

A new anti-terrorism weapon that is not to be sniffed at

Researchers at the University of Wales Bangor have developed a biosensor that is capable of detecting and identifying very low levels of explosives in the atmosphere

The biosensor, which has the potential to be a major contributor in the global battle against terrorism, was developed by a team from the School of Chemistry at the University of Wales Bangor, led by Professor Maher Kalaji. With support from the Welsh Assembly Government, the team has successfully developed the biosensor, patented the technology, and is currently working towards a prototype for commercialisation.



The device, known as a 'nanodog', can detect explosives, giving anti-terrorist authorities vital early warnings about the presence of explosive materials. The nanodog is extremely sensitive because it employs genetically engineered enzymes that enable the detection of substances at very low levels, down to the low part per trillion range. The researchers have also further developed the sensor to detect explosive molecules from the air.

Potential applications include screening airport passengers and luggage, but other large public spaces such as sports arenas and train stations could also

“The basic concept exists; with the partners we will extend the capability to detect more materials and detoxify the air. Bangor’s expertise is in developing the material in the device that will detect and detoxify a wider range of toxic agents, while other consortium members will test and validate our further development.”

Professor Kalaji

benefit. The device has already proved successful in detecting samples of explosives of interest to global security agencies and will shortly be undergoing further testing. The results showed that, while the technology is still young, it is extremely effective in response time and in detection levels. The compact nature of the nanodog makes it suitable for passive sensing in areas with security requirements and will sense explosives as passengers walk through security portals without the need to intrude on their personal space, as is the case with existing technologies.

The team behind the biosensor are also playing a leading role in an €8.9 million EU-funded project, involving 26 partners, that started in the spring aimed at developing an integrated system for security in public places. The consortium will develop a system for the detection of explosives, narcotics, biological agents and chemical warfare agents. ■

Profile

Product	Explosives-detecting biosensor
Applications	Screening for explosives to reduce the threat of terrorism
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