

Electronic supplementary material

Fe³⁺-catalyzed degradation of organic mercury as a simple post-column interface for speciation of mercury in the high-performance liquid chromatography-catalytic cold vapor-atomic fluorescence spectrometry

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Fig. S1 The effect of Fe^{3+} concentration on the fluorescence signal in HPLC-CCV-AFS. Each mercury species was present at $5 \mu\text{g L}^{-1}$. Error bars show the standard deviation ($n=3$).

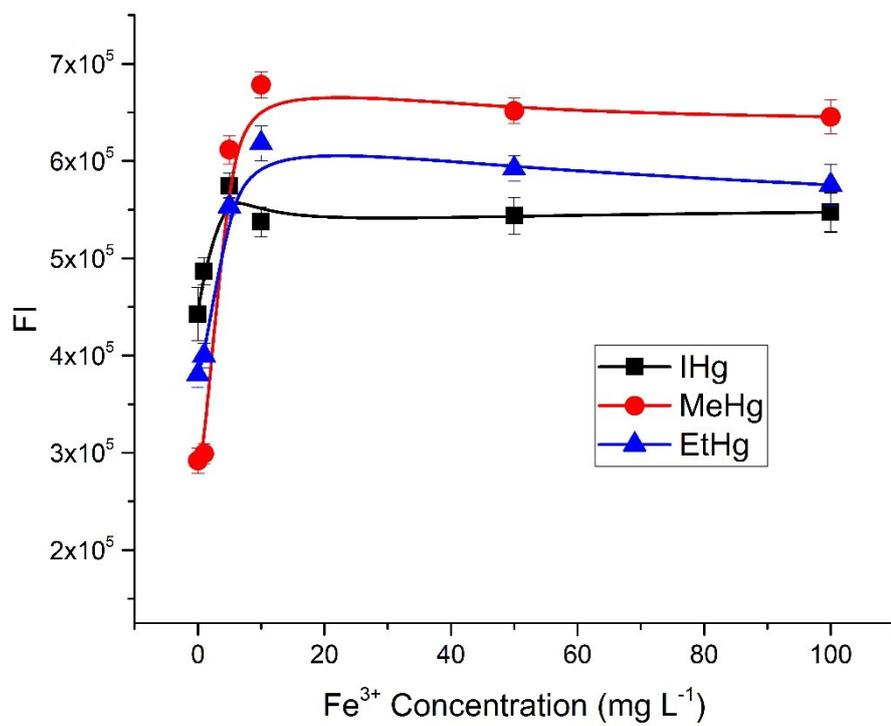


Fig. S2 The effect of Fe^{3+} concentration on the fluorescence signal of organic mercury in FI-CCV-AFS. Each mercury species was present at $5 \mu\text{g L}^{-1}$. Other conditions were given in Table 1. Error bars show the standard deviation ($n=3$).

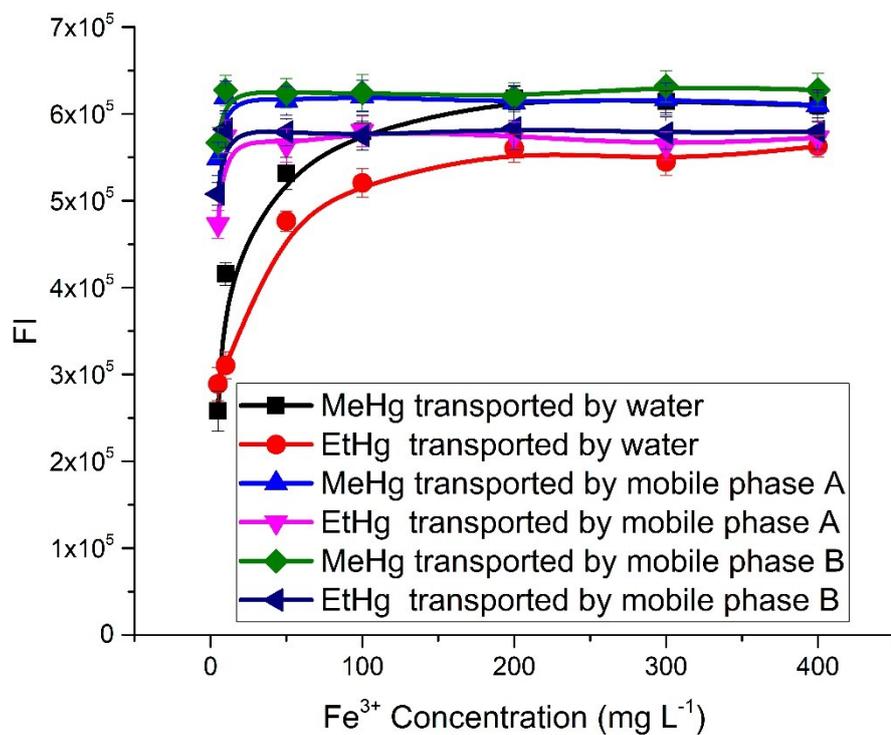


Fig. S3 The effect of L-cysteine concentration on the fluorescence signal. Each mercury species was present at $5 \mu\text{g L}^{-1}$. Other conditions were given in Table 1. The concentration of ammonium acetate was 0.06 mol L^{-1} . Error bars show the standard deviation ($n=3$).

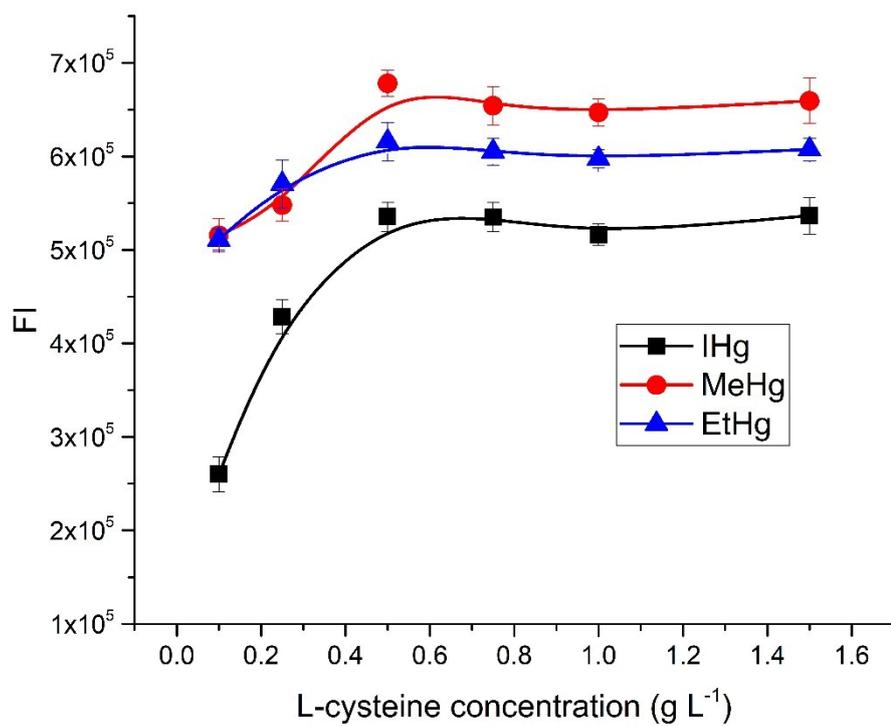


Fig. S4 The effect of NH_4Ac concentration on the fluorescence signal. Each mercury species was present at $5 \mu\text{g L}^{-1}$. The concentration of L-cysteine was 0.5 g L^{-1} . Error bars show the standard deviation ($n=3$).

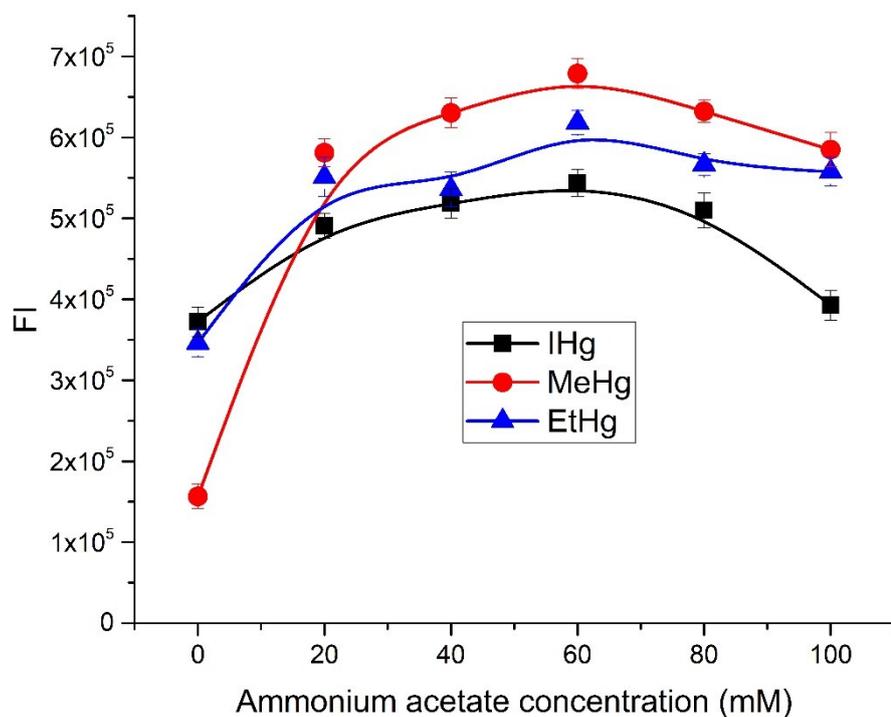


Fig. S5 The effect of KBH_4 concentration on the fluorescence signal. Each mercury species was present at $5 \mu\text{g L}^{-1}$. Other conditions were given in Table 1. The concentration of HCl was 10% (V/V). Error bars show the standard deviation ($n=3$).

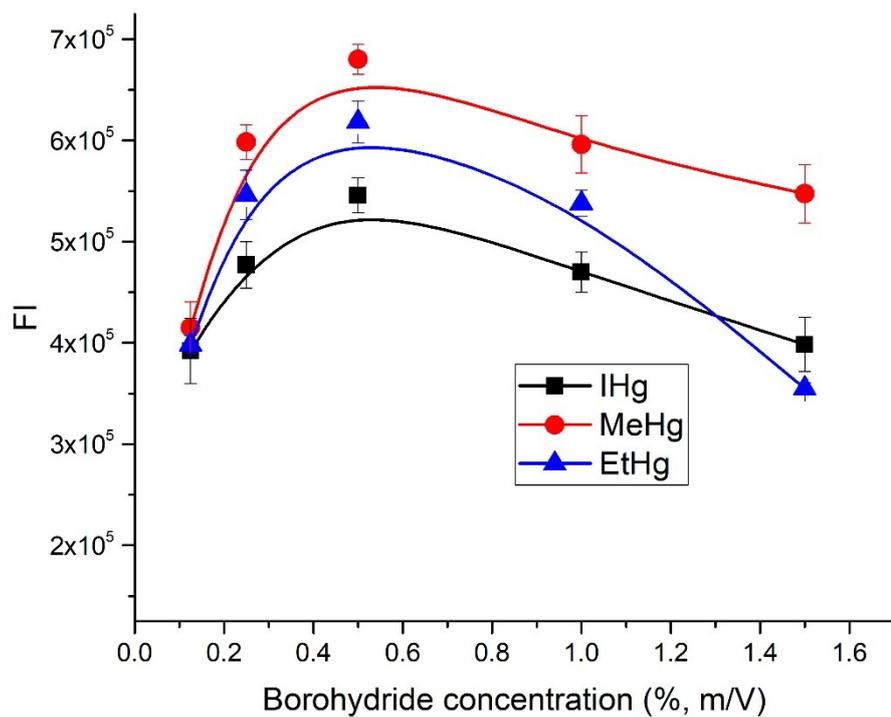


Fig. S6 The effect of the HCl carrier on the fluorescence signal. Each mercury species was present at $5 \mu\text{g L}^{-1}$. Other conditions were given in Table 1. The concentration of KBH_4 was 0.5% (m/V). Error bars show the standard deviation ($n=3$).

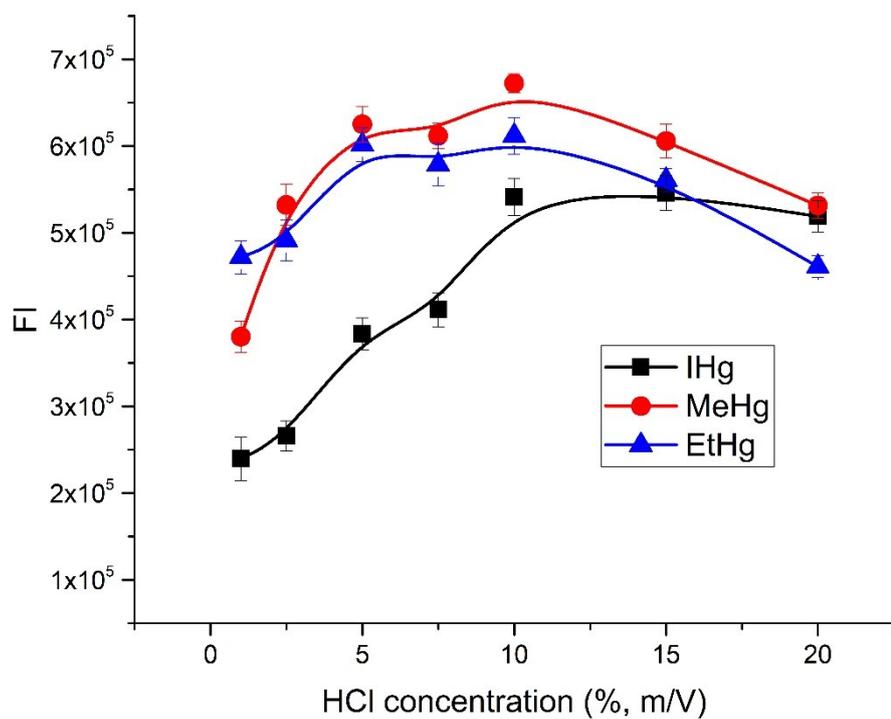


Fig. S7 The effect of the carrier gas flow rate on the fluorescence signal. Each mercury species was present at $5 \mu\text{g L}^{-1}$. Other conditions were given in Table 1. Flow rate of the shielding gas was 900 mL min^{-1} . Error bars show the standard deviation ($n=3$).

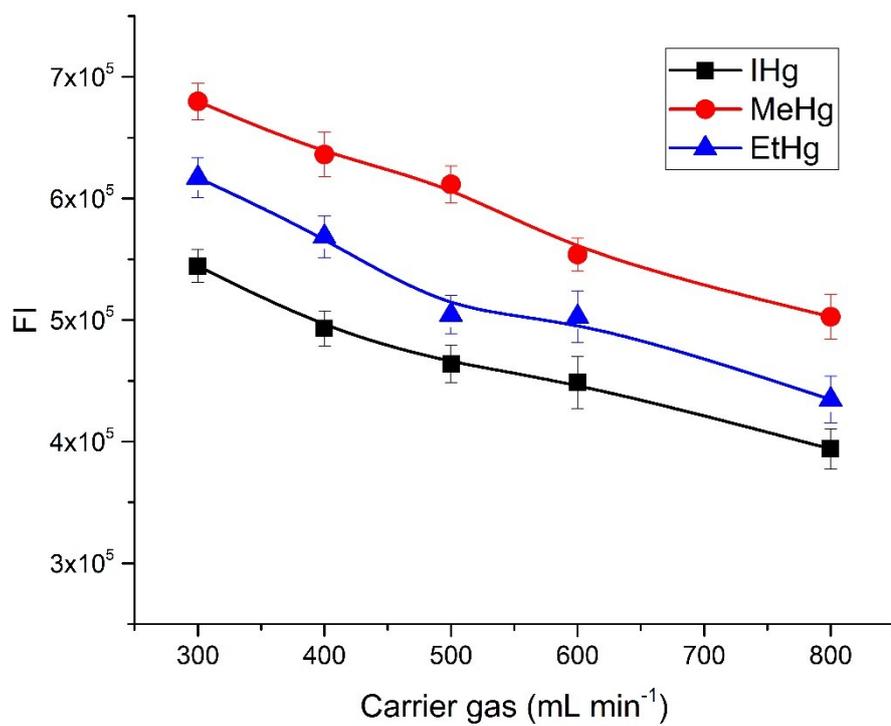


Fig. S8 The effect of the shielding gas flow rate on the fluorescence signal. Each mercury species was present at $5 \mu\text{g L}^{-1}$. Other conditions were given in Table 1. Flow rate of the carrier gas was 300 mL min^{-1} . Error bars show the standard deviation ($n=3$).

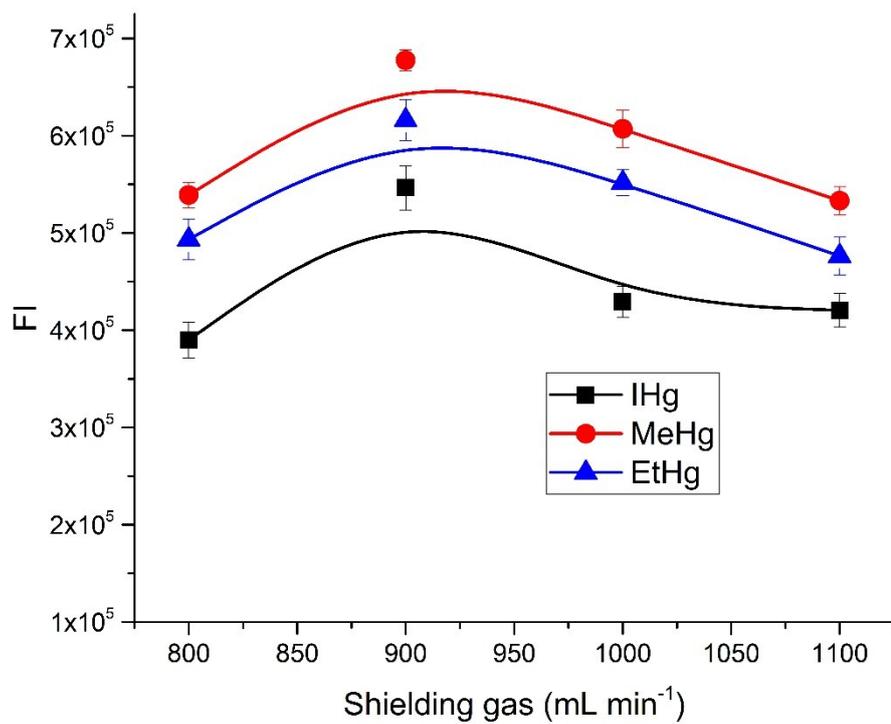
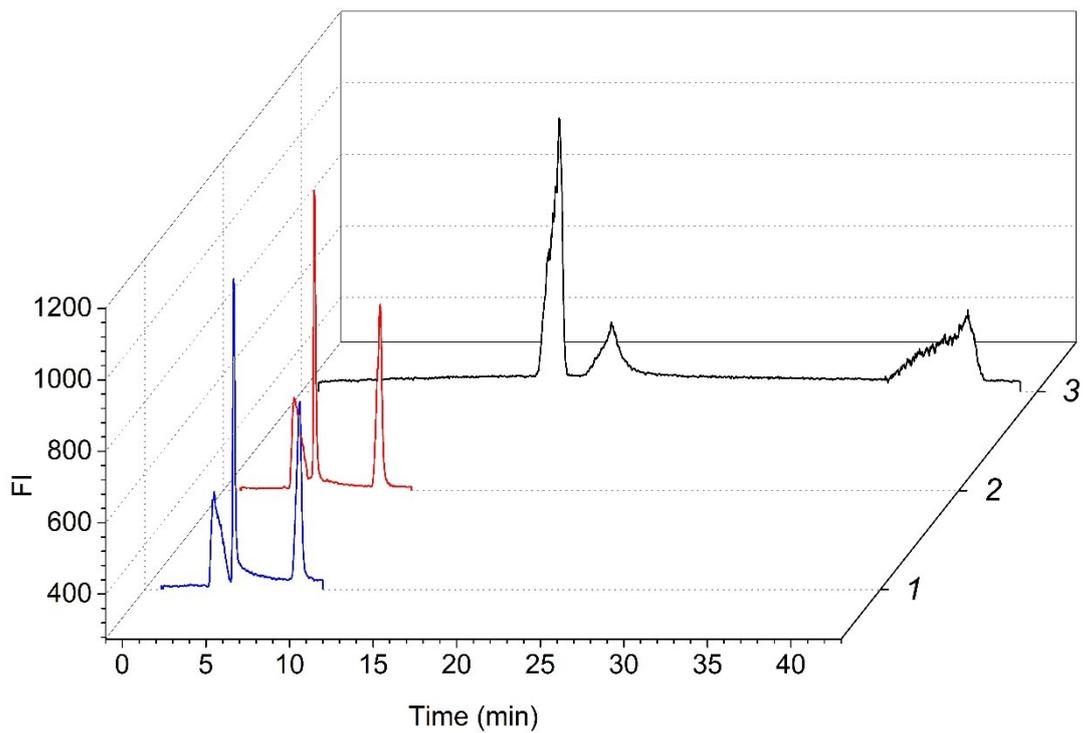


Fig. S9 Typical chromatograms of mercury species. (1) HPLC-CCV-AFS with mobile phase A and Fe^{3+} catalyst. (2) HPLC-UV-CV-AFS with post-column oxidant and UV irradiation. (3) HPLC-CCV-AFS with mobile phase B and Fe^{3+} catalyst. Each mercury species was present at $5 \mu\text{g L}^{-1}$. Other conditions were given in Table 1.



References