

Supplemental Information

**Mechanisms Leading to Oligomers and SOA through
Aqueous Photooxidation: Insights from OH Radical
Oxidation of Acetic Acid**

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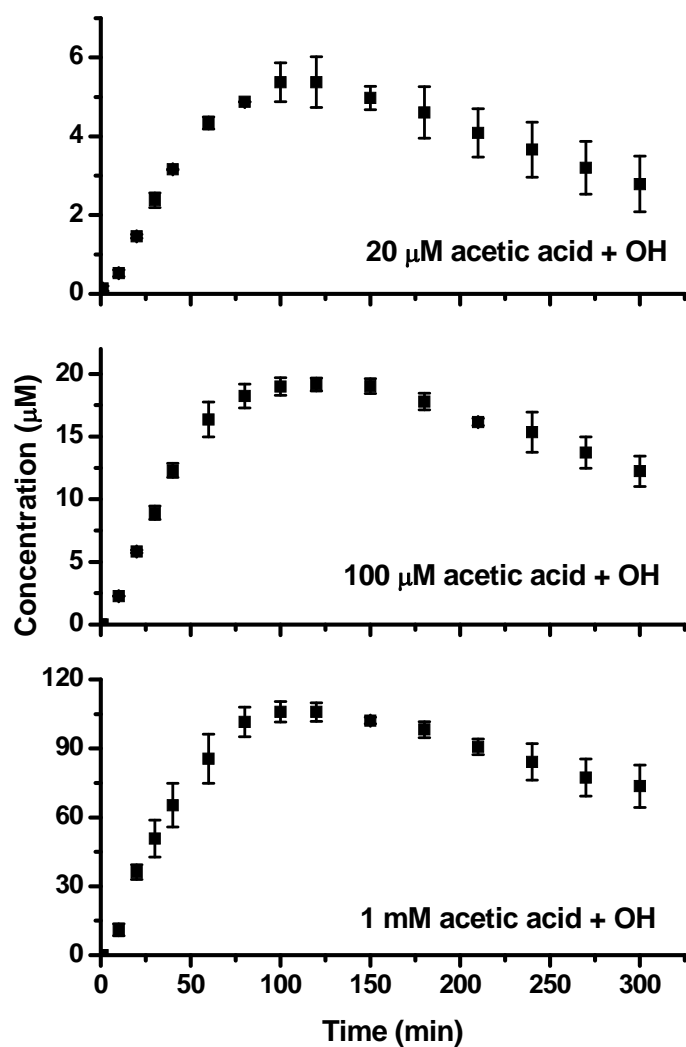


Fig. S1. Oxalic acid time profiles from batch acetic acid + OH radical experiments. The 10 mM experiment is not shown here because OH radical concentrations were lower and therefore the oxalate production rate is not comparable.

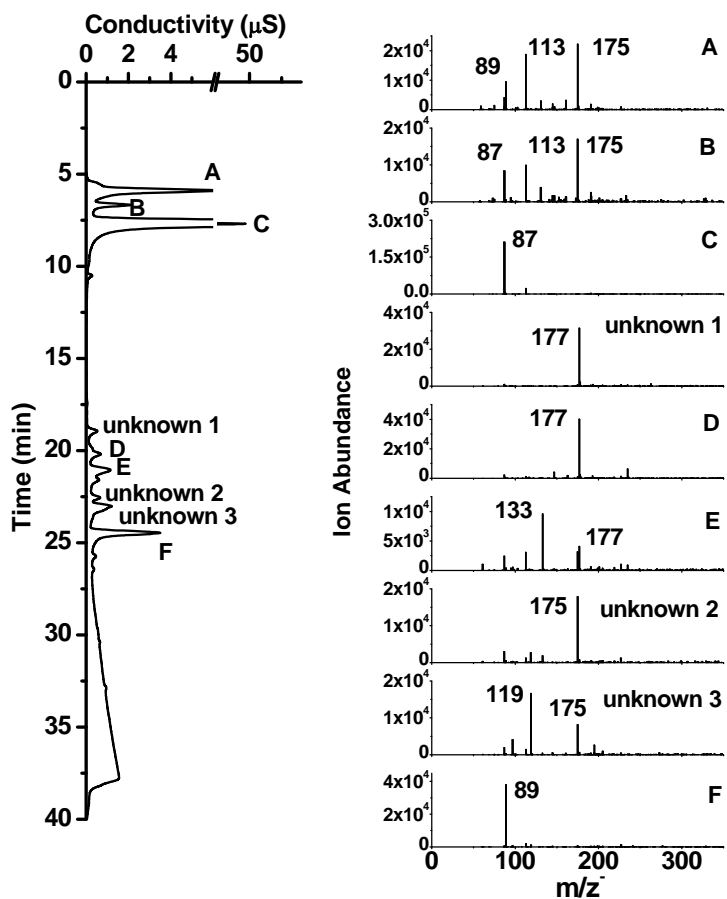


Fig. S2. IC-ESI-MS spectra of 1 mM pyruvic acid + UV experiment (180 min. reaction time). Peaks are labeled below with the names of authentic standards that have the same retention time. (A) acetate and glycolate (acetic acid, m/z^- 59; glycolic acid, m/z^- 75), (B) formate (cannot be detected by ESI-MS), (C) pyruvate (pyruvic acid, m/z^- 87), (D) succinate (succinic acid, m/z^- 117), (E) malonate (malonic acid, m/z^- 103), (F) oxalate (oxalic acid, m/z^- 89).

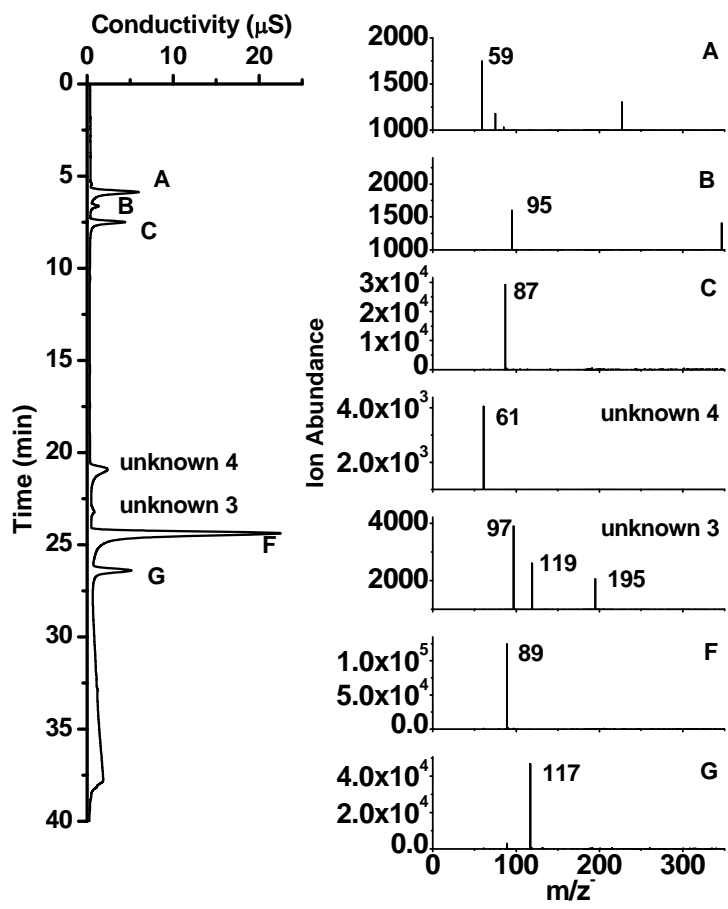


Fig. S3. IC-ESI-MS spectra of 1 mM pyruvic acid + OH radical experiment (180 min. reaction time). Peaks are labeled below with the names of authentic standards that have the same retention time. (A) acetate and glycolate (acetic acid, m/z^- 59; glycolic acid, m/z^- 75), (B) formate (cannot be detected by ESI-MS), (C) pyruvate (pyruvic acid, m/z^- 87), (F) oxalate (oxalic acid, m/z^- 89), (G) mesoxalate (mesoxalic acid, m/z^- 117). Unknown 4 is likely carbonate (m/z^- 61), a contaminant.