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Multivariate Stable Isotope Analysis to Determine Linkages between Benzocaine Seizures

H F Kemp (1), W Meier-Augenstein (1,2), M Collins (3), H Salouros (3), A Cunningham (4), and M Harrison (5)

(1) The James Hutton Institute, Stable Isotope Unit, Dundee, UK, (2) Environmental and Forensic Science Group, Robert Gordon University, Aberdeen, UK, (3) Australian Forensic Drug Laboratory, National Measurement Institute, Pymble, Australia, (4) Scottish Crime and Drug Enforcement Agency (SCDEA), Glasgow, UK, (5) Forensic and Data Centres, Australian Federal Police (AFP), Canberra, Australia

In July 2010, a woman was jailed for nine years in the UK after the prosecution successfully argued that attempting to import a cutting agent was proof of involvement in a conspiracy to supply Cocaine. That landmark ruling provided law enforcement agencies with much greater scope to tackle those involved in this aspect of the drug trade, specifically targeting those importing the likes of benzocaine or lidocaine. Huge quantities of these compounds are imported into the UK and between May and August 2010, four shipments of Benzocaine amounting to more then 4 tons had been seized as part of Operation Kitley, a joint initiative between the UK Border Agency and the Serious Organised Crime Agency (SOCA).

By diluting cocaine, traffickers can make it go a lot further for very little cost, leading to huge profits. In recent years, dealers have moved away from inert substances, like sugar and baby milk powder, in favour of active pharmaceutical ingredients (APIs), including anaesthetics like Benzocaine and Lidocaine. Both these mimic the numbing effect of cocaine, and resemble it closely in colour, texture and some chemical behaviours, making it easier to conceal the fact that the drug has been diluted. API cutting agents have helped traffickers to maintain steady supplies in the face of successful interdiction and even expand the market in the UK, particularly to young people aged from their mid teens to early twenties. From importation to street-level, the purity of the drug can be reduced up to a factor of 80 and street level cocaine can have a cocaine content as low as 1%.

In view of the increasing use of Benzocaine as cutting agent for Cocaine, a study was carried out to investigate if 2H, 13C, 15N and 18O stable isotope signatures could be used in conjunction with multivariate chemometric data analysis to determine potential linkage between benzocaine exhibits seized from different locations or individuals to assist with investigation and prosecution of drug distribution network. More than 40 Benzocaine samples comprising both seized and control samples were analysed by two stable isotope forensic laboratories in two different countries (Australia and Scotland) to assess intra-lab reproducibility as well as inter-lab repeatability of measured stable isotope abundance values.