

Impurities in Illicit Drug Preparations: Amphetamine and Methamphetamine

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ABSTRACT: In this review, attention is paid to chromatographic and mass spectral properties of already identified impurities found to be present in frequently abused drug preparations of illegal origin of amphetamine and methamphetamine. The most commonly employed methods of synthesis of drugs of this type are briefly described. Special emphasis is given to the Leuckart route, found to be the preferred method, in the illicit production of amphetamine. Furthermore, some isolation and preconcentration methods for the contaminants are discussed. The importance of identifying impurities present in amphetamine or methamphetamine cannot be overestimated. These impurities originate mostly from the improper purification in the end stage of the different syntheses used in the clandestine manufacture of the substances; it is possible to differentiate between the several kinds of illegal drug preparations, synthesized by various methods, by means of so-called "route specific" impurities. Finally, a survey is given of the impurities already known to be present in amphetamine and methylamphetamine, together with their mass spectral and some chromatographic properties.

KEY WORD: Amphetamine, chromatography, contaminants, impurities, isolation, mass spectrometry, methamphetamine.