morphine, thebaine and codeine) are highly addictive and are classified as controlled substances. The benzylisoquinoline alkaloids (papaverine and noscapine) are not controlled because they are not addictive and cannot readily be converted to addictive substances.

In order to report the result of "opium," the analyst must have a presumptive test for opiates and confirmatory tests for **all** of the following: morphine, codeine, thebaine, and papaverine. If an analyst cannot meet these requirements, separate alkaloids may be confirmed and reported.

27.2 *Special considerations for Heroin*

Heroin can be converted to morphine if subjected to a strong base. When heroin is suspected in a sample, saturated sodium bicarbonate into chloroform, methanol, or ethanol extractions are recommended.