

Supplementary Materials

Table S1. Characteristics of wastewater treatment plants (WWTP).

WWTP	Connected inhabitants	Average flow (m ³ /d)	Combined / separate sewer (%)
1	702.000	153.000	75 / 25
2	251.000	71.400	62 / 38
3	69.000	16.500	97 / 3
4	2.700	490	95 / 5
5	2.400	430	30 / 70

Table S2. Details of SARS-CoV-2 inactivation experiments performed in the study.

Experiment	WWTP	SARS-CoV-2 variant	Initial concentration of gene copies/ml (<i>E</i> gene)	First-order decay constant (days)	R ²	T ₉₀ (days)
1	1	Delta	8.8 x 10 ⁶	0.0757	0.9692	30.4
		Omicron	5.2 x 10 ⁶	0.0655	0.9484	35.2
	2	Delta	5.2 x 10 ⁶	0.0903	0.9343	25.5
		Omicron	7.2 x 10 ⁶	0.0916	0.9756	25.1
	3	Delta	4.1 x 10 ⁶	0.1088	0.9485	21.2
		Omicron	5.9 x 10 ⁶	0.1194	0.9644	19.3
	4	Delta	4.4 x 10 ⁶	0.1015	0.8760	22.7
		Omicron	6.8 x 10 ⁶	0.1102	0.9277	20.9
2	1	Delta	3.2 x 10 ⁶	0.1483	0.9572	15.5
		Omicron	9.2 x 10 ⁵	0.1096	0.8958	21.0

	2	Delta	2.5×10^6	0.1189	0.8827	19.4
		Omicron	9.6×10^5	0.0927	0.9431	24.8
	3	Delta	2.1×10^6	0.1057	0.9843	21.8
		Omicron	1.1×10^6	0.1038	0.9815	22.2
	4	Delta	2.6×10^6	0.1139	0.9547	20.2
		Omicron	8.3×10^5	0.0932	0.9129	24.7
	5	Delta	2.4×10^6	0.0808	0.9234	28.5
		Omicron	1.1×10^6	0.0793	0.9275	29.0
3	1	Delta	6.5×10^5	0.0999	0.9274	23.0
		Omicron	5.4×10^5	0.0965	0.9676	23.9
	2	Delta	6.9×10^5	0.1109	0.8831	20.8
		Omicron	5.6×10^5	0.1109	0.9396	20.8
	3	Delta	4.6×10^5	0.0244	0.7122	94.4
		Omicron	3.8×10^5	0.0380	0.7347	60.6
	4	Delta	7.4×10^5	0.0492	0.9627	46.8
		Omicron	5.1×10^5	0.0474	0.9609	48.6
	5	Delta	5.6×10^5	0.0671	0.9809	34.3
		Omicron	6.2×10^5	0.0675	0.9961	34.1
4	1	Delta	1.0×10^6	0.0504	0.9708	45.7
		Omicron	3.5×10^5	0.0454	0.9548	50.7
		Delta	9.0×10^5	0.0680	0.9208	33.9
		Omicron	2.9×10^5	0.0617	0.9721	37.3
		Delta	9.7×10^5	0.1033	0.9710	22.3
		Omicron	2.7×10^5	0.0775	0.8988	29.7
5	1	Delta	1.3×10^6	0.0823	0.8767	28.0
		Omicron	3.9×10^5	0.0813	0.8735	28.3

Delta	1.1×10^6	0.0943	0.8711	24.4
Omicron	6.5×10^5	0.0970	0.8352	23.7