

Supplementary Materials

Product identification and toxicity change during oxidation of methotrexate by ferrate and permanganate in water

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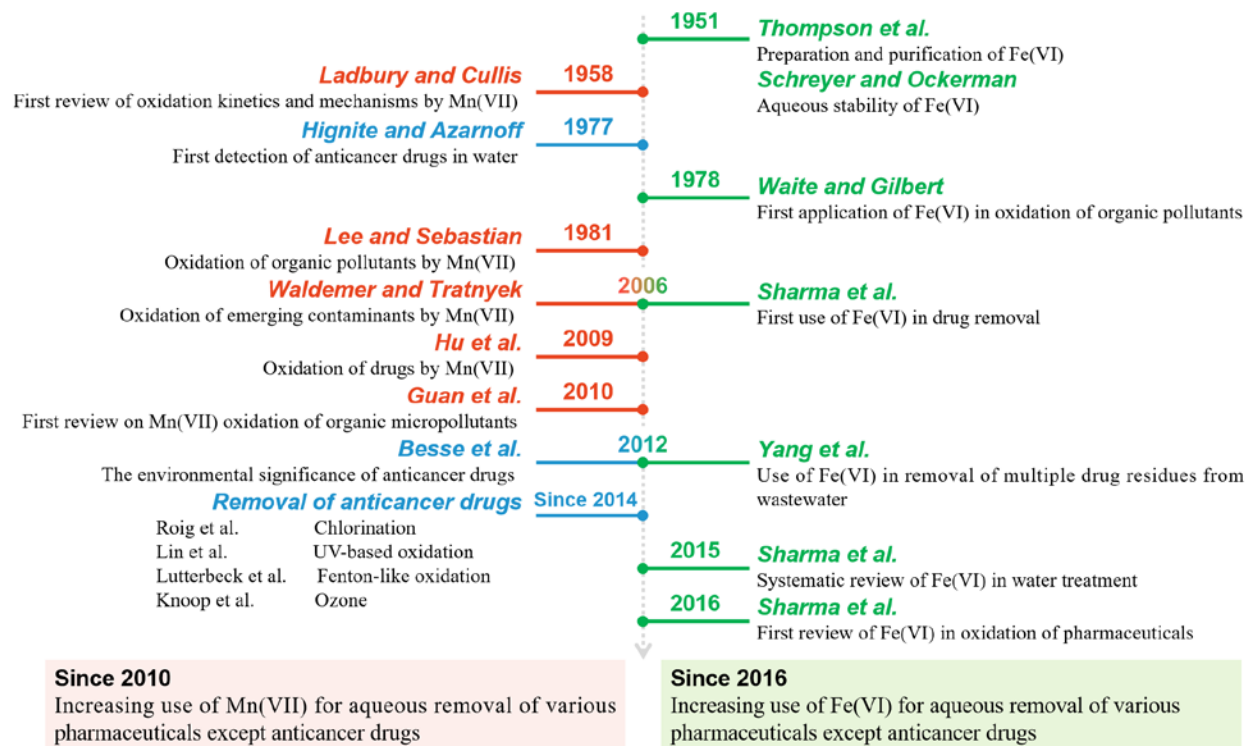


Fig. S1. The development timeline of the applications of Fe(VI) and Mn(VII) in drug removal and the remediation approaches for anticancer drugs in water.

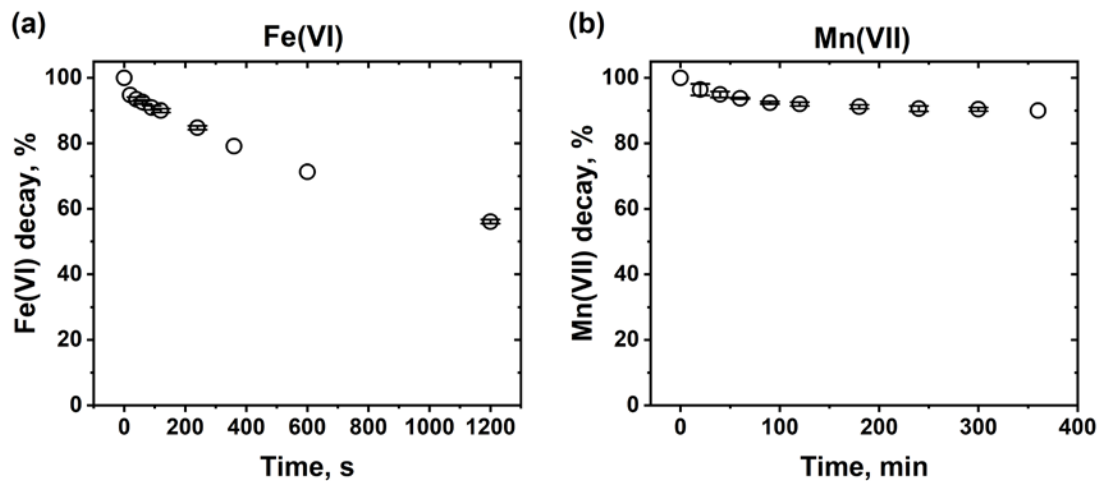


Fig. S2. The decay curves of Fe(VI) (a) and Mn(VII) (b) in aqueous oxidation of MTX. (Experimental conditions: $[\text{MTX}]_0 = 5.0 \mu\text{M}$, $[\text{Fe(VI)}]_0 = [\text{Mn(VII)}]_0 = 100.0 \mu\text{M}$, pH 8.0 (10.0 mM phosphate buffer)).

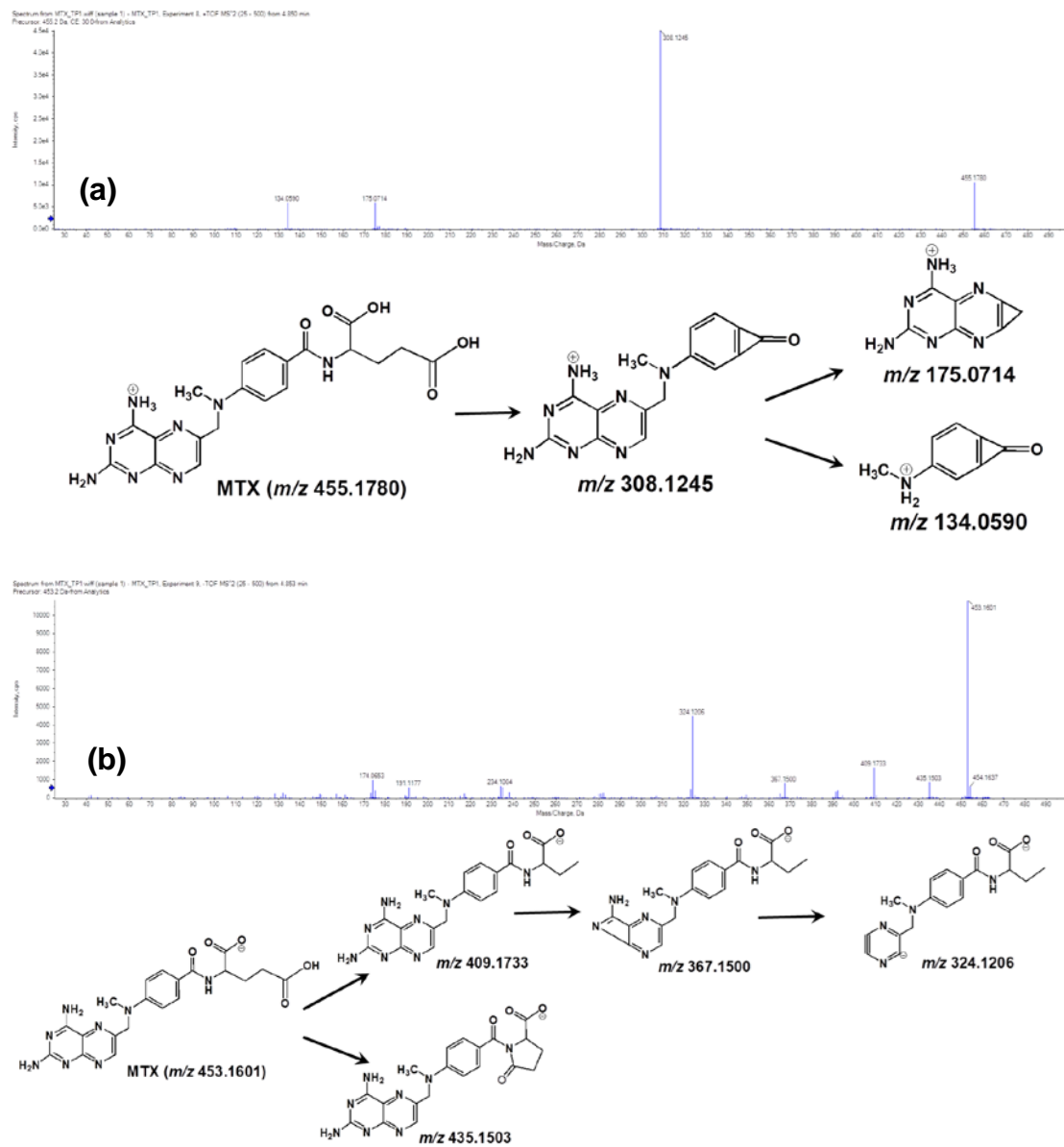
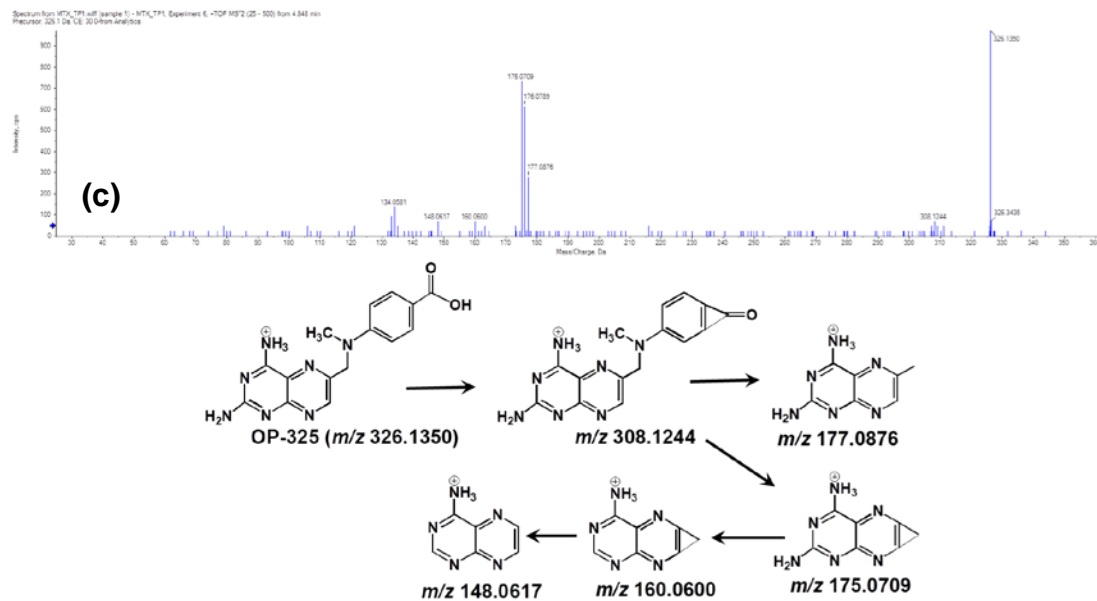
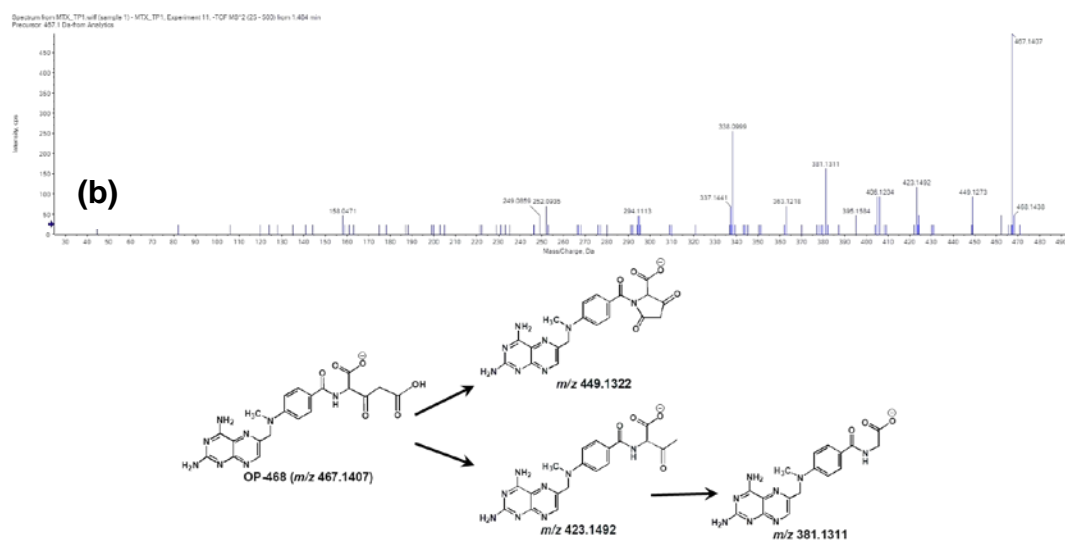
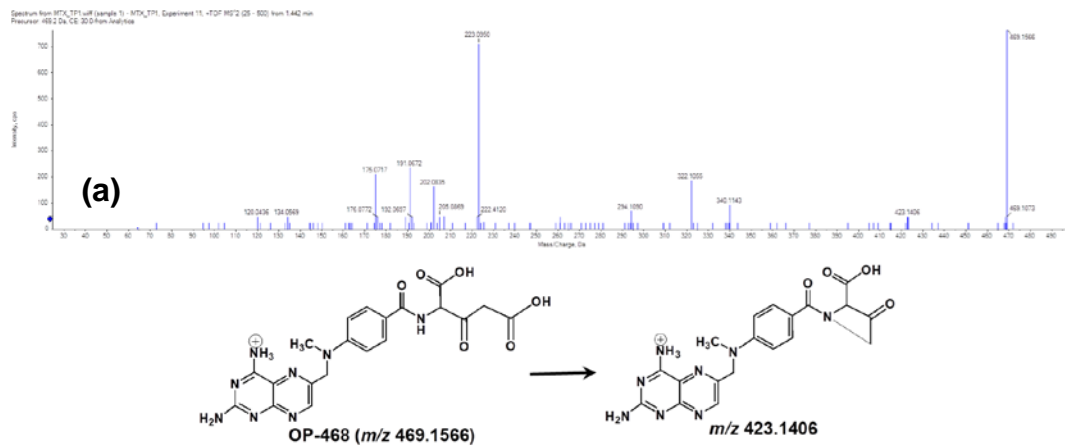
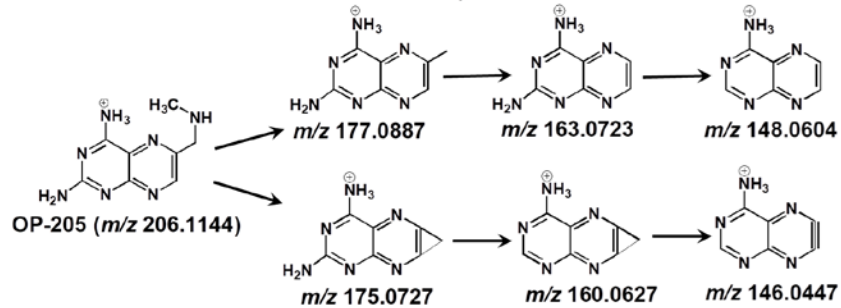
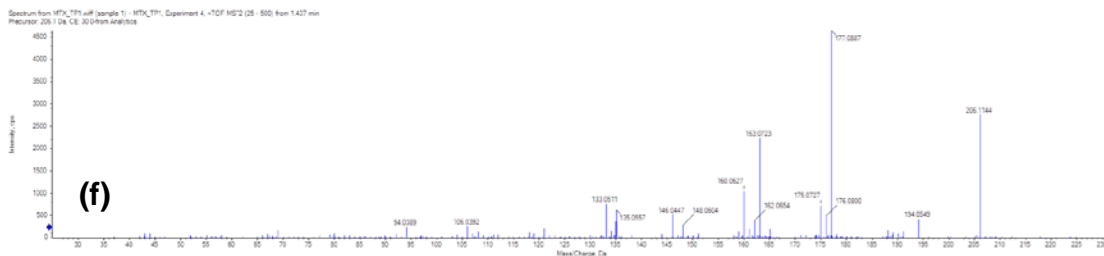
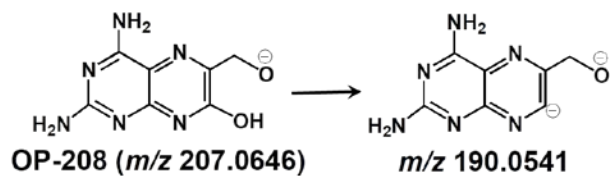
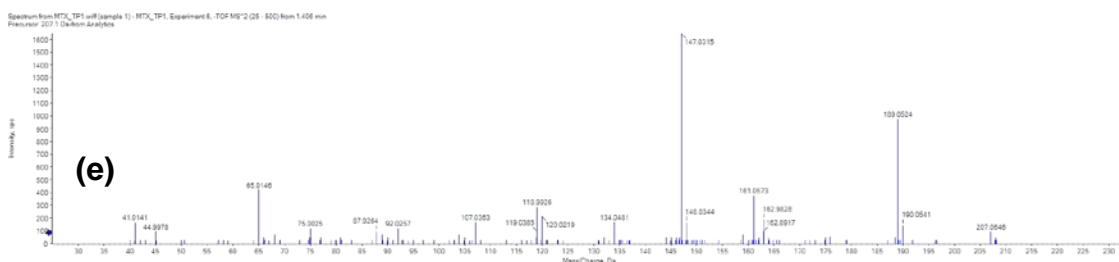
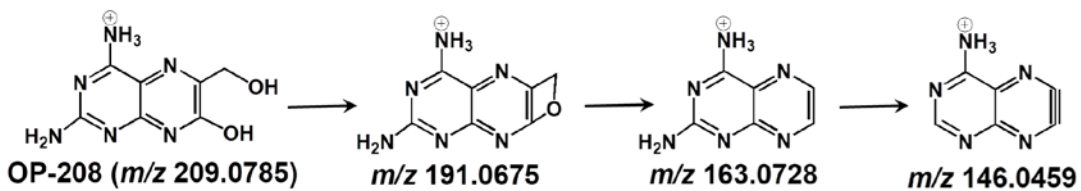
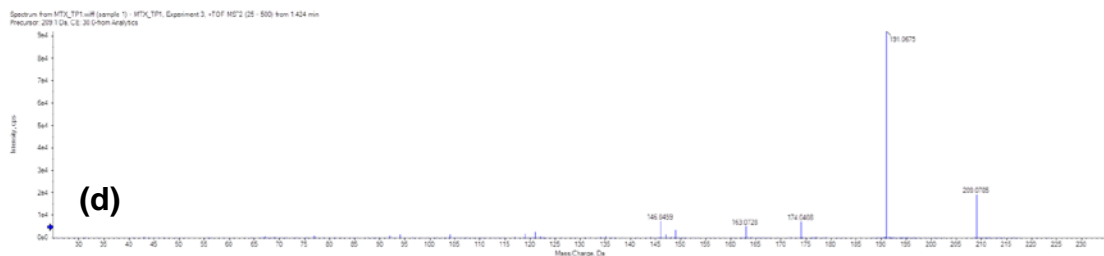


Fig. S3. The MS/MS spectra of MTX (a, positive mode; b, negative mode) and its fragmentation patterns.





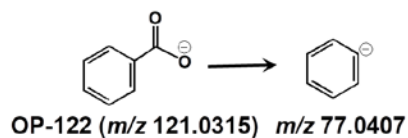
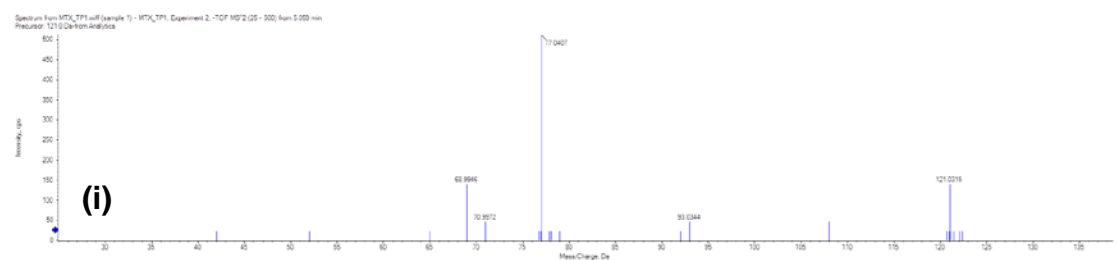
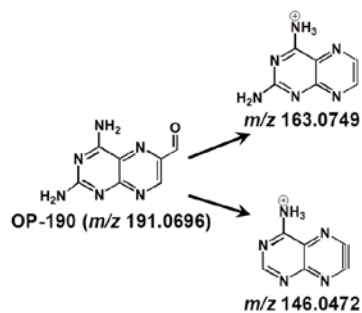
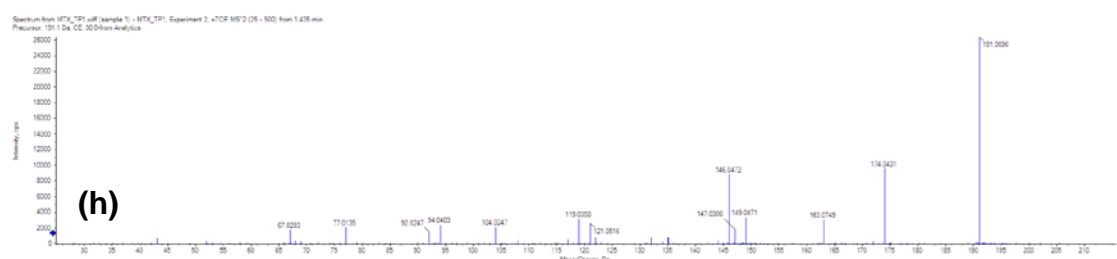
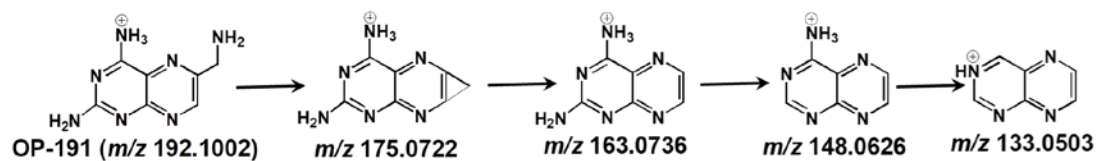
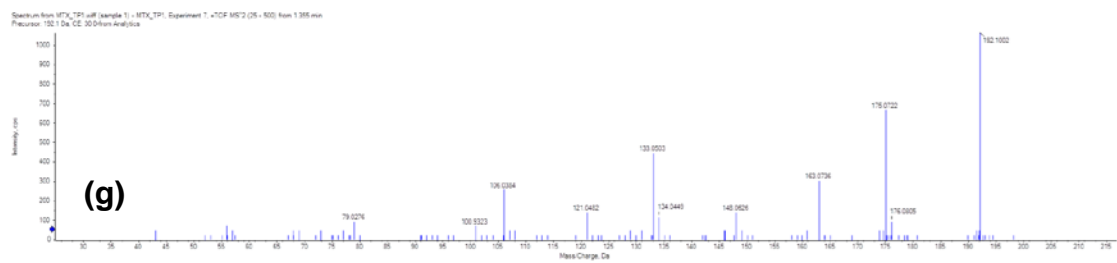


Fig. S4. The MS/MS spectra of the identified OPs of MTX by Fe(VI) and Mn(VII) in water. (a, OP-468, positive; b, OP-468, negative; c, OP-325, positive; d, OP-208, positive; e, OP-208, negative; f, OP-205, positive; g, OP-191, positive; h, OP-190, positive; i, OP-122, negative).

Supplementary References

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