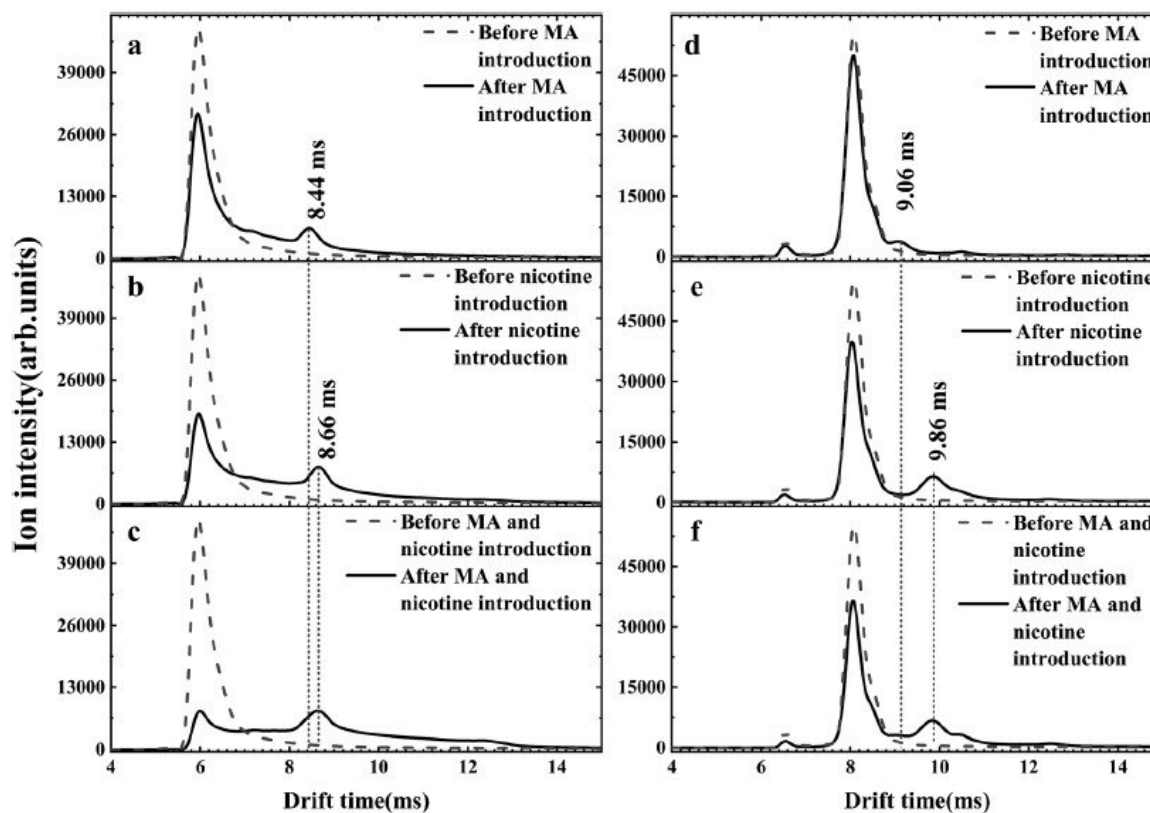


New method eliminates interference of nicotine in detection of methamphetamine

June 7 2021, by Zhang Nannan



The ion mobility spectra of Methamphetamine, nicotine, and their mixture without (left) and with doped pyridine (right). Credit: XIA Lei

Recently, a research group led by Chu Yannan and Huang Chaoqun from the Institute of Health & Medical Technology of the Hefei Institutes of

Physical Science (HFIPS) developed an effective method for on-site detection of methamphetamine (MA) in the presence of nicotine via homemade ion mobility spectrometry. Relevant results were published in *Analytical and Bioanalytical Chemistry*.

MA is a highly addictive stimulant that affects the central nervous system. The on-site rapid detection of trace amounts of MA and screening [illicit drugs](#) in clandestine laboratories are important for drug enforcement agencies and the forensic community in general. However, detecting MA in the presence of [nicotine](#) by the frequently used ion mobility spectrometry method is difficult.

In this research, the researchers optimized the temperature of the drift tube and the concentration of the pyridine. It was shown that the best temperature of the drift tube to distinguish MA from nicotine was about 100 °C, when the concentration of doped pyridine was 18 ppm.

The new instrument developed by the team proved effective. "We used pyridine as a dopant," said Prof. HUANG, who conducted this research, "the doped [pyridine](#) can eliminate the interference of nicotine, resolve the overlapping spectral peaks of MA and nicotine, and offer a [high selectivity](#) and a low limit of detection (LOD) when detecting MA from nicotine."

Further experiment proved that no matter how high the nicotine content was, the interference of nicotine could always be eliminated in the detection of MA using the new method.

These promising results provide a practical method for on-site detection of MA.

More information: Hui Liu et al, Dopant for detection of methamphetamine in the presence of nicotine with ion mobility

spectrometry, *Analytical and Bioanalytical Chemistry* (2021). [DOI: 10.1007/s00216-021-03370-z](https://doi.org/10.1007/s00216-021-03370-z)

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