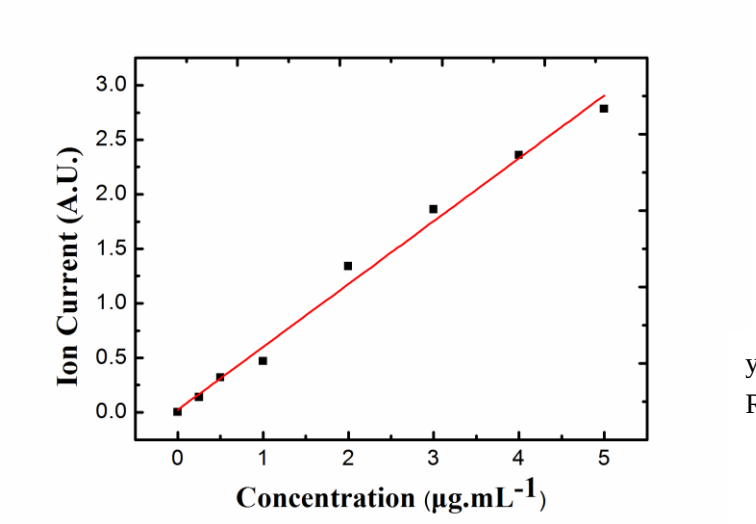
supplementary materials

1. Standard Curve

Standard solutions were made of trimethylamine hydrochloride taken directly from the flask. Concentrations were: 0.5 μg mL^{-1}, 1.0 μg mL^{-1}, 2.0 μg mL^{-1}, 4.0 μg mL^{-1}, 6.0 μg mL^{-1}, 8.0 μg mL^{-1} and 10.0 μg mL^{-1}. A 100 μL of these solutions and 100 μL of 8 mol/L NaOH were added to dynamic headspace sampler. So actually the concentrations of standard solutions were 0.25 μg mL^{-1}, 0.5 μg mL^{-1}, 1.0 μg mL^{-1}, 2.0 μg mL^{-1}, 3.0 μg mL^{-1}, 4 μg mL^{-1}, 5μg mL^{-1}. The positive ion spectra from FAIMS were analyzed at 142Td. Standard Curve was shown as Fig.1.



y=0.4953x-0.042
R^2=0.99

Fig. 1 Dependence of the ion current on the concentration of standard solution

The formula of LOD (Limit of Detection) is as follows:

LOD = 3σ/S

Where σ is the standard deviation of blank solutions, S is the slope of calibration curve.

Ten blank samples were measured separately, and their standard deviation was used to estimate LOD and LOQ(Limit of Quantity). The value of σ is 0.00248.

LOD = 3 σ/S=0.015 μg/mL

The LOD is 3 ng for TMA dissolved in deionized water.

LOQ =10σ/S=0.05 μg/mL

The LOD is 10 ng for TMA dissolved in deionized water.