

# Morphine and Codeine in Biological Fluids: Approaches to Source Differentiation

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**REFERENCE:** ElSohly MA, Jones AB: Morphine and codeine in biological fluids: approaches to source differentiation; *Forensic Sci Rev* 1:13–22, 1989.

**ABSTRACT:** Heroin, morphine, and codeine are among the most abused opiate analgesics today. Analysis of individuals' urines for morphine and codeine is used as an indication of prior ingestion of these drugs. Poppy seeds and products containing poppy seeds are found to have small amounts of morphine and codeine (usually less than 200 ug morphine/g seeds and much less codeine), which is enough to produce a positive urine test for opiates. This manuscript reviews current data on the analysis of various poppy seed products and urine specimens from individuals ingesting these products. A brief review of the metabolism and elimination of these drugs is presented, with general guidelines for differentiation of poppy seed use versus codeine, morphine, or heroin abuse.

**KEY WORDS:** Codeine, heroin, 6-monoacetylmorphine, morphine, poppy seeds, urinalysis.

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