

**Near real-time *N*-nitrosodimethylamine monitoring in potable water reuse  
via online high-performance liquid chromatography-photochemical  
reaction-chemiluminescence**

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

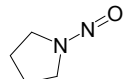
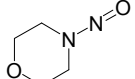
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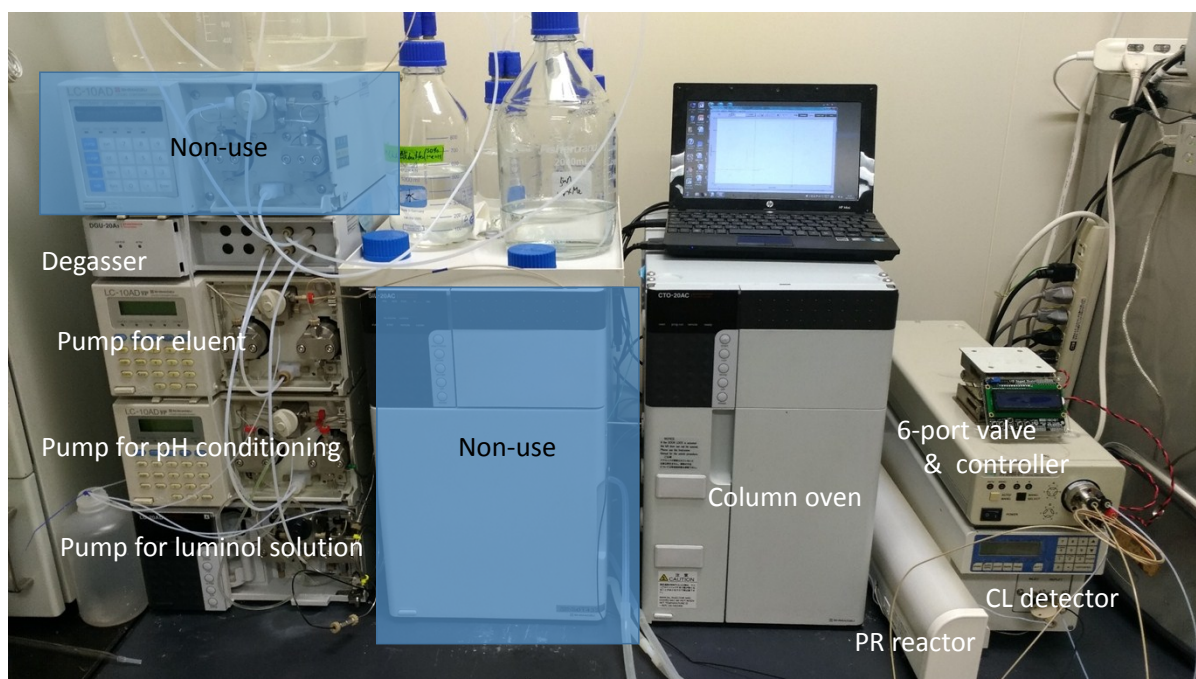
**Supporting Information**

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**Table S1** – Structure of the selected *N*-nitrosamines.

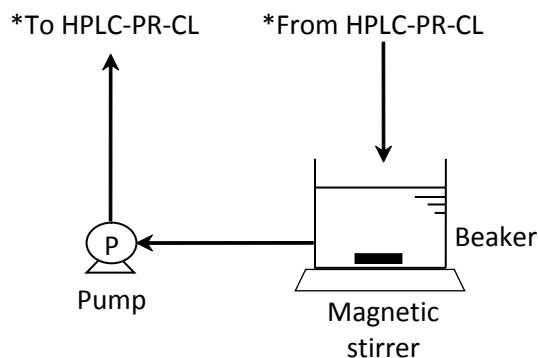
Compound	NDMA	NMEA	NPYR	NMOR
Structure				
Molecular Formula	C <sub>2</sub> H <sub>6</sub> N <sub>2</sub> O	C <sub>3</sub> H <sub>8</sub> N <sub>2</sub> O	C <sub>4</sub> H <sub>8</sub> N <sub>2</sub> O	C <sub>4</sub> H <sub>8</sub> N <sub>2</sub> O <sub>2</sub>
Molecular Weight [g mol <sup>-1</sup> ]	74.05	88.06	100.06	116.06



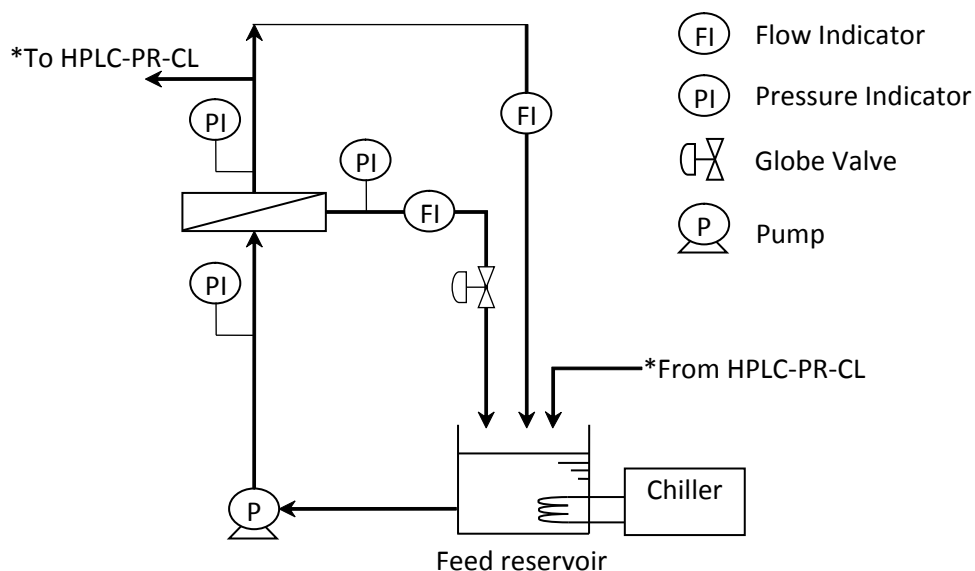
**Fig. S2** – Photograph of the online HPLC-PR-CL instrument with a 6-port valve.

**Supporting information S3 – Method detection limits:**

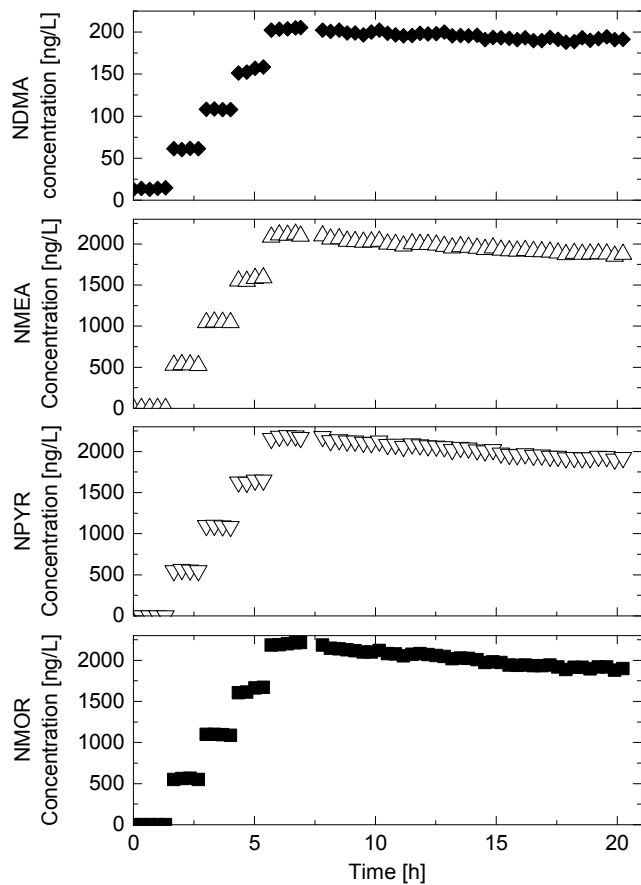
The method detection limits (MDLs) were determined based on the Method Detection Limit Procedure of the U.S. Environmental Protection Agency (40CFR 136, Appendix B, revision 1.11). MDLs with a 200  $\mu\text{L}$  injection volume for NDMA, NMEA, NPYR and NMOR were 0.3, 0.7, 1.4 and 0.8  $\text{ng L}^{-1}$ , respectively. MDLs with a 20  $\mu\text{L}$  injection volume for NDMA, NMEA, NPYR and NMOR were 2.7, 6.3, 7.7 and 11.8  $\text{ng L}^{-1}$ , respectively.



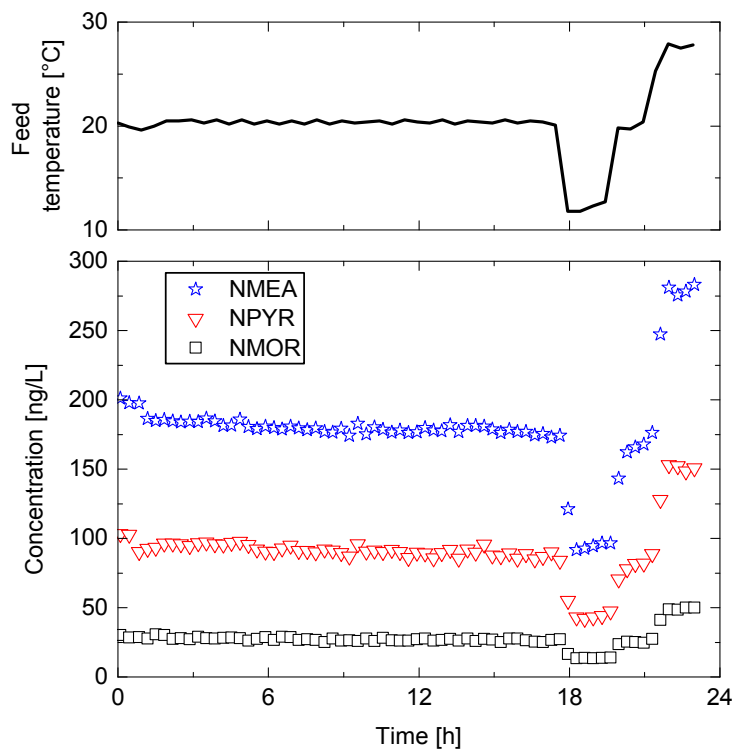
**Fig. S4a** – Schematic diagram of a wastewater recirculation system.



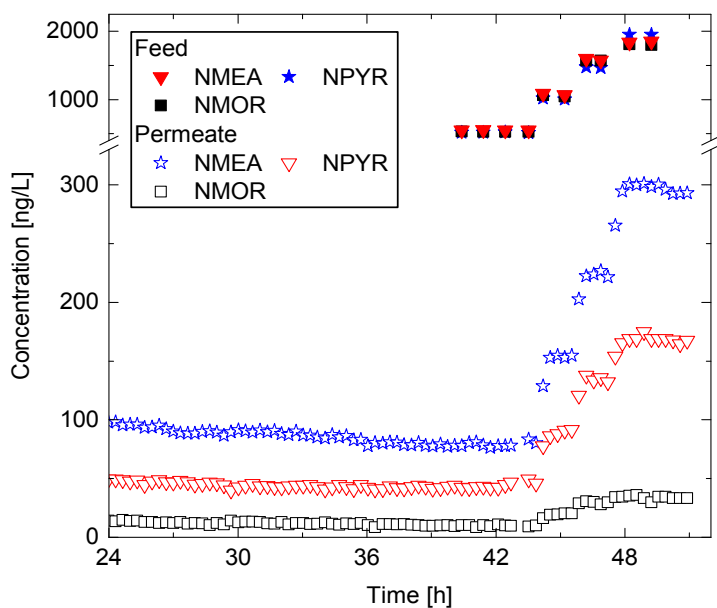
**Fig. S4b** – Schematic diagram of the RO treatment system. The system comprised of a 4-in. glass-fibre pressure vessel (ROPV, Nangang, China), 65-L stainless steel reservoir, a high-pressure pump (25NED15Z, Nikuni Co., Ltd., Kawasaki, Japan), digital flow meters (FDM, Keyence Co., Osaka, Japan), digital pressure indicators (GPM, Keyence Co., Osaka, Japan), a pressure gauge, stainless steel pipes in the feed stream and PVC pipes and PTFE tubing in the permeate stream. The membrane element was rinsed with pure water to eliminate residual preservatives on the RO element.



**Fig. S5** – Online analysis of concentrations of *N*-nitrosamines in the UF-treated wastewater using the HPLC-PR-CL with a sample injection volume of 20  $\mu$ L.



**Fig. S6** – Online analysis of three *N*-nitrosamines (NMEA, NPYR and NMOR) in RO permeate (permeate flux = 20 L m<sup>-2</sup> h<sup>-1</sup>, transmembrane pressure = 0.51 MPa). Concentrations of NMEA, NPYR, and NMOR in RO permeate were 900, 990 and 1040 ng L<sup>-1</sup>, respectively.



**Fig. S7** – Online analysis of three *N*-nitrosamines (NMEA, NPYR and NMOR) in RO permeate (feed temperature = 20 °C, permeate flux = 20 L m<sup>-2</sup> h<sup>-1</sup>, transmembrane pressure = 0.51 MPa). *N*-nitrosamine concentrations in the RO feed were determined based on manual samplings.