

High-throughput detection of improvised explosive devices (IEDs) by walkthrough portal with wire linear ion-trap mass spectrometric technology

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The threat of improvised explosive devices (IEDs) has become a serious problem in many countries. The throughput of commercial explosives trace detectors, lower than 500 persons per hour, is not high enough for investigations at ticket gates of train stations in Japan where 2000 persons per hour pass through. To obtain this high throughput, both high selectivity and high sensitivity are required for trace detectors. We previously reported a wire linear ion-trap (wire LIT) mass spectrometric technology. The wire LIT enabled selective MS/MS detection and more sensitive detection than a conventional quadrupole ion trap. As the next step toward high-speed screening of passengers, we have been developing and testing a novel high-throughput vapor-sampling portal combined with the wire LIT. We will present the detection results for explosive trace such as triacetoneperoxide (TATP). We already confirmed that detection of TATP was accomplished within 3 seconds with the new sampling portal.

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