

News Release

For immediate release

HU scientist finds way to catch terrorists red-handed

Jerusalem, Oct 30, 2007 – A new chemical spray detector developed by Prof. Joseph Almog of the Hebrew University's Casali Institute of Applied Chemistry detects the home-made explosive urea nitrate. When sprayed on cotton swabs taken from the hands of a suspect, if they have had recent contact with urea nitrate, the chemical will turn a blood red hue.

Urea nitrate is a powerful improvised explosive, frequently used by Palestinian terrorists in Israel. It was also used in the first World Trade Center bombing in New York in 1993. Non-professionals can prepare large amounts of this material in "back-yard" facilities, which have subsequently been used in improvised mines and in suicide bomber belts, the devastating results of which have killed over a hundred people in Israel alone.

Urea nitrate is a colorless crystalline substance that looks very much like sugar, which makes it very difficult to detect. The development of a color test will therefore be a significant aid to forensic scientists. The test is based on the formation of a red dye in the chemical reaction between p-dimethylaminocinnamaldehyde and urea nitrate under neutral conditions.

The initial findings of the project, which was supported in part by the US/Israel Bilateral Committee on Counter-Terrorism, were published two years ago, in the Journal of Forensic Sciences. The second part of the work, carried out by research student Nitay Lemberger, involved unequivocal structure elucidation of the red dye.

Although instruments do already exist to detect urea nitrate, they are much more sophisticated and quite expensive. According to Prof. Almog, his spray can detect minute traces of the improvised explosive on hands of suspects, door handles, luggage containers and vehicles, and it can distinguish between sugar or any innocent looking powder and urea nitrate.

Prof. Almog, who says the spray detector is easy to use and inexpensive, sees it being adopted as a standard arsenal of law enforcement agencies, security services, and the military and at certain check-points at air and sea ports. He said that as well as enabling better understanding of the chemistry of urea nitrate, this discovery may also play an important role in legal procedures.

With a long history of inventing color changing test fluids for law enforcement, Prof. Almog is a former Israeli Police Brigadier General and Director of the Identification and Forensic Science Division of the Israeli Police. His team has led a great deal of groundbreaking research in past years, including the development of the chemical FerroTrace which turns purple when the user has recently held a weapon. Prof. Almog is the recipient of the Lucas Medal, the highest award of The American Academy of Forensic Sciences for 2005, "for outstanding achievements in forensic science".

For more information, or for press contact with students, faculty or spokespersons from HU, please speak in the first instance to Jason Caplin, Communications Manager, on +44 (0)20 7691 1471 or email jason.caplin@bfhu.org.



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