B51 An Analytical Profile of 2-[(2,6-dichlorophenyl)-amino]phenylacetoxyacetic Acid (Aceclofenac)

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After attending this presentation, attendees will be able to identify aceclofenac encountered in both illicit and licit preparations.

This presentation will impact the forensic science community by explaining how, in this time of tight budgets and increasing turnaround times, this data can assist in the identification of aceclofenac in both licit and illicit samples in lieu of purchasing a standard, thus saving the forensic community not only time but also money.

Structurally, aceclofenac is a phenylacetic acid derivative and classified as a Non-Steroidal Anti-Inflammatory Drug (NSAID) with analgesic properties.[1] According to Saraf, aceclofenac is a potent prostaglandin inhibitor through the inhibition of the enzyme cycloxyganase.[2] The analysis and identification of 2-[(2,6-dichlorophenyl)-amino]phenylacetoxyacetic acid commonly referred to as aceclofenac is discussed. Through the course of routine analysis, it became apparent that the Electron Ionization (EI) mass spectrum of aceclofenac was similar to diclofenac and could be difficult to differentiate using Gas Chromatography/Mass Spectrometry (GC/MS) alone. After an exhaustive search, it was determined that there was a lack of forensically relevant data available to make an identification. This analytical profile is intended to fill this need. The following techniques were chosen to represent a wide range of instrumental techniques utilized in forensic laboratories to include Ultra High-Performance Liquid Chromatography/Quadrupole-Time-of-Flight/Mass Spectrometry (UHPLC/QTOF/MS), Liquid Chromatography with Tandem Mass Spectrometry (LC/MS/MS), Liquid Chromatography/Mass Spectrometry (LC/MS), Gas Chromatography/Mass Spectrometry (GC/MS), Fourier Transform Infrared/Attenuated Total Reflectance (FTIR/ATR) spectroscopy, and Nuclear Magnetic Resonance (NMR) spectroscopy.

Through the use of the various instrumental techniques mentioned above, it was determined that an effective analytical approach for the identification of aceclofenac in both licit and illicit samples is LC/MS/MS, LC/MS, and NMR. Depending on the purity of the sample, FTIR/ATR is also a viable test for identifying aceclofenac. Through the use of these instrumental techniques, it is possible to confirm the presence of aceclofenac in unknown drug samples.

References:

1. Dooley, M., Spancer, C.M., and Dunn, C.J. "Aceclofenac: A Reappraisal of Its Use in the Management of Pain and Rheumatic Diseases." Adis International Limited 19.9 (2001): 1351-378. Www.Pubmed.com. Web 25 Sept. 2013.
2. Saraf, S. "The Pain Management Is Always a Problem for a Physician and the Search for a Safe and Effective Option Is Still On." Aceclofenac: A potent Non-Steroidal Anti-Inflammatory Drug. N.p., n.d. http://www.pharmainfo.net/reviews/aceclofenac-potent-non-steroidal-anit-inflammatory-drug. Web 25 Sept. 2013.

Aceclofenac, Forensic Analysis, Aceclofenac Identification

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