pH-regulated synthesis of CuOx/ERGO nanohybrids with tunable electrocatalytic oxidation activity towards nitrite sensing

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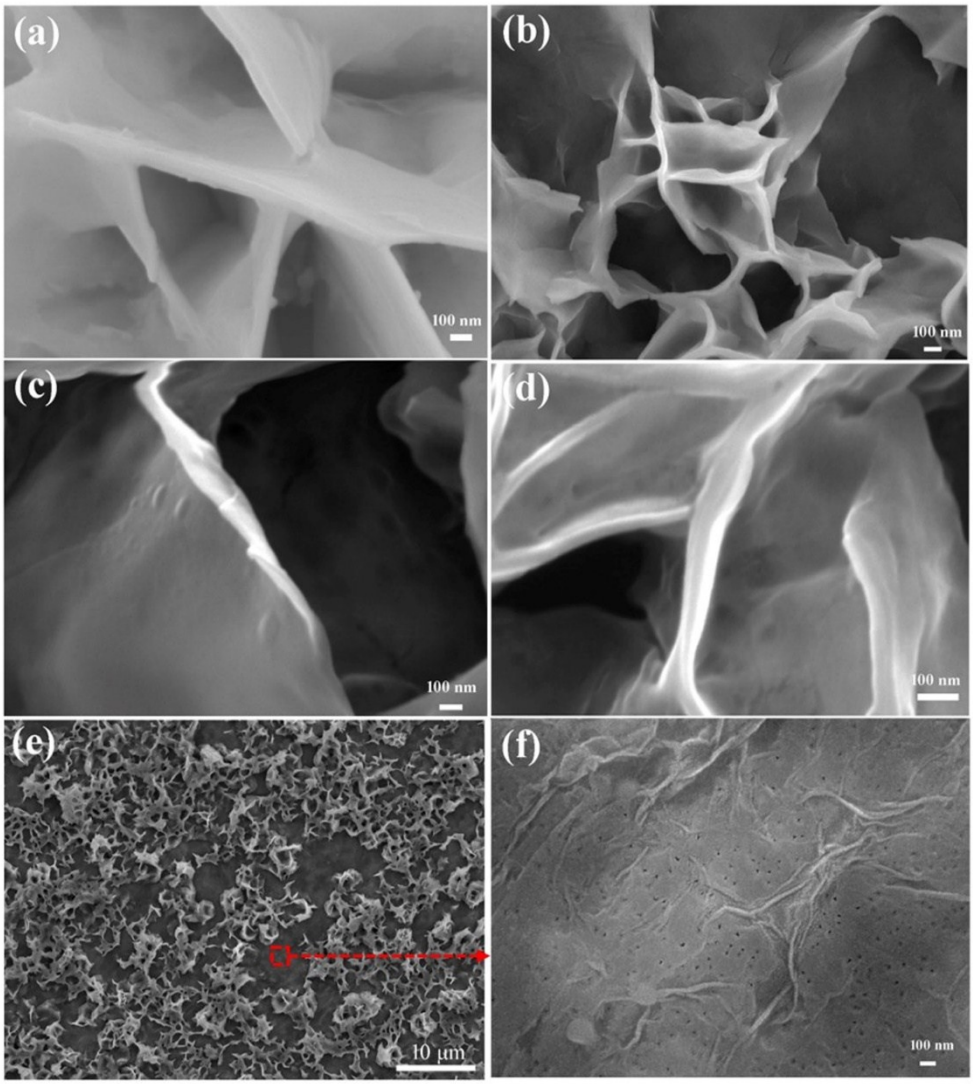


Fig. S1 SEM images at high magnification of CuO_x grown on graphene prepared with different pH (a) pH 3, (b) pH4, (c) pH6, (d) pH 8; (e) SEM images of CuO_x prepared with pH 4 and (f) the corresponding morphology of ERGO at the bottom.

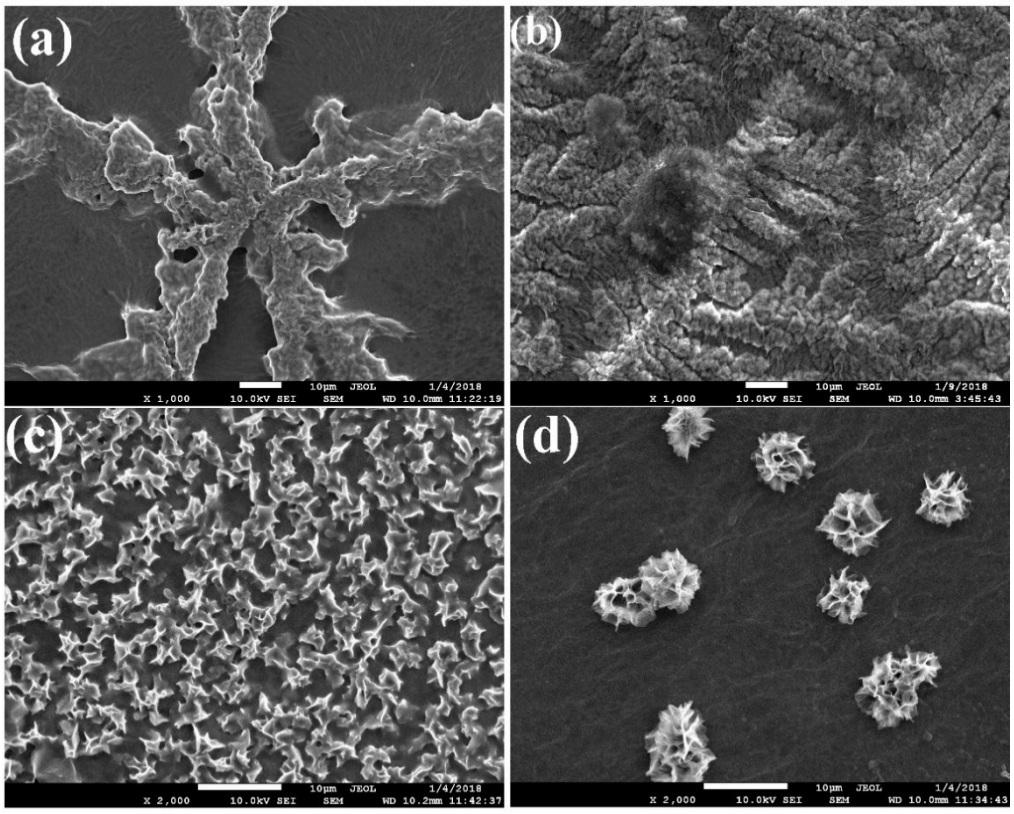


Fig. S2 SEM images of CuO_x grown on graphene prepared with different pH (a) pH 1, (b) pH 2, (c)pH 5, (d) pH 7.

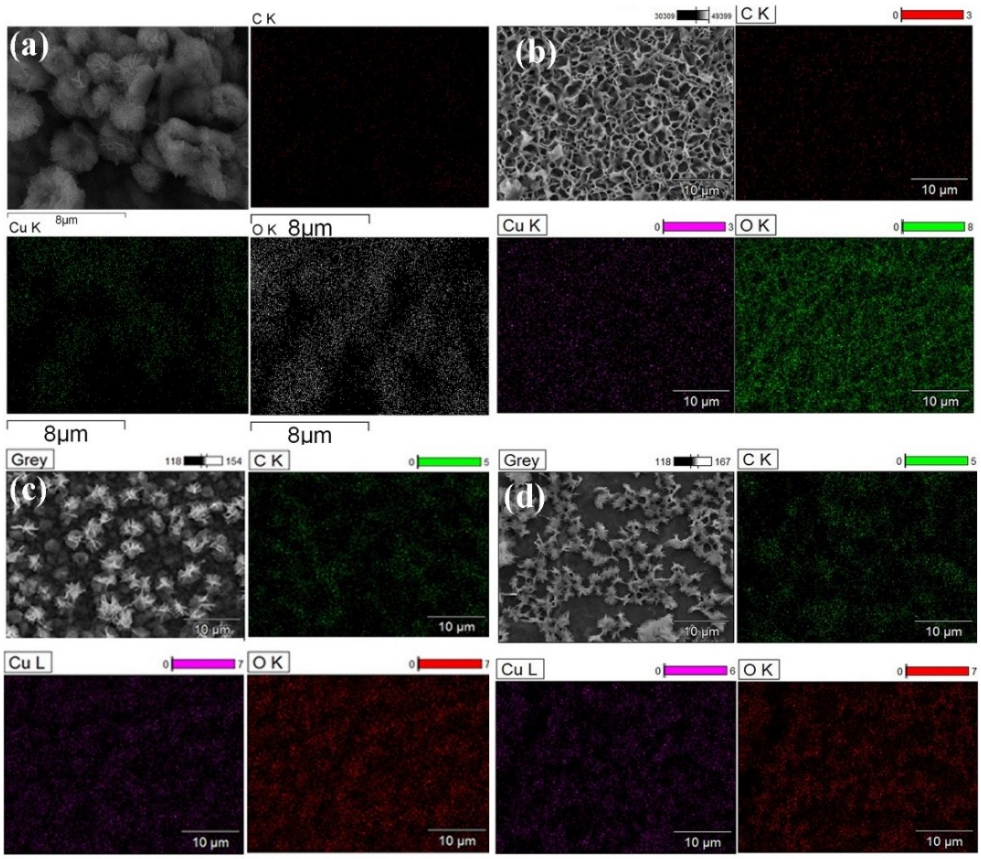


Fig. S3 The SEM images of CuOx grown on graphene prepared with different pH (a)3, (b) 4, (c) 6, (d)8 and the corresponding EDS mapping images.

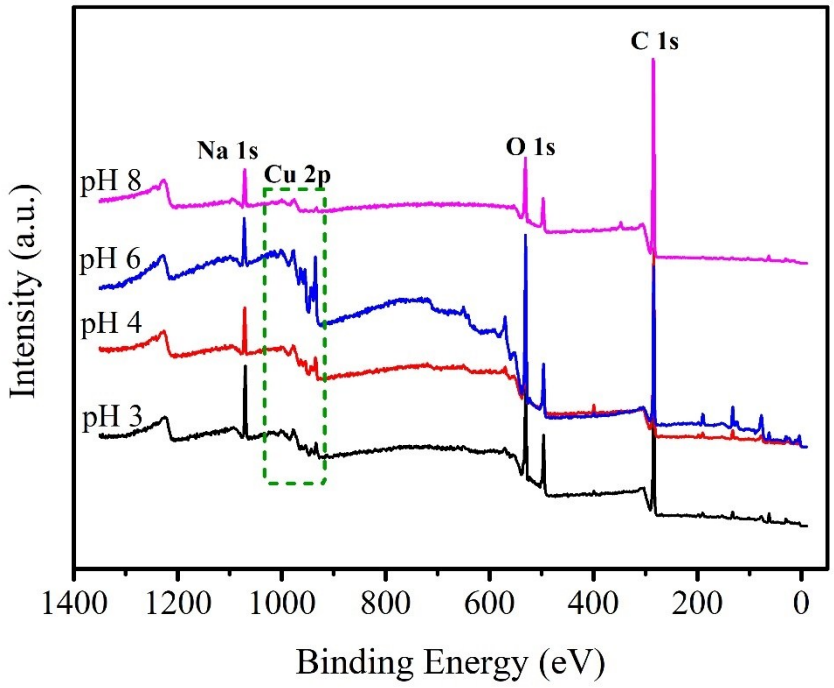


Fig. S4 The wide scan XPS spectra of CuOx/ERGO nanohybrids prepared with different pH values

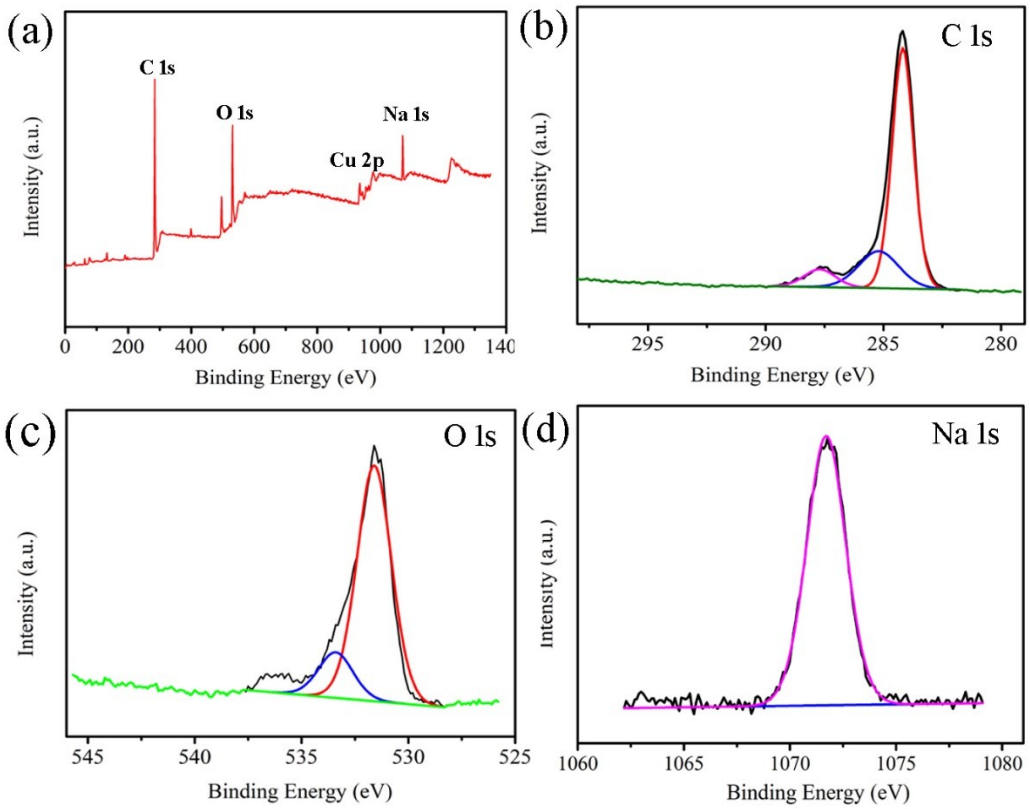


Fig. S5 (a) XPS survey spectra of CuOx/ERGO nanohybrid prepared at pH 4; The high-resolution XPS spectra of C 1s (b), O 1s (c) and Na 1s (d).

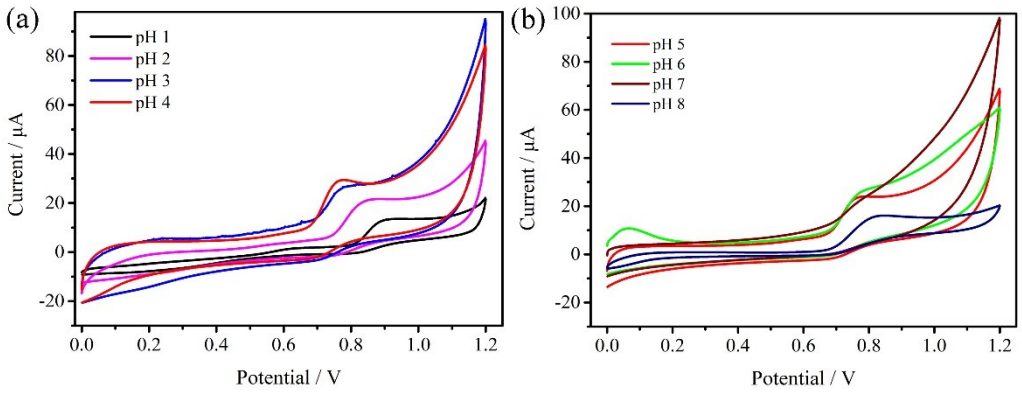


Fig. S6 Different electrochemical performance for 1 mM nitrite detection based on pH-regulated synthesis of CuOx/graphene nanohybrid with different surface morphologies; (a) pH 1-4（b）pH 5-8.

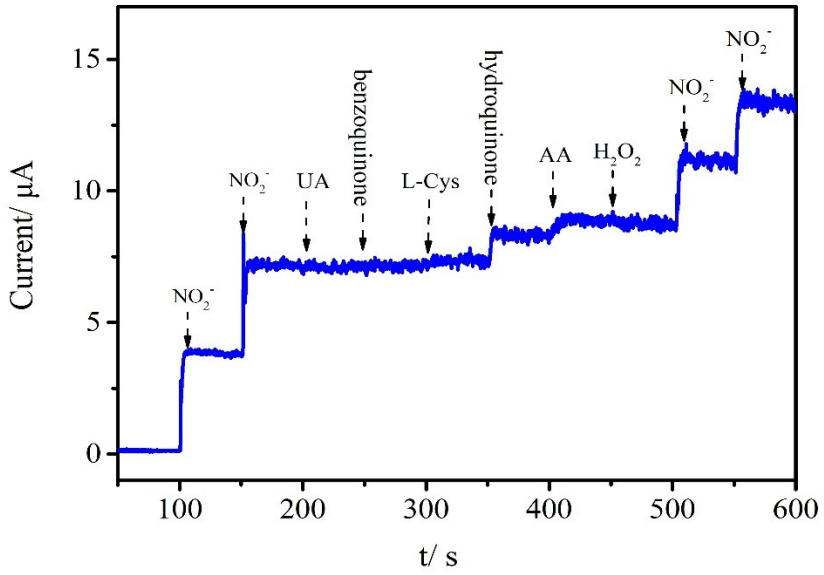


Fig. S7 Amperometric response towards NO_2^- in the presence of various interferents (1mM uric acid, 1 mM benzoquinone, 1 mM L-cysteine, 1 mM hydroquinone, 1 mM ascorbic acid)

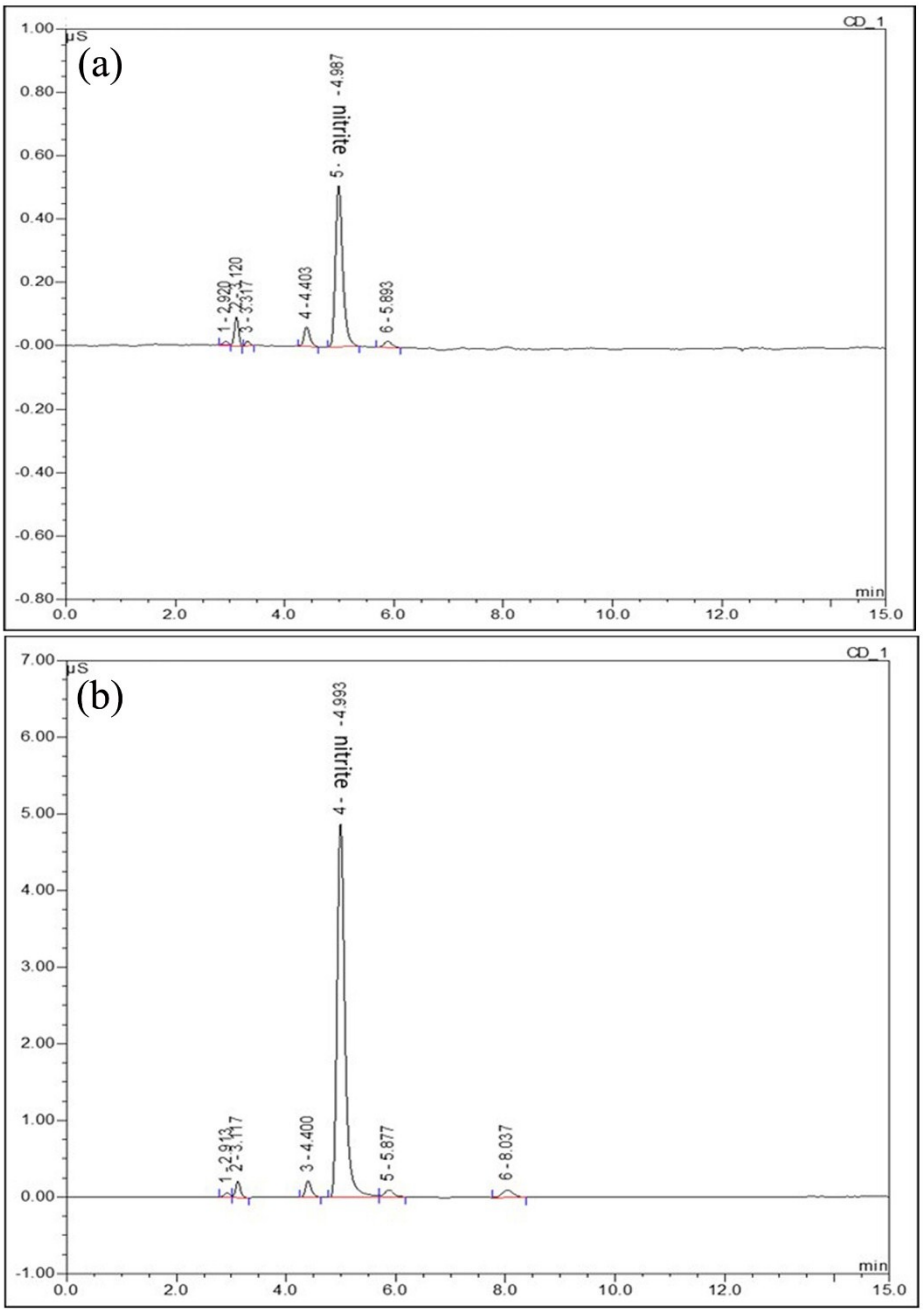
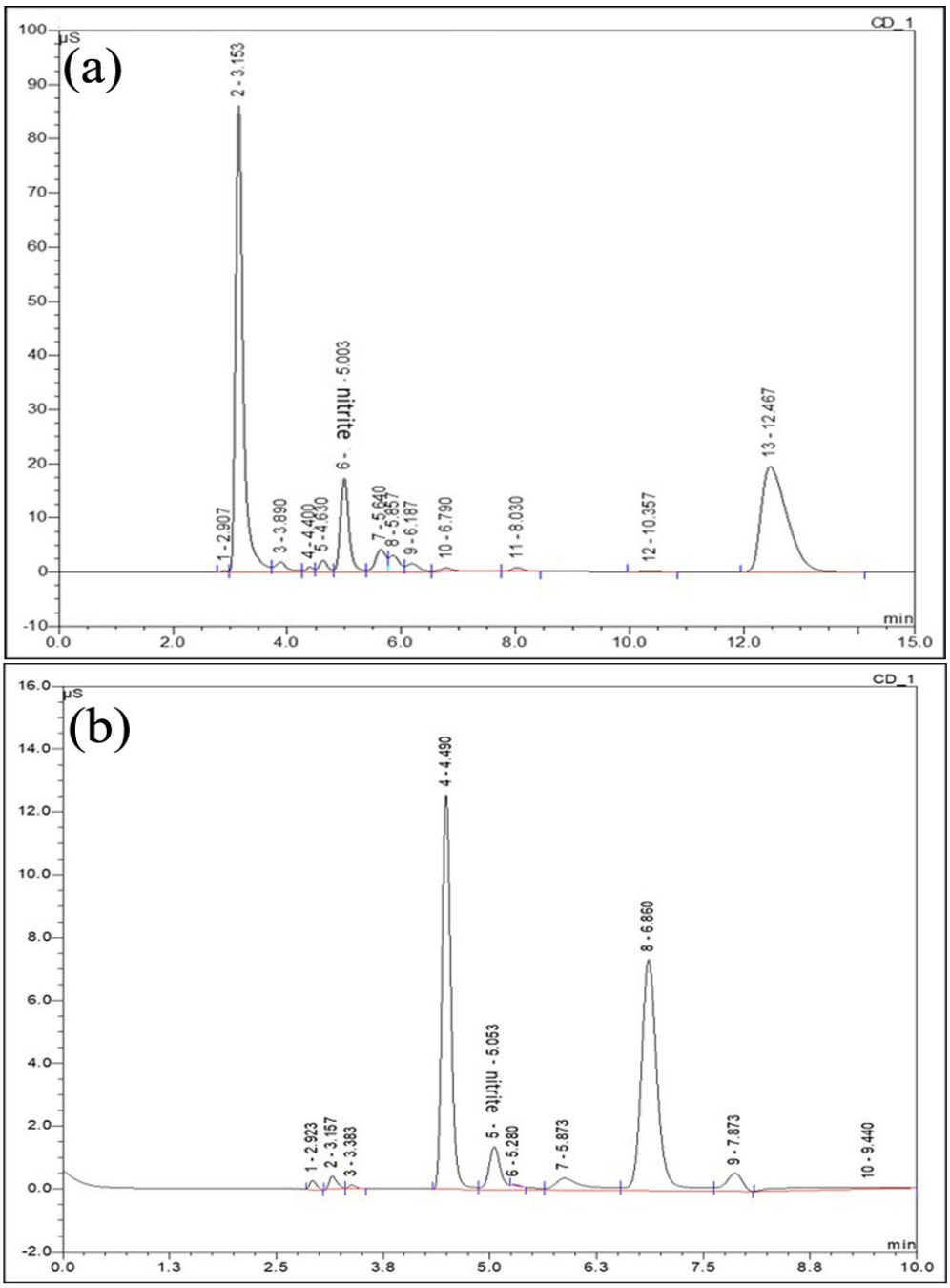


Fig. S8 Representative chromatograms of standard sample containing (a) 0.5 mg mL^{-1} and (b) 5 mg mL^{-1} nitrite;



Retention Time/min

Fig. S9 ion chromatogram of the real (c) meat product samples and (d) drinking water samples. Experimental details are described in the text.