

Detection and quantification of Ketamine HCL in alcohol/water matrices using ESI-MSN and LC-ESI-MS

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Drug facilitated date rape continues to be a problem around the world. Ketamine HCl (KT) has gained popularity since it is nearly odorless, tasteless, and colorless when dissolved in water/alcohol and a typical street dose (300-400mg) only costs \$20-\$25. A street dose of KT will send the victim into a dissociative state within 10-15 minutes and can cause temporary amnesia. Drug detection is paramount in the prosecution of drug facilitated date rape cases. Currently, detection of KT relies on urine or blood analysis. In this study we have developed a method for detecting and quantifying KT in a variety of different alcohols and mixed drinks.

Mass spectrometry (MS) was used to identify the presence of KT in the alcohol matrices. Liquid chromatography (LC) was used to separate the KT from the rest of the alcohol matrix. Quantification of KT was carried out both by MS and LC/UV absorbance using a series of external standards and plotting the concentration versus the signal intensity. Interestingly, it is possible to distinguish not only between different types of alcohol but also different brands of similar alcohol. KT was clearly visible in the spectrum of KT spiked drinks and did not show any interference from the alcohol matrix. Detection limits were found to be in the 100 pM range and samples were stable for up to 7 days. This method has proven to be robust and a viable way to quantify KT in alcoholic beverages for up to 1 week with very low limits of detection.