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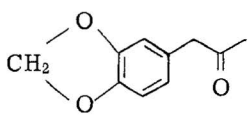
LETTER TO THE EDITOR

1-(3,4-Methylenedioxyphenyl)-3-aminobutane: A Potential Toxicological Problem

MDA (1-[3,4-methylenedioxyphenyl]-2-aminopropane; 3,4-methylenedioxyamphetamine) has enjoyed a broad and continuing popularity in the drug-oriented subculture, and there are several clinical reports of overdoses and fatalities associated with its use. Originally, most if not all illicit syntheses of this drug called upon piperonal as a starting material, which required the use of the hazardous reducing agent, lithium aluminum hydride. In recent years a safrole derivative, piperonylacetone, has become available from several commercial sources. This material can be converted to MDA, employing simply amalgamated aluminum and ammonia, a process frequently employed in illicit laboratories for the manufacture of amphetamine from phenylacetone (P-2-P).

The chemical term "piperonylacetone" is potentially ambiguous in that "piperonyl" may represent either the 3,4-methylenedioxy radical (as in the term piperonyl amine, used for 3,4-methylenedioxyaniline) or the 3,4-methylenedioxybenzyl radical (as in the term piperonyl alcohol, used for 3,4-methylenedioxybenzyl alcohol). Piperonylacetone then might represent either Compound 1 or Compound 2:



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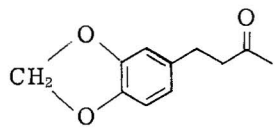

2

Although 1 by convention has been supplied by most chemical sources under the name piperonylacetone, a recent purchase from a major chemical supply house (Research Chemical Co., Belleville, New Jersey) proved to be Compound 2, despite their catalog listing of

Structure 1, and their previous delivery of Compound 1 as piperonylacetone.

A study was made of the reductive amination of 2, employing a typical illicit recipe that will convert 1 to MDA. The reduction step, distillation properties, and final hydrochloride preparation all proceeded in a virtually indistinguishable manner. The final product was a white crystalline solid which superficially resembled MDA. Although the use of proper analytical techniques readily distinguished the two products (different melting points, spectroscopic uniqueness with both infrared and NMR), these techniques are seldom available and rarely used by the illicit chemist. There is a high probability that the amination product of 2 (1-[3,4-methylenedioxyphenyl]-3-aminobutane) will appear (if it has not already appeared) as an inadvertant substitute for MDA. This latter base is largely unexplored pharmacologically, is completely undefined chemically in the scientific literature, and thus presents a potential clinical and toxicological problem of unpredictable dimensions. A complete analytical paper concerning this problem has been submitted to the Journal of Analytical Toxicology.

Alexander T. Shulgin
1483 Shulgin Road
Lafayette, California 94549

Peyton Jacob, III
1995 Ascot Drive, #5
Moraga, California 94556