

Supplementary Material

Degradation and mechanism analysis of chloroxylenol in aqueous solution by gas-liquid discharge plasma combined with ozonation

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Supporting Figure: 5

Supporting Table: 2

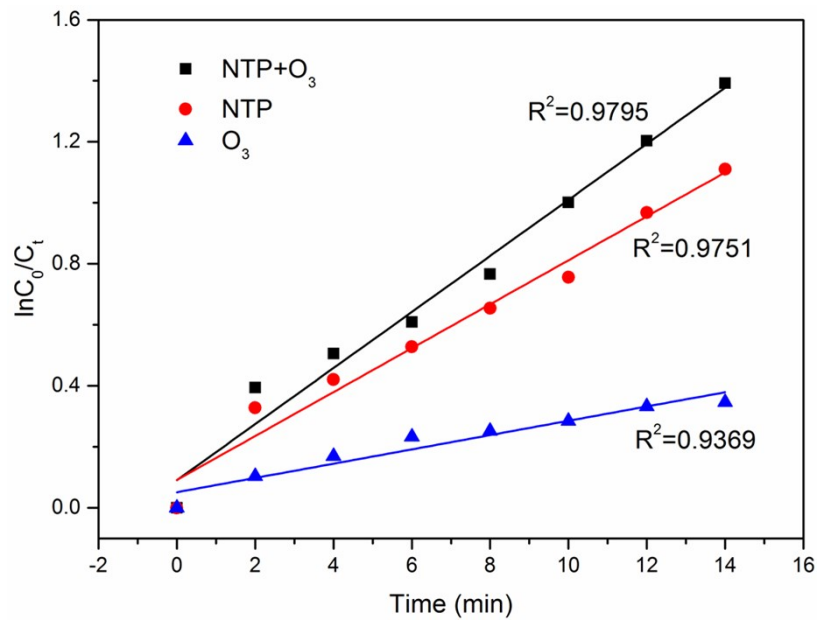


Fig. S1 First-order plots of PXMC degradation as a function of treatment time in three systems.

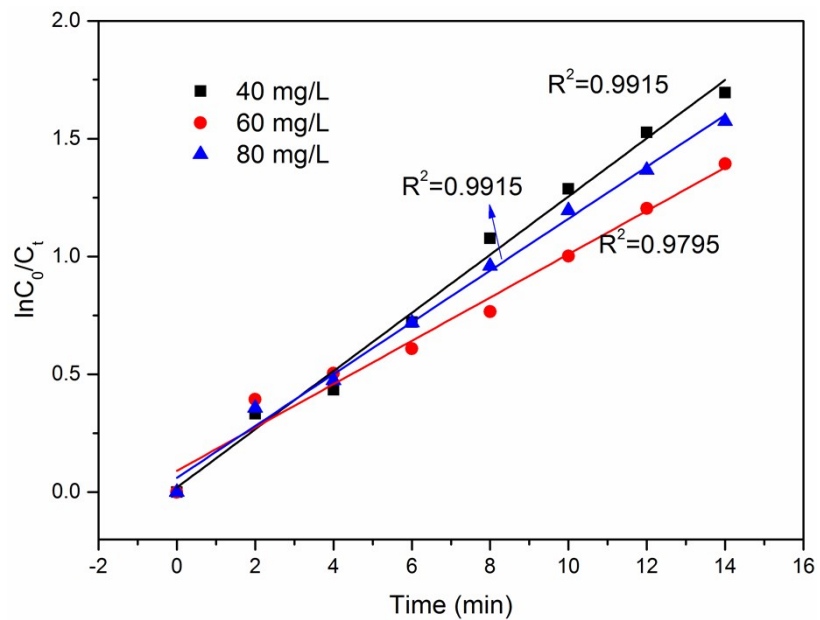


Fig. S2 First-order plots of PXMC degradation as a function of treatment time NTP/O₃ system, for concentrations of 40, 50, 60 and 80 mg/L.

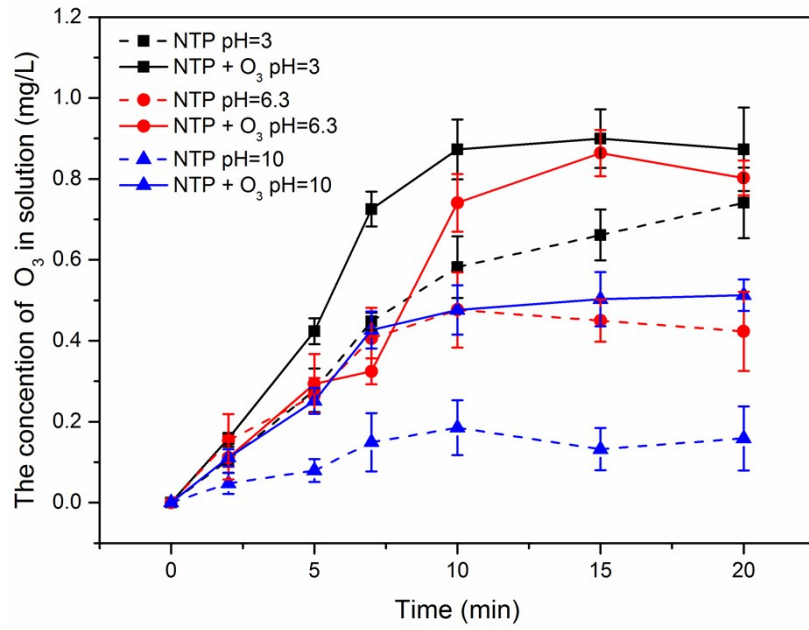


Fig. S3 The concentration of O_3 in solution with different pH in NTP/ O_3 and NTP system.

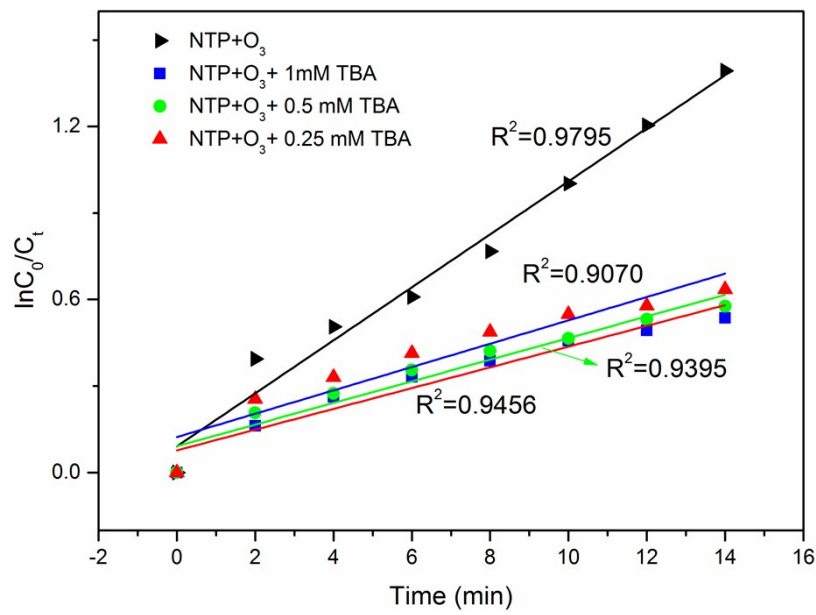


Fig. S4 First-order plots of PXMC degradation as a function of treatment time in NTP/ O_3 system with different concentration of radical scavenger

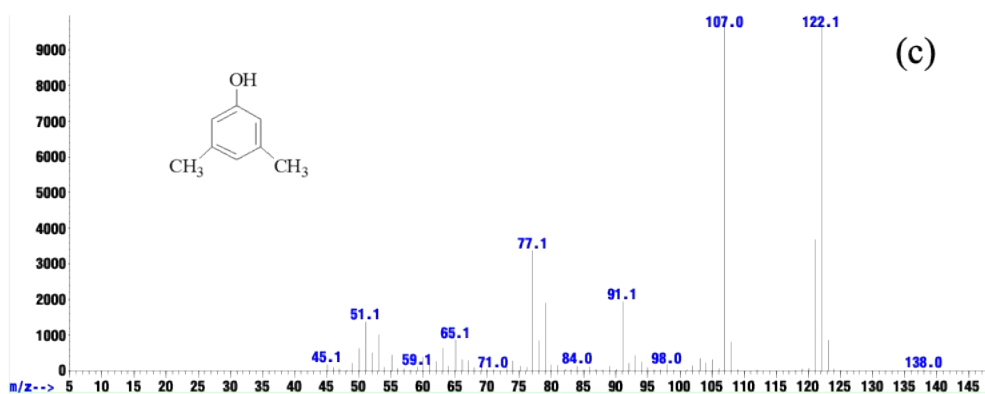
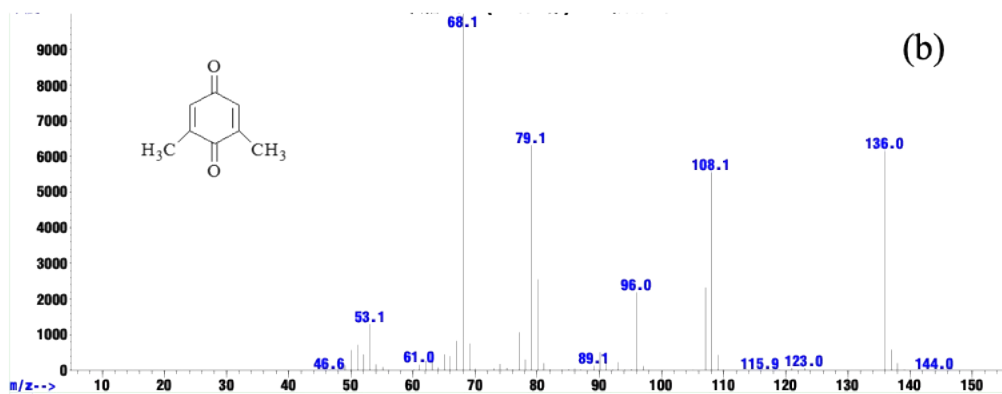
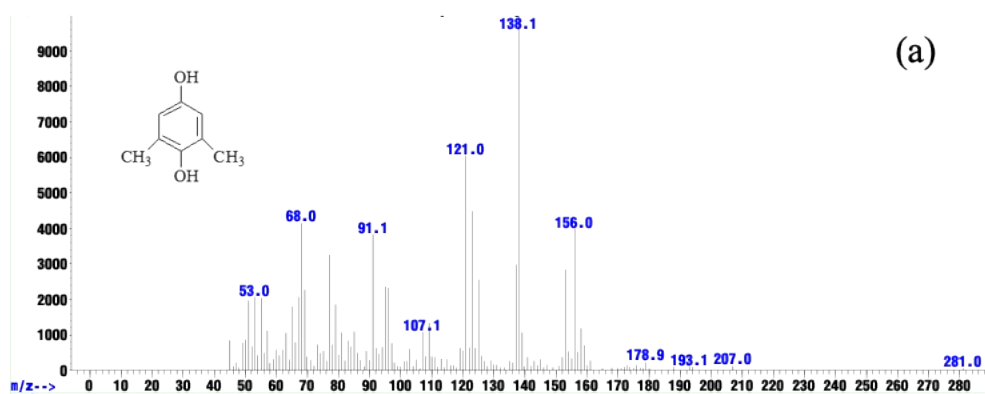


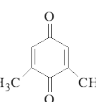



Fig. S5 Mass spectrograms of (a) 2,6-dimethylhydroquinone, (b) 2,6-dimethylbenzoquinone and (c) 3,5-dimethylphenol were Analyzed by GC-MS.

Tab. S1. Main water quality parameters of the secondary effluent

Parameters	Units	
COD _{Cr}	mg/L	62
TOC	mg/L	4.8
NH ₃ -N	mg/L	0.6
Turbidity	NTU	1.9
Conductivity	$\mu S/cm$	740
TDS	mg/L	651
pH	/	8.1
Cl ⁻	mg/L	17
CO ₃ ²⁻	mg/L	1.47
HCO ₃ ²⁻	mg/L	90

Tab. S2 Toxicity results for chloroxylenol and its by-products after NTP/O₃ treatment using ECOSAR

Method	Compound	Acute toxicity (mg/L)			Chronic toxicity (ChV) (mg/L)			Hazard category
		Fish(LC ₅₀)	Daphnid(LC ₅₀)	Algae(EC ₅₀)	Fish	Daphnid	Algae	
PCMX		2.94	2.29	0.271	0.331	0.305	0.076	toxic
2,6- dimethylhydroquin one		6.21	46.3	2.62	3.36	17.2	0.357	toxic
2,6- dimethylbenzoqui none		6.36	3.63	0.573	0.671	0.441	1.41	toxic
3,5- dimethylphenol		0.070	0.371	0.046	0.0058	1.43	0.011	very toxic

The predicted toxicity values are classified according to the system established by the Globally Harmonized System of Classification and Labeling of Chemicals (GHS) White boxes, not harmful: $LC_{50}/EC_{50}/ChV > 100$; blue boxes, harmful: $100 \geq LC_{50}/EC_{50}/ChV > 10$; green boxes, toxic: $10 \geq LC_{50}/EC_{50}/ChV > 1$; yellow boxes, very toxic: $LC_{50}/EC_{50}/ChV \leq 1$.

