

Spatiotemporal Changes of Antibiotic Resistance and Bacterial Communities in Drinking Water Distribution System in Wrocław, Poland

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Table S1. Annealing temperatures, amplicon sizes, and primer sequences used in PCRs [1].

Gene	Ta (°C)	Amplicon Size (bp)	Primer Sequences
<i>bla_{TEM}</i>	61	247	GCKGCCAACTTACTTCTGACAACG CTTTATCCGCCTCCATCCAGTCTA
<i>bla_{SHV}</i>	61	214	GATGAACGCTTTCCCATGATG CGCTGTTATCGCTCATGGTAA
<i>bla_{CTX-M}</i>	61	63	GGAGGCGTGACGGCTTTT TTCAGTGCGATCCAGACGAA
<i>bla_{KPC}</i>	60	196	CAGCTCATTCAAGGGCTTTC GGCGGCGTTATCACTGTATT
<i>bla_{NDM}</i>	60	189	GATTGCGACTTATGCCAATG TCGATCCCAACGGTGATATT
<i>bla_{OXA}</i>	64	296	ATTATCTACAGCAGCGCCAGTG TGCATCCACGTCTTTGGTG
<i>bla_{OXA-48}</i>	64	189	AGGCACGTATGAGCAAGATG TGGCTTGTTTGACAATACGC
<i>amp_C</i>	58	189	CCTCTTGCTCCACATTGCT ACAACGTTTGCTGTGTGACG
<i>mecA</i>	61	92	CGCAACGTTCAATTTAATTTTGTTAA TGGTCTTTCTGCATTCCTGGA
<i>qnrA</i>	63	124	AGGATTTCTCACGCCAGGATT CCGCTTTCAATGAAACTGCAA
<i>qnrB</i>	62	134	CAGATTTYCGCGGCGCAAG TTCCACAGCTCRCAATTTTC
<i>qnrS</i>	62	118	GACGTGCTAACTTGCGTGAT TGGCATTGTTGGAACTTG
<i>oqxB</i>	64	131	TCCTGATCTCCATTAACGCCCA ACCGGAACCCATCTCGATGC
<i>tetA</i>	58	210	GCTACATCCTGCTTGCCCTTC CATAGATCGCCGTGAAGAGG
<i>tetK</i>	58	169	TCGATAGGAACAGCAGTA CAGCAGATCCTACTCCTT
<i>tetL</i>	58	267	TCGTTAGCGTGCTGTCATTC GTATCCCACCAATGTAGCCG
<i>tetW</i>	60	168	GAGAGCCTGCTATATGCCAGC GGGCGTATCCACAATGTAAAC
<i>sulI</i>	63	162	CGCACC GGAAACATCGCTGCAC TGAAGTCCGCCGCAAGGCTCG
<i>sulIII</i>	63	190	TCCGGTGGAGGCCGGTATCTGG

<i>ermA</i>	60	185	CGGGAATGCCATCTGCCTTGAG ATGTCTGCATACGGACACGG ACTTCAACTGCCGTTATCGC AAAACCTTACCCGCCATACCA TTTGCGGTGTTTCATTGCTT CTGTGAGGTCGGTTGTGCG TTTGGTCCACCTCGCCA ACACTTATGGCACGGTCTATG GCACACCCAAACCAATGATAC AGGACAACGCTATGCAACGAA CCGGAAGGGCCGAAAT ATTGTCTTCACGGTGTCCGTTA CCGCGATGTCGTCGAACT ATCGCAATAGTTGGCGAAGT CAAGCTTTTGCCCATGAAGC GTGGCAGCTATCGCTTGGAT CCAACGAACGCCCCACAA GATCTGGAGTTCGTTTCGATGAG CGCTTGATTCTGGCTTTG GGCTTCGTGATGCCTGCTT CATTCCTGGCCGTGGTTCT AATTGATGCGGACGGCTTAA TCACCAAACCTGTTTATGGAGTCGTT
<i>ermB</i>	63	139	
<i>vanA</i>	60	65	
<i>mcr-1</i>	60	120	
<i>mexA</i>	58	79	
<i>floR</i>	62	61	
<i>qacEΔ1</i>	63	226	
<i>qacH</i>	60	59	
<i>tolA</i>	60	134	
<i>intI1</i>	63	146	
<i>tnpA</i>	63	102	

Table S2. Results of microbiological and physical-chemical parameters of tap water samples collected in the study. NG refers to water treatment plant Na Grobli, MD refers to water treatment plant Mokry Dwór, AML: amoxicillin resistant bacteria, CIP: ciprofloxacin resistant bacteria, CAZ: ceftazidime resistant bacteria, TE: tetracycline resistant bacteria, HPC: heterotrophic plate counts, Cl₂: chlorine, WTP: water treatment plant.

Season	Sampling Point	AML	CIP	CAZ	TE	HPC	Genes	Distance from WTP	Cl ₂ Free	Cl ₂ Total	Temp.
		%				CFU/mL	-	km	mg/L		°C
summer	NG1S	0.38	0.11	0.26	0.35	1	4	0	0.21	0.39	13
	NG2S	0.77	0.06	0.12	16.00	31	4	2.2	0.00	0.10	22.5
	NG3S	2.31	0.28	3.75	13.40	15	8	5.3	0.00	0.13	21
	NG4S	11.53	1.26	4.94	28.87	30	5	8	0.00	0.17	19
	MD1S	0.50	0.00	71.25	0.17	1	6	0	0.31	0.49	22.5
	MD2S	51.87	1.39	2.96	0.04	6	7	4	0.02	0.22	21
	MD3S	42.92	0.88	1.89	0.08	13	5	9.2	0.06	0.19	21.4
	MD4S	40.71	2.47	10.56	1.57	14	5	15	0.00	0.14	20.5
winter	NG1W	17.60	37.00	79.40	0.00	1	2	0	0.28	0.46	12.5
	NG2W	1.75	2.08	11.99	0.00	2	6	2.2	0.16	0.25	13
	NG3W	2.18	0.00	16.98	0.00	1	4	5.3	0.00	0.15	18
	NG4W	24.60	34.00	59.00	0.00	1	6	8	0.00	0.19	12.5
	MD1W	0.00	4.00	68.00	0.00	1	5	0	0.28	0.45	2.1
	MD2W	2.60	0.00	28.00	0.00	2	6	4	0.16	0.41	3.7
	MD3W	1.52	1.15	62.10	0.00	1	4	9.2	0.17	0.35	6.75
	MD4W	50.14	32.00	68.47	0.34	1	5	15	0.04	0.30	6

Table S3. Results of Spearman and Pearson correlations. Only the statistically significant ($p < 0.05$) correlations are presented. AML: amoxicillin resistant bacteria, CIP: ciprofloxacin resistant bacteria, CAZ: ceftazidime resistant bacteria, TE: tetracycline resistant bacteria, HPC: heterotrophic plate counts, Cl₂: chlorine, WTP: water treatment plant.

	Cl ₂ Free	Cl ₂ Total	Temp.	Distance from WTP
AML				0.64 p = 0.01
CIP				
CAZ	0.50 p = 0.05	0.66 p = 0.01	−0.56 p = 0.02	
TE		−0.51 p = 0.04	0.61 p = 0.01	
HPC	−0.60 p = 0.01	−0.71 p = 0.00	0.58 p = 0.02	
genes				

References

1. Siedlecka, A.; Wolf-Baca, M.; Piekarska, K. Seasonal variability of antibiotic resistance and biodiversity of tap water bacteria in Wrocław, Poland. *Environ. Prot. Eng.* **2020**, *46*, 93–109. doi:10.37190/epe200207.