

Supplementary Materials

Effects of Ozone Oxidation Process on Residual Antibiotics and Antibiotic Resistance Genes (ARGs) in the Swine Wastewater Treatment Plant

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The following are included as supplementary information for this paper:

Number of tables: 2

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References: 3

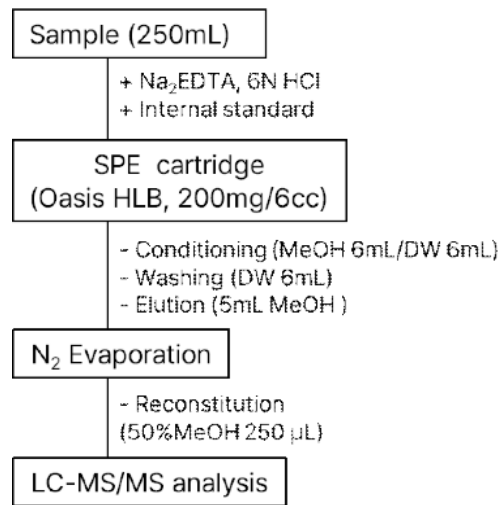


Figure S1. Sample Preparation Procedures for the Determination of Antibiotic Residues

Table S1. Quality Assurance and Quality Control of Antibiotics.

Target antibiotics	Method detection limit (MDL) (ng/L)	Limit of quantification (LOQ) (ng/L)	Precision (%)	Accuracy (%)
Lincomycin	0.06	0.18	6.8	93.1
Sulfamethazine	0.10	0.31	5.5	106.1
Tiamulin	0.03	0.10	5.4	101.6
Trimethoprim	0.05	0.16	5.3	106.6
Marbofloxacin	1.0	3.1	1.8	88.5
Oxytetracycline	0.27	0.87	5.5	103.2
Chlortetracycline	0.27	0.86	14.2	87.4
Fenbendazole	0.16	0.52	10.2	99.8

Table S2. Selected reaction monitoring (SRM) mode condition.

antibiotics	ESI mode	Precursor ion (m/z)	Product ion (CE, eV)	
			Quantification	Qualification
Lincomycin	Positive	407	126 (29)	359 (19), 389 (17)
Sulfamethazine	Positive	279	186 (16)	124 (23), 156 (19)
Tiamulin	Positive	494	119 (37)	192 (21), 285 (22)
Trimethoprim	Positive	291	261 (25)	230 (24), 275 (25)
Marbofloxacin	Positive	363	72 (22)	320 (15), 345 (20)
Oxytetracycline	Positive	461	426 (18)	337 (29), 443 (13)
Chlortetracycline	Positive	479	444 (21)	303 (36), 462 (17)
Fenbendazole	Positive	300	159 (34)	190 (31), 268 (21)
Sulfadimethoxine-d6 (IS)	Positive	317	162 (22)	
Enrofloxacin-d5 (IS)	Positive	365	321(20)	
Meclocycline (IS)	Positive	477	460(17)	

Table S3. Primers used for qPCR.

Gene target	Primers	Sequence (5'-3')	Annealing temperature (°C)	Amplicon size (bp)	R ²	References
<i>tetB</i>	Forward	GGTTGAGACGCAATCGAATT	52.9	206	0.9895	Mao et al. (2015)
	Reverse	AGGCTTGAATACTGAGTGTA				
<i>tetM</i>	Forward	ACAGAAAGCTTATTATATAAC	60.0*	171	0.9583	Mao et al. (2015)
	Reverse	TGGCGTGTCTATGATGTTTAC				
<i>sul1</i>	Forward	CGCACCGGAAACATCGCTGCAC	56.0*	163	0.9188	Pei et al. (2006)
	Reverse	TGAAGTTCCGCCGCAAGGCTCG				
<i>sul2</i>	Forward	TCCGGTGGAGGCCGGTATCTGG	60.0	191	0.9721	Pei et al. (2006)
	Reverse	CGGGAATGCCATCTGCCTTGAG				
<i>ermB</i>	Forward	CGTGCGTCTGACATCTATCTGA	56.8	190	0.9893	Mao et al. (2015)
	Reverse	CTGTGGTATGGCGGGTAAAGTT				
<i>qnrA</i>	Forward	GATAAAGTTTTTCAGCAAGAGG	55.0	543	0.8518	Mao et al. (2015)
	Reverse	ATCCAGATCGGCAAAGGTTA				
<i>qnrS</i>	Forward	GTATAGAGTTCCGTGCGTGTGA	54.6	189	0.8349	Mao et al. (2015)
	Reverse	GGTTCGTTCCCTATCCAGCGATT				
<i>floR</i>	Forward	GTCATTCTCACCTTCATCCTAC	63.0	243	0.9516	Khan et al. (2011)
	Reverse	GACACCAGCACTGCCATTG				

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