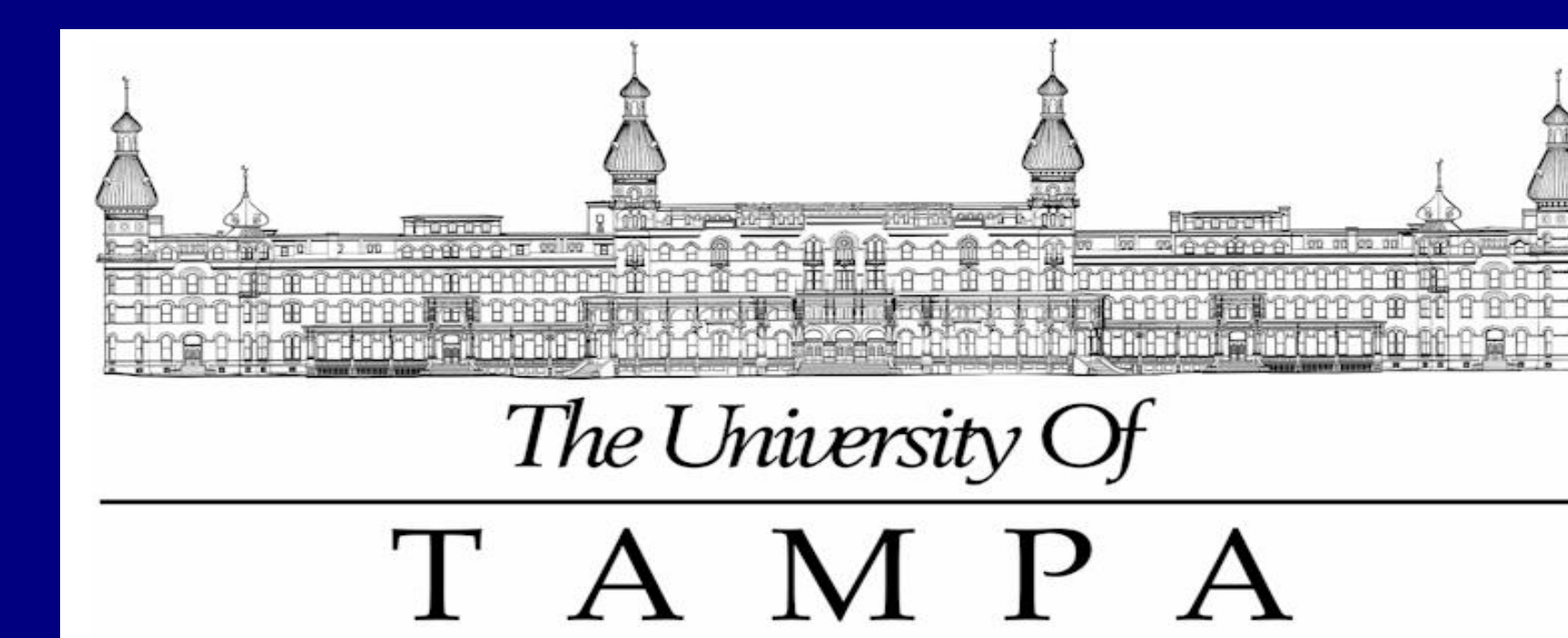




An Unusual Case of LSD Poisoning

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INTRODUCTION

•d-Lysergic acid diethylamide (LSD) is an indolealkylamide with hallucinogenic effects.

•LSD is a very potent, colorless, odorless, tasteless liquid. It is usually distributed laced onto blotter paper, microdots, window panes, toothpicks, sugar cubes or candy.

•LSD is fairly uncommon and an unusual illicit substance to find in forensic toxicology, particularly over the past decade.

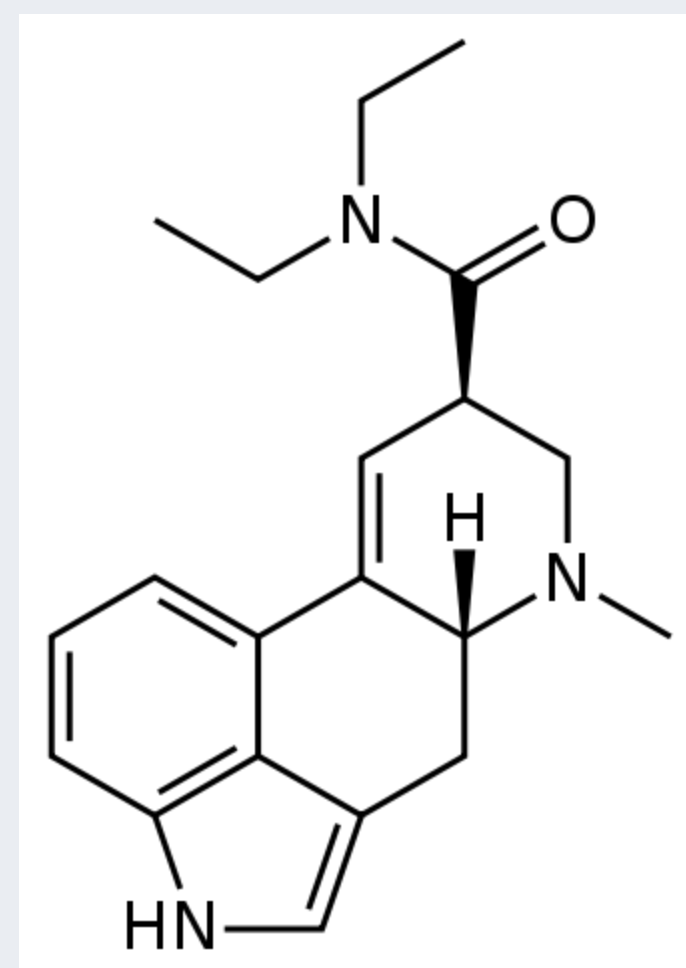
•LSD is relatively unstable and sensitive to both heat and light.

•LSD can be detected by Immunoassay, Gas Chromatography Mass Spectrometry (GCMS) and Liquid Chromatography Tandem Mass Spectrometry (LC-MS/MS). Since blood and urine concentrations of LSD are very low (0.5 to 50 ng/mL), LC-MS/MS is usually used for confirmation for maximum sensitivity.

•Hallucinations and perceptual alterations are common psychological effects and may include visual illusions, alterations in sound or intensity of colors, fixed objects appearing to undulate, and/or flat surfaces assuming depth.

•Physiological effects include hyperglycemia, pupil dilation, lacrimation, tachycardia, piloerection, and elevated body temperature. Larger doses may cause salivation, tremor, nausea, vomiting, and hyperactivity.

•LSD may also cause dizziness, weakness, drowsiness, and numbness or tingling sensations in the extremities.



d-Lysergic Acid Diethylamide (LSD)

CASE HISTORY

•A family of four became ill after consuming a home cooked meal of steak fajitas.

•Initial symptoms included tingling in arms and legs, nausea, dizziness, tachycardia, dilated pupils and hallucinations.

•The family drove to a nearby hospital where they were admitted.

•Out of an abundance of caution, all four family members were intubated for airway protection and an emergency Caesarian section was performed on the mother who was in her ninth month of pregnancy.

•All victims (including the newborn infant) recovered spontaneously with 24 hours after admission and were released within a few days.

•Hospital urine drug test results were negative.

ANALYTICAL METHODS

•Based on the unusual circumstances of the case and the severity of the symptoms, the Tampa Police Department asked the Hillsborough County Medical Examiner Toxicology Laboratory to perform a comprehensive drug screen on the victims' hospital admission blood and urine specimens to help identify the substance ingested by the family.

•Immunoassay was performed on the victims' blood and urine samples for 12 different classes of drugs (acetaminophen, barbiturates, benzodiazepines, cannabinoids, carisoprodol/meprobamate, cocaine metabolite, fentanyl, methadone, methamphetamine, opiates, oxycodone and salicylates). All results were negative.

•Two mL of victims' blood and urine samples were alkaline extracted with borate buffer and a mixture of toluene, hexane, and isoamyl alcohol. The organic layer was back extracted with sulfuric acid, neutralized with carbonate buffer and reconstituted in ethyl acetate for analysis by full scan electron ionization GCMS. All results were negative.

•Due to the negative findings on victims' blood and urine samples, the steak fajita meat ingested by the family was then submitted to the laboratory for analysis. Similar to the laboratory procedure used for postmortem tissues, approximately 1 gm of steak fajita meat was homogenized with 9 mL water for a 1:10 dilution. Two mL of the meat homogenate was then extracted with borate buffer as described above for analysis by GCMS.

•GCMS analysis of the fajita meat homogenate identified a late-eluting compound, which was approximately one minute after cholesterol. It matched multiple mass spectral libraries for LSD. Subsequently, standards of LSD and Lysergic Acid Methylpropylamide (LAMPA) were purchased to facilitate definitive identification. The compound on the fajita meat homogenate did not match LAMPA, but was identified as LSD by comparison of the retention time and mass spectra of both underivatized LSD and BSTFA-derivatized LSD standards.



CONCLUSIONS

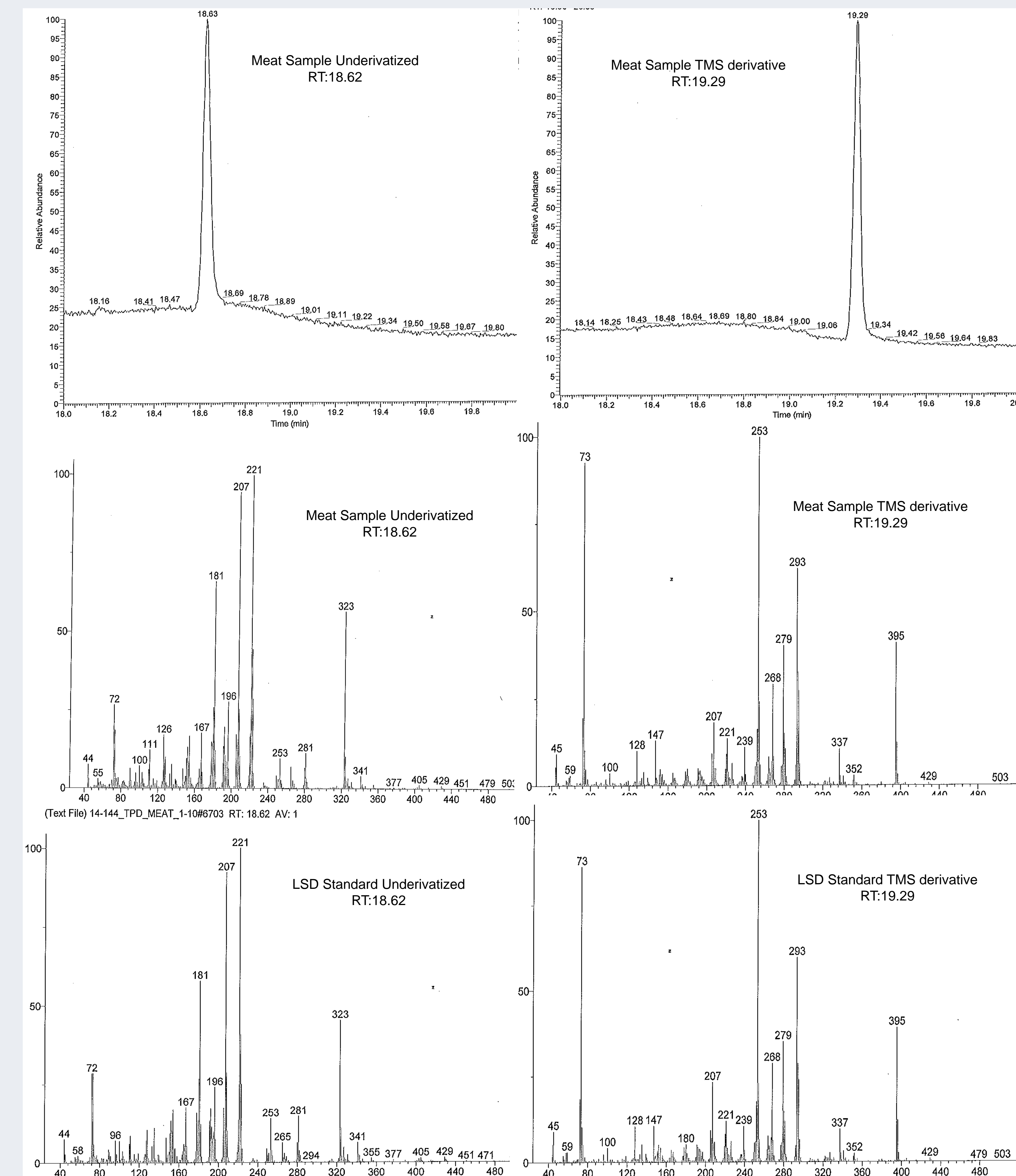
•LSD was identified on the ingested steak fajita meat by GCMS analysis.

•Targeted analysis for LSD in urine by LC-MS/MS confirmed the presence of LSD in three of the victims' samples (the fourth victim's urine sample had insufficient volume for LSD analysis).

•Once the LSD was identified on the steak fajita meat, the case was taken over by the FDA for specialized testing.

•FDA has confirmed the presence of LSD on the steak fajita meat and the case is still pending further investigation for the source of the LSD.

RESULTS



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