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**AIMS:** During 2003, 2004, and 2005, a total of 650 illicit heroin samples were quantitatively analyzed (Heroin range 1 – 58%) in our special testing laboratory. In order to establish a database for chemical profiling and sample comparison, the content of heroin, 6-acetylmorphine, acetylcodeine, noscapine, papaverine, paracetamol and caffeine were determined.

**METHODS:** All illicit drug samples were subjected to screening analysis by ion mobility spectrometry (IMS). Confirmation and quantitative analyses were performed by gas chromatography-mass spectrometry (GC-MS) and, since 2005, with high performance liquid chromatography with diode array detection (HPLC-DAD).

**RESULTS:** Most of the analyzed heroin samples contain paracetamol and caffeine in a ratio of approx. 1:1.5. In addition, 92% of the samples contained noscapine in elevated concentrations (up to 60%). These samples are characterized by a high noscapine to heroin ratio  $r$ : 29%  $r = 0.4 - 0.6$ ; 26%  $r = 0.61 - 0.8$ ; 15%  $r = 0.81 - 1.0$ ; 14%  $r = 1.1 - 1.6$ ; 9%  $r > 1.6$ .

**CONCLUSIONS:** According to the United Nation manuals, the expected noscapine to heroin ratio for heroin stemming from Southwest Asian (SWA) would be in the range of 0.1 - 0.2. (Southeast Asian heroin contains noscapine in traces only). For the analyzed samples, our analytical results indicate a wide use of noscapine as an adulterant. They also confirm the results published by S. Klemenc in the article "Noscapine as an adulterant in illicit heroin samples", *Forensic Science International* 108, 45-49 (2000). In the short report of Klemenc the evidence is given (based on the analyses of 22 case samples) that noscapine can be used as an adulterant in illicit heroin samples. In this context, the appearance of illicit heroin samples characterised by a high noscapine content (up to 61%) and a high noscapine/whole morphine ratio (up to 3.5) was highlighted. All samples discussed in the paper of Klemenc (132) were seized in Slovenia, in the period from 1997 to 1999.

According to the United Nations Office on Drugs and Crime, the proportion of global opium production in 2005 (4100metric tons) Afghanistan remains at approximately 87%. Both our results and the results of S. Klemenc lead to the conclusion, that the production- and adulteration methods of SWA heroin are still identical to those used before the Afghanistan war.

**KEYWORDS:** *Heroin, Adulterants, Noscapine, Paracetamol, Caffeine, Afghanistan, Opium production.*

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