Figure S1. Photograph demonstrating the sampling points of the Meia Ponte River. a. MP01 sampling point; b. MP02 sampling point; c. MP03 sampling point; d. MP04 sampling point.

Table S1. Primers used in this study.

Antibiotic class	target gene	oligonucleotides	Reference
β-lactams	*bla*KPC	F: 5'- GGCGGCTCCATCGGTGTG- 3'	[1]
		R: 5'- AGGCCGGCTTGCTGGACAC- 3'	
	*bla*CTX-M	F: 5'- GGCGGCTCCATCGGTGTG- 3'	
		R: 5'- AGGCCGGCTTGCTGGACAC- 3'	
	*bla*SHV	F: 5'- ATCTGGTGGACTACTCGCCGGT - 3'	
		R: 5' - CGGCCCCGCAGGATTGA - 3'	
	*bla*OXA	F: 5'- GGCAGCGGGTTCCCTTGTC - 3'	
		R: 5' - CCGCTGCAGCCCATTATCG - 3'	
	*bla*CMY	F: 5'- GGATTAGGCTGGGAGATGCTGAA - 3'	
		R: 5' - GCATAAAACGGGCTCCACTGG - 3'	
	*bla*TEM	F: 5'- TCCGTGTCGCCCTTATTCCC - 3'	
		R: 5'- CCTTGAGAGTTTTCGCCCCG - 3'	
Quinolones	*qnr*A	F: 5'- ATTTCTCACGCCAGGATTTG-3'	[2]
		R: 5'- GATCGGCAAAGG TTAGGT CA-3'	
	*qnr*B	F: 5'- GAT CGTGAAAGCCAGAAAGG -3'	
		R: 5'- ACGATGCCTGGT AGTTGTCC-3'	
	*qnr*S	F: 5'- ACGACATTCGTCAACTGCAA -3'	
		R:5'- TAAATTGGCACCCTGTAGGC -3'	
Fluoroquinolone	*aac('6)-ib*	F: 5'- TTGCGATGCTCTATG AGTGGC TA- 3'	[3]
		R: 5'- CTCGAATGCCTGGCGTGTTT-3'	
Sulfonamides	*sul*1	F: 5'- CCGTTGGCCTTCCTGTAAAG-3'	[4]
		R: 5'- TTGCCGATCGCGTGAAGT-3'	
	*sul*2	F: 5'- CGGCTGCGCTTCGATT-3'	
		R: 5'- CGCGCGCAGAAAGGATT-3'	
	*sul*3	F: 5'-CCCATACCCGGATCAAGAATAA-3'	[5]
		R: 5'- CAGCGAATTGGTGCAGCTACTA-3'	
Tetracyclines	*tet*(A)	F: 5'- GCTACATCCTGCTTGCCTTC - 3'	[6]
		R: 5'- CATAGATCGCCGTGAAGAGG -3'	
	tet(B)	F: 5'- TTGGTTAGGGGCAAGTTTTG - 3'	
		R: 5'- GTAATGGGCCAATAACACCG -3'	
	tet(M)	F: 5'- GTGGACAAAGGTACAACGAG - 3'	
		R: 5'- CGGTAAAGTTCGTCACACAC -3'	
	tet(O)	F: 5'- AACTTAGGCATTCTGGCTCAC - 3'	
		R: 5'- TCCCACTGTTCCATATCGTCA -3'	
Macrolides	*erm*B	F: 5'- AAAACTTACCCGCCATACCA -3'	[7]
		F: 5'- TTTGGCGTGTTTCATTGCTT -3'	
	*erm*C	F: 5'- GAAATCGGCTCAGGAAAAGG -3'	
		F: 5'- TAGCAAACCCGTATTCCACG -3'	
Integron integrase class I	*IntI1*	F: 5'- ACATGCGTGTAAATCATCGTCG -3'	[8]
		F: 5'- CTGGATTTCGATCACGGCACG -3'	
Amphenicols	*floR*	F: 5'- CGGTCGGTATTGTCTTCACG -3'	[9]
		F: 5'- TCACGGGCCACGCTGTAT -3'	
	cfr	F: 5'- TGTGCTACAGGCAACATTGGAT -3'	
		F: 5'- CAAATACTTGACGGTTGGCTAGAG -3'	
	cmlA	F: 5'- GCCAGCAGTGCCGTTTAT -3'	
		F: 5'- GGCCACCTCCCAGTAGAA -3'	
	fexB	F: 5'- CCCGATAGATAATAATACAG -3'	
		F: 5'- CACCAATAGTGGGAAGAT -3'	

Table S2. Percentage of bioprospecting of bacterial isolates from water and sediment samples from the Meia Ponte River.

	Rain period	Dry period	Total
Family			
Aeromonadaceae	Não isolado	9.71% (10/103)	4.93% (10/203)
Gram-positive bacillus/rod	31% (31/100)	27.18% (28/103)	29.06% (59/203)
Enterobacteriaceae	28% (28/100)	33.01% (34/103)	30.54% (62/203)
Enterococcaceae	not isolated	5.83% (6/103)	2.96% (6/203)
Moraxellaceae	not isolated	3.88% (4/103)	1.97% (4/203)
Pasteurellaceae	18% (18/100)	Não isolado	8.87% (18/203)
Staphylococcaceae	23% (23/100)	20.39% (21/103)	21.67% (44/203)
Genus			
Citrobacter	not isolated	0.97% (1/103)	0.49% (1/203)
Enterococcus	not isolated	5.83% (6/103)	2.96% (6/203)
Acinetobacter	not isolated	2.91% (3/103)	1.48% (3/203)
Actinobacillus	18% (18/100)	not isolated	8.87% (18/203)
Aeromonas	Não isolado	9.71% (10/103)	4.93% (10/203)
Gram-positive bacillus/rod	31% (31/100)	27.18% (28/103)	29.06% (59/203)
Citrobacter	5% (5/100)	Não isolado	2.46% (5/203)
Enterobacter	1% (1/100)	0.97% (1/103)	0.99% (2/203)
Escherichia	1% (1/100)	Não isolado	0.49% (1/203)
Moraxella	Não isolado	0.97% (1/103)	0.49% (1/203)
Pantoe	Não isolado	2.91% (3/103)	1.48% (3/203)
Pantoea	3% (3/100)	not isolated	1.48% (3/203)
Plesiomonas	Não isolado	9.71% (10/103)	4.93% (10/203)
Proteus	15% (15/100)	13.59% (14/103)	14.29% (29/203)
Salmonella	2% (2/100)	2.91% (3/103)	2.46% (5/203)
Serratia	1% (1/100)	0.97% (1/103)	0.99% (2/203)
Shingella	not isolated	0.97% (1/103)	0.49% (1/203)
Staphylococcus	23% (23/100)	20.39% (21/103)	21.67% (44/203)
Total	49.26% (100/203)	50.74% (103/203)	100% (203/203)

Table S3. Spearman correlation of physicochemical and microbiological parameters of water and sediment samples from the Meia Ponte River.

	chloride	conductivity	apparent color	hardness	nitrate	dissolverd oxygen	pH	water temperature	turbidity	plaque count MacConkey sediment	plaque count Manitol sediment	plaque count VioletRed sediment	plaque count R2A water	plaque count MacConkey water	plaque count Manitol water	plaque count VioletRed water	multiple tubes water
chloride	1.00																
conductivity	0.88	1.00															
apparent color	-0.36	-0.60	1.00														
hardness	-0.17	-0.38	0.80	1.00													
nitrate	-0.67	-0.88	0.62	0.65	1.00												
dissolverd oxygen	0.81	0.52	-0.12	-0.14	-0.43	1.00											
pH	-0.64	-0.52	-0.05	0.04	0.57	-0.69	1.00										
water temperature	-0.34	-0.11	-0.36	-0.75	-0.35	-0.16	-0.06	1.00									
turbidity	-0.21	-0.60	0.83	0.81	0.74	0.14	-0.05	-0.49	1.00								
plaque count MacConkey sediment	0.41	0.41	-0.25	-0.25	-0.25	0.08	0.08	-0.25	-0.41	1.00							
plaque count Manitol sediment	0.79	0.51	-0.28	-0.03	-0.20	0.81	-0.25	-0.49	0.11	0.26	1.00						
plaque count VioletRed sediment	0.20	0.15	-0.70	-0.50	-0.09	0.24	0.03	0.19	-0.28	0.09	0.41	1.00					
plaque count R2A water	-0.58	-0.58	0.41	0.08	0.41	-0.25	0.41	0.17	0.25	-0.14	-0.35	-0.35	1.00				
plaque count MacConkey water	-0.34	-0.19	-0.41	-0.39	0.20	-0.47	0.86	0.12	-0.42	0.44	-0.07	0.26	0.26	1.00			
plaque count Manitol water	0.40	0.29	0.29	0.12	-0.40	0.62	-0.88	0.10	0.26	-0.41	0.13	-0.29	-0.08	-0.91	1.00		
plaque count VioletRed water	-0.17	-0.59	0.76	0.67	0.68	0.27	-0.12	-0.37	0.98	-0.42	0.18	-0.14	0.25	-0.43	0.32	1.00	
multiple tubes water	-0.08	0.08	0.25	0.58	0.08	-0.41	-0.08	-0.42	0.08	-0.14	-0.35	-0.35	-0.14	-0.35	0.08	-0.08	1.00

Values highlighted in red are statistically significant (p-value ≤0.05).

Table S4. Loading matrix showing the main components of the physicochemical and microbiological dataset of water and sediment samples from the Meia Ponte River.

	PCA 1	PCA 2	PCA 3	PCA 4	PCA 5	PCA 6	PCA 7
chloride	-0.82	-0.40	0.27	-0.26	0.06	0.05	0.13
conductivity	-0.95	-0.07	0.10	-0.24	-0.11	-0.01	0.10
apparent color	0.62	-0.41	-0.52	-0.10	-0.37	0.19	0.05
hardness	0.47	-0.73	-0.07	-0.37	0.31	-0.09	-0.02
nitrate	0.97	-0.12	0.16	0.08	0.08	0.01	0.08
dissolverd oxygen	-0.58	-0.69	-0.18	0.11	-0.34	-0.13	-0.05
pH	0.68	0.50	0.40	-0.21	-0.06	-0.21	0.20
water temperature	-0.15	0.75	-0.44	0.42	0.05	0.17	0.11
turbidity	0.66	-0.65	0.23	0.28	-0.11	0.05	-0.03
plaque count MacConkey sediment	-0.35	0.15	0.40	-0.61	-0.36	0.25	-0.36
plaque count Manitol sediment	-0.35	-0.50	0.65	0.16	-0.23	-0.30	0.17
plaque count VioletRed sediment	-0.07	0.09	0.46	0.66	0.42	-0.12	-0.39
plaque count R2A water	0.43	0.20	-0.42	0.07	-0.61	-0.42	-0.20
plaque count MacConkey water	0.19	0.77	0.54	-0.26	-0.05	-0.09	0.08
plaque count Manitol water	-0.79	-0.12	-0.38	0.43	0.14	-0.13	0.07
plaque count VioletRed water	0.42	-0.55	0.45	0.46	-0.15	0.28	0.06
multiple tubes water	0.25	-0.39	-0.31	-0.57	0.57	-0.16	-0.07
MP01_rainy	1.62	-2.36	2.76	1.43	0.02	-0.42	-0.15
MP02_rainy	1.48	-1.94	-1.24	-2.11	1.72	-0.31	-0.12
MP03_rainy	1.46	-0.88	-0.88	0.66	-0.45	1.65	0.47
MP04_rainy	2.57	0.99	-1.65	0.24	-1.85	-0.80	-0.34
MP01_dry	-2.06	0.72	1.59	-2.24	-1.09	0.49	-0.61
MP02_dry	-3.76	-1.12	-0.60	0.16	-0.53	-0.61	1.05
MP03_dry	-2.56	0.78	-1.03	1.86	1.08	0.13	-0.97
MP04_dry	1.24	3.80	1.05	-0.01	1.10	-0.12	0.67
Eigenvalue	5.71	3.99	2.52	2.21	1.49	0.61	0.46
% Total variance	33.60	23.46	14.85	13.01	8.76	3.59	2.72
Cumulative Eigenvalue	5.71	9.70	12.23	14.44	15.93	16.54	17.00
Cumulative %	33.60	57.07	71.92	84.93	93.69	97.28	100.00

Table S5. Percentage of sensitivity and resistance of bacterial isolates bioprospected from the João Leite stream, categorized by rainy season.

Family	category	AMI	AMC	AMP	ATM	CFZ	CPM	CFO	CAZ	CRO	CIP	CLO	GEN	MPM	SUT	TET	AZI	CLI	ERI	OXA	LNZ	PEN	RIF	VAN
gram positive rod	R	0% (0/0)	0% (0/0)	12.9% (4/30)	0% (0/0)	0% (0/0)	0% (0/0)	12.9% (4/30)	0% (0/0)	0% (0/0)	9.68% (3/30)	12.9% (4/30)	3.23% (1/30)	0% (0/0)	29.03% (9/30)	6.45% (2/30)	6.45% (2/30)	83.87% (26/30)	9.68% (3/30)	19.35% (6/30)	9.68% (3/30)	12.9% (4/30)	9.68% (3/30)	6.45% (2/30)
gram positive rod	I	0% (0/0)	0% (0/0)	0% (0/30)	0% (0/0)	0% (0/0)	0% (0/0)	0% (0/30)	0% (0/0)	0% (0/0)	0% (0/30)	0% (0/30)	0% (0/30)	0% (0/0)	0% (0/30)	0% (0/30)	0% (0/30)	0% (0/30)	0% (0/30)	0% (0/30)	0% (0/30)	0% (0/30)	0% (0/30)	0% (0/30)
gram positive rod	S	0% (0/0)	0% (0/0)	83.87% (26/30)	0% (0/0)	0% (0/0)	0% (0/0)	83.87% (26/30)	0% (0/0)	0% (0/0)	87.1% (27/30)	83.87% (26/30)	93.55% (29/30)	0% (0/0)	67.74% (21/30)	90.32% (28/30)	90.32% (28/30)	12.9% (4/30)	87.1% (27/30)	77.42% (24/30)	87.1% (27/30)	83.87% (26/30)	87.1% (27/30)	90.32% (28/30)
Enterobacteriaceae	R	21.43% (6/28)	100% (28/28)	96.43% (27/28)	39.29% (11/28)	100% (28/28)	42.86% (12/28)	82.14% (23/28)	28.57% (8/28)	28.57% (8/28)	57.14% (16/28)	71.43% (20/28)	21.43% (6/28)	25% (7/28)	85.71% (24/28)	82.14% (23/28)	0% (0/0)	0% (0/0)	0% (0/0)	0% (0/0)	0% (0/0)	0% (0/0)	0% (0/0)	0% (0/0)
Enterobacteriaceae	I	10.71% (3/28)	0% (0/28)	3.57% (1/28)	3.57% (1/28)	0% (0/28)	0% (0/28)	7.14% (2/28)	7.14% (2/28)	10.71% (3/28)	14.29% (4/28)	21.43% (6/28)	3.57% (1/28)	3.57% (1/28)	0% (0/28)	0% (0/28)	0% (0/0)	0% (0/0)	0% (0/0)	0% (0/0)	0% (0/0)	0% (0/0)	0% (0/0)	0% (0/0)
Enterobacteriaceae	S	67.86% (19/28)	0% (0/28)	0% (0/28)	57.14% (16/28)	0% (0/28)	57.14% (16/28)	10.71% (3/28)	64.29% (18/28)	60.71% (17/28)	28.57% (8/28)	7.14% (2/28)	75% (21/28)	71.43% (20/28)	14.29% (4/28)	17.86% (5/28)	0% (0/0)	0% (0/0)	0% (0/0)	0% (0/0)	0% (0/0)	0% (0/0)	0% (0/0)	0% (0/0)
Pasteurellaceae	R	0% (0/18)	77.78% (14/18)	88.89% (16/18)	33.33% (6/18)	88.89% (16/18)	16.67% (3/18)	94.44% (17/18)	33.33% (6/18)	22.22% (4/18)	22.22% (4/18)	16.67% (3/18)	16.67% (3/18)	5.56% (1/18)	55.56% (10/18)	22.22% (4/18)	0% (0/0)	0% (0/0)	0% (0/0)	0% (0/0)	0% (0/0)	0% (0/0)	0% (0/0)	0% (0/0)
Pasteurellaceae	I	0% (0/18)	0% (0/18)	0% (0/18)	0% (0/18)	0% (0/18)	0% (0/18)	0% (0/18)	0% (0/18)	0% (0/18)	0% (0/18)	0% (0/18)	0% (0/18)	0% (0/18)	0% (0/18)	0% (0/18)	0% (0/0)	0% (0/0)	0% (0/0)	0% (0/0)	0% (0/0)	0% (0/0)	0% (0/0)	0% (0/0)
Pasteurellaceae	S	100% (18/18)	22.22% (4/18)	11.11% (2/18)	66.67% (12/18)	11.11% (2/18)	83.33% (15/18)	5.56% (1/18)	66.67% (12/18)	77.78% (14/18)	77.78% (14/18)	83.33% (15/18)	83.33% (15/18)	94.44% (17/18)	44.44% (8/18)	77.78% (14/18)	0% (0/0)	0% (0/0)	0% (0/0)	0% (0/0)	0% (0/0)	0% (0/0)	0% (0/0)	0% (0/0)
Staphylococcaceae	R	0% (0/0)	0% (0/0)	0% (0/0)	0% (0/0)	0% (0/0)	0% (0/0)	0% (0/0)	0% (0/0)	0% (0/0)	52.17% (12/23)	60.87% (14/23)	17.39% (4/23)	0% (0/0)	65.22% (15/23)	65.22% (15/23)	91.3% (21/23)	95.65% (22/23)	100% (23/23)	95.65% (22/23)	100% (23/23)	95.65% (22/23)	95.65% (22/23)	0% (0/0)
Staphylococcaceae	I	0% (0/0)	0% (0/0)	0% (0/0)	0% (0/0)	0% (0/0)	0% (0/0)	0% (0/0)	0% (0/0)	0% (0/0)	4.35% (1/23)	8.7% (2/23)	13.04% (3/23)	0% (0/0)	4.35% (1/23)	21.74% (5/23)	4.35% (1/23)	0% (0/23)	0% (0/23)	0% (0/23)	0% (0/23)	0% (0/23)	0% (0/23)	0% (0/0)
Staphylococcaceae	S	0% (0/0)	0% (0/0)	0% (0/0)	0% (0/0)	0% (0/0)	0% (0/0)	0% (0/0)	0% (0/0)	0% (0/0)	43.48% (10/23)	30.43% (7/23)	69.57% (16/23)	0% (0/0)	30.43% (7/23)	13.04% (3/23)	4.35% (1/23)	4.35% (1/23)	0% (0/23)	4.35% (1/23)	0% (0/23)	4.35% (1/23)	4.35% (1/23)	0% (0/0)

Table S6. Percentage of sensitivity and resistance of bacterial isolates bioprospected from the João Leite stream, categorized by dry period.

Family	category	AMI	AMC	AMP	ATM	CFZ	CPM	CFO	CAZ	CRO	CIP	CLO	GEN	MPM	SUT	TET	AZI	CLI	ERI	OXA	LNZ	PEN	RIF	VAN
Aeromonadaceae	R	10% (1/10)	0% (0/0)	0% (0/0)	30% (3/10)	0% (0/0)	0% (0/10)	90% (9/10)	10% (1/10)	20% (2/10)	20% (2/10)	60% (6/10)	20% (2/10)	10% (1/10)	20% (2/10)	20% (2/10)	0% (0/0)	0% (0/0)	0% (0/0)	0% (0/0)	0% (0/0)	0% (0/0)	0% (0/0)	0% (0/0)
Aeromonadaceae	I	0% (0/10)	0% (0/0)	0% (0/0)	0% (0/10)	0% (0/0)	30% (3/10)	0% (0/10)	20% (2/10)	10% (1/10)	20% (2/10)	10% (1/10)	0% (0/10)	0% (0/10)	20% (2/10)	10% (1/10)	0% (0/0)	0% (0/0)	0% (0/0)	0% (0/0)	0% (0/0)	0% (0/0)	0% (0/0)	0% (0/0)
Aeromonadaceae	S	90% (9/10)	0% (0/0)	0% (0/0)	70% (7/10)	0% (0/0)	70% (7/10)	10% (1/10)	70% (7/10)	70% (7/10)	60% (6/10)	30% (3/10)	80% (8/10)	90% (9/10)	60% (6/10)	70% (7/10)	0% (0/0)	0% (0/0)	0% (0/0)	0% (0/0)	0% (0/0)	0% (0/0)	0% (0/0)	9% (9/10)
gram positive rod	R	0% (0/0)	0% (0/0)	46.43% (13/28)	0% (0/0)	0% (0/0)	0% (0/0)	32.14% (9/28)	0% (0/0)	0% (0/0)	10.71% (3/28)	17.86% (5/28)	21.43% (6/28)	0% (0/0)	53.57% (15/28)	17.86% (5/28)	42.86% (12/28)	82.14% (23/28)	28.57% (8/28)	53.57% (15/28)	25% (7/28)	46.43% (13/28)	35.71% (10/28)	35.71% (10/28)
gram positive rod	I	0% (0/0)	0% (0/0)	0% (0/28)	0% (0/0)	0% (0/0)	0% (0/0)	0% (0/28)	0% (0/0)	0% (0/0)	0% (0/28)	0% (0/28)	0% (0/28)	0% (0/0)	0% (0/28)	0% (0/28)	0% (0/28)	0% (0/28)	0% (0/28)	0% (0/28)	0% (0/28)	0% (0/28)	0% (0/28)	0% (0/28)
gram positive rod	S	0% (0/0)	0% (0/0)	53.57% (15/28)	0% (0/0)	0% (0/0)	0% (0/0)	67.86% (19/28)	0% (0/0)	0% (0/0)	89.29% (25/28)	82.14% (23/28)	78.57% (22/28)	0% (0/0)	46.43% (13/28)	82.14% (23/28)	57.14% (16/28)	17.86% (5/28)	71.43% (20/28)	46.43% (13/28)	75% (21/28)	53.57% (15/28)	64.29% (18/28)	64.29% (18/28)
Enterobacteriaceae	R	8.82% (3/34)	82.35% (28/34)	82.35% (28/34)	29.41% (10/34)	76.47% (26/34)	2.94% (1/34)	70.59% (24/34)	2.94% (1/34)	29.41% (10/34)	32.35% (11/34)	41.18% (14/34)	20.59% (7/34)	17.65% (6/34)	35.29% (12/34)	52.94% (18/34)	0% (0/0)	0% (0/0)	0% (0/0)	0% (0/0)	0% (0/0)	0% (0/0)	0% (0/0)	0% (0/0)
Enterobacteriaceae	I	8.82% (3/34)	8.82% (3/34)	2.94% (1/34)	0% (0/34)	0% (0/34)	14.71% (5/34)	2.94% (1/34)	26.47% (9/34)	8.82% (3/34)	17.65% (6/34)	14.71% (5/34)	0% (0/34)	5.88% (2/34)	0% (0/34)	2.94% (1/34)	0% (0/0)	0% (0/0)	0% (0/0)	0% (0/0)	0% (0/0)	0% (0/0)	0% (0/0)	0% (0/0)
Enterobacteriaceae	S	82.35% (28/34)	8.82% (3/34)	14.71% (5/34)	70.59% (24/34)	23.53% (8/34)	82.35% (28/34)	26.47% (9/34)	70.59% (24/34)	61.76% (21/34)	50% (17/34)	44.12% (15/34)	79.41% (27/34)	76.47% (26/34)	64.71% (22/34)	44.12% (15/34)	0% (0/0)	0% (0/0)	0% (0/0)	0% (0/0)	0% (0/0)	0% (0/0)	0% (0/0)	0% (0/0)
Enterococcaceae	R	0% (0/0)	0% (0/0)	100% (6/6)	0% (0/0)	0% (0/0)	0% (0/0)	0% (0/0)	0% (0/0)	0% (0/0)	50% (3/6)	50% (3/6)	0% (0/0)	0% (0/0)	0% (0/0)	50% (3/6)	0% (0/0)	100% (6/6)	100% (6/6)	0% (0/0)	100% (6/6)	100% (6/6)	66.67% (4/6)	100% (6/6)
Enterococcaceae	I	0% (0/0)	0% (0/0)	0% (0/6)	0% (0/0)	0% (0/0)	0% (0/0)	0% (0/0)	0% (0/0)	0% (0/0)	0% (0/6)	0% (0/6)	0% (0/0)	0% (0/0)	0% (0/0)	16.67% (1/6)	0% (0/0)	0% (0/6)	0% (0/6)	0% (0/0)	0% (0/6)	0% (0/6)	0% (0/6)	0% (0/6)
Enterococcaceae	S	0% (0/0)	0% (0/0)	0% (0/6)	0% (0/0)	0% (0/0)	0% (0/0)	0% (0/0)	0% (0/0)	0% (0/0)	50% (3/6)	50% (3/6)	0% (0/0)	0% (0/0)	0% (0/0)	33.33% (2/6)	0% (0/0)	0% (0/6)	0% (0/6)	0% (0/0)	0% (0/6)	0% (0/6)	33.33% (2/6)	0% (0/6)
Moraxellaceae	R	0% (0/4)	100% (4/4)	100% (4/4)	0% (0/0)	100% (4/4)	0% (0/4)	100% (4/4)	25% (1/4)	0% (0/4)	0% (0/4)	0% (0/0)	0% (0/4)	0% (0/4)	50% (2/4)	0% (0/4)	0% (0/0)	0% (0/0)	0% (0/0)	0% (0/0)	0% (0/0)	0% (0/0)	0% (0/0)	0% (0/0)
Moraxellaceae	I	0% (0/4)	0% (0/4)	0% (0/4)	0% (0/0)	0% (0/4)	0% (0/4)	0% (0/4)	0% (0/4)	50% (2/4)	0% (0/4)	0% (0/0)	0% (0/4)	0% (0/4)	0% (0/4)	75% (3/4)	0% (0/0)	0% (0/0)	0% (0/0)	0% (0/0)	0% (0/0)	0% (0/0)	0% (0/0)	0% (0/0)
Moraxellaceae	S	100% (4/4)	0% (0/4)	0% (0/4)	0% (0/0)	0% (0/4)	100% (4/4)	0% (0/4)	75% (3/4)	50% (2/4)	100% (4/4)	0% (0/0)	100% (4/4)	100% (4/4)	50% (2/4)	25% (1/4)	0% (0/0)	0% (0/0)	0% (0/0)	0% (0/0)	0% (0/0)	0% (0/0)	0% (0/0)	0% (0/0)
Staphylococcaceae	R	0% (0/0)	0% (0/0)	0% (0/0)	0% (0/0)	0% (0/0)	0% (0/0)	0% (0/0)	0% (0/0)	0% (0/0)	14.29% (3/21)	52.38% (11/21)	28.57% (6/21)	0% (0/0)	38.1% (8/21)	19.05% (4/21)	80.95% (17/21)	90.48% (19/21)	76.19% (16/21)	90.48% (19/21)	85.71% (18/21)	85.71% (18/21)	85.71% (18/21)	0% (0/0)
Staphyl	I	0%	0%	0%	0%	0%	0%	0%	0%	0%	9.52	9.52	9.52	0%	9.52	19.05	9.52	0%	14.29	0%	0%	0%	0%	0%

ococcac eae		(0/0)	(0/0)	(0/0)	(0/0)	(0/0)	(0/0)	(0/0)	(0/0)	(0/0)	% (2/21)	% (2/21)	% (2/21)	(0/0)	% (2/21)	% (4/21)	% (2/21)	(0/21)	% (3/21)	(0/21)	(0/21)	(0/21)	(0/21)	(0/0)
Staphyl ococcac eae	S	0% (0/0)	0% (0/0)	0% (0/0)	0% (0/0)	0% (0/0)	0% (0/0)	0% (0/0)	0% (0/0)	0% (0/0)	76.19 % (16/21)	38.1 % (8/21)	61.9 % (13/21)	0% (0/0)	52.38 % (11/21)	61.9 % (13/21)	9.52 % (2/21)	9.52 % (2/21)	9.52 % (2/21)	9.52 % (2/21)	14.29 % (3/21)	14.29 % (3/21)	14.29 % (3/21)	0% (0/0)

Table S7. Percentage of sensitivity and resistance of bacterial isolates bioprospected from the João Leite stream, total.

Family	Category	AMI	AMC	AMP	ATM	CFZ	CPM	CFO	CAZ	CRO	CIP	CLO	GEN	MPM	SUT	TET	AZI	CLI	ERI	OXA	LNZ	PEN	RIF	VAN
Aeromonadaceae	R	10% (1/10)	0% (0/0)	0% (0/0)	30% (3/10)	0% (0/0)	0% (0/10)	90% (9/10)	10% (1/10)	20% (2/10)	20% (2/10)	60% (6/10)	20% (2/10)	10% (1/10)	20% (2/10)	20% (2/10)	0% (0/0)	0% (0/0)	0% (0/0)	0% (0/0)	0% (0/0)	0% (0/0)	0% (0/0)	0% (0/0)
Aeromonadaceae	I	0% (0/10)	0% (0/0)	0% (0/0)	0% (0/10)	0% (0/0)	30% (3/10)	0% (0/10)	20% (2/10)	10% (1/10)	20% (2/10)	10% (1/10)	0% (0/10)	0% (0/10)	20% (2/10)	10% (1/10)	0% (0/0)	0% (0/0)	0% (0/0)	0% (0/0)	0% (0/0)	0% (0/0)	0% (0/0)	0% (0/0)
Aeromonadaceae	S	90% (9/10)	0% (0/0)	0% (0/0)	70% (7/10)	0% (0/0)	70% (7/10)	10% (1/10)	70% (7/10)	70% (7/10)	60% (6/10)	30% (3/10)	80% (8/10)	90% (9/10)	60% (6/10)	70% (7/10)	0% (0/0)	0% (0/0)	0% (0/0)	0% (0/0)	0% (0/0)	0% (0/0)	0% (0/0)	0% (0/0)
gram positive rod	R	0% (0/0)	0% (0/0)	28.81% (17/58)	0% (0/0)	0% (0/0)	0% (0/0)	22.03% (13/58)	0% (0/0)	0% (0/0)	10.17% (6/58)	15.25% (9/58)	11.86% (7/58)	0% (0/0)	40.68% (24/58)	11.86% (7/58)	23.73% (14/58)	83.05% (49/58)	18.64% (11/58)	35.59% (21/58)	16.95% (10/58)	28.81% (17/58)	22.03% (13/58)	20.34% (12/58)
gram positive rod	I	0% (0/0)	0% (0/0)	0% (0/58)	0% (0/0)	0% (0/0)	0% (0/0)	0% (0/58)	0% (0/0)	0% (0/0)	0% (0/58)	0% (0/58)	0% (0/58)	0% (0/0)	0% (0/58)	0% (0/58)	0% (0/58)	0% (0/58)	0% (0/58)	0% (0/58)	0% (0/58)	0% (0/58)	0% (0/58)	0% (0/58)
gram positive rod	S	0% (0/0)	0% (0/0)	69.49% (41/58)	0% (0/0)	0% (0/0)	0% (0/0)	76.27% (45/58)	0% (0/0)	0% (0/0)	88.14% (52/58)	83.05% (49/58)	86.44% (51/58)	0% (0/0)	57.63% (34/58)	86.44% (51/58)	74.58% (44/58)	15.25% (9/58)	79.66% (47/58)	62.71% (37/58)	81.36% (48/58)	69.49% (41/58)	76.27% (45/58)	77.97% (46/58)
Enterobacteriaceae	R	14.52% (9/62)	90.32% (56/62)	88.71% (55/62)	33.87% (21/62)	87.1% (54/62)	20.97% (13/62)	75.81% (47/62)	14.52% (9/62)	29.03% (18/62)	43.55% (27/62)	54.84% (34/62)	20.97% (13/62)	20.97% (13/62)	58.06% (36/62)	66.13% (41/62)	0% (0/0)	0% (0/0)	0% (0/0)	0% (0/0)	0% (0/0)	0% (0/0)	0% (0/0)	0% (0/0)
Enterobacteriaceae	I	9.68% (6/62)	4.84% (3/62)	3.23% (2/62)	1.61% (1/62)	0% (0/62)	8.06% (5/62)	4.84% (3/62)	17.74% (11/62)	9.68% (6/62)	16.13% (10/62)	17.74% (11/62)	1.61% (1/62)	4.84% (3/62)	0% (0/62)	1.61% (1/62)	0% (0/0)	0% (0/0)	0% (0/0)	0% (0/0)	0% (0/0)	0% (0/0)	0% (0/0)	0% (0/0)
Enterobacteriaceae	S	75.81% (47/62)	4.84% (3/62)	8.06% (5/62)	64.52% (40/62)	12.9% (8/62)	70.97% (44/62)	19.35% (12/62)	67.74% (42/62)	61.29% (38/62)	40.32% (25/62)	27.42% (17/62)	77.42% (48/62)	74.19% (46/62)	41.94% (26/62)	32.26% (20/62)	0% (0/0)	0% (0/0)	0% (0/0)	0% (0/0)	0% (0/0)	0% (0/0)	0% (0/0)	0% (0/0)
Enterococcaceae	R	0% (0/0)	0% (0/0)	100% (6/6)	0% (0/0)	0% (0/0)	0% (0/0)	0% (0/0)	0% (0/0)	0% (0/0)	50% (3/6)	50% (3/6)	0% (0/0)	0% (0/0)	0% (0/0)	50% (3/6)	0% (0/0)	100% (6/6)	100% (6/6)	0% (0/0)	100% (6/6)	100% (6/6)	66.67% (4/6)	100% (6/6)
Enterococcaceae	I	0% (0/0)	0% (0/0)	0% (0/6)	0% (0/0)	0% (0/0)	0% (0/0)	0% (0/0)	0% (0/0)	0% (0/0)	0% (0/6)	0% (0/6)	0% (0/0)	0% (0/0)	0% (0/0)	16.67% (1/6)	0% (0/0)	0% (0/6)	0% (0/6)	0% (0/0)	0% (0/6)	0% (0/6)	0% (0/6)	0% (0/6)
Enterococcaceae	S	0% (0/0)	0% (0/0)	0% (0/6)	0% (0/0)	0% (0/0)	0% (0/0)	0% (0/0)	0% (0/0)	0% (0/0)	50% (3/6)	50% (3/6)	0% (0/0)	0% (0/0)	0% (0/0)	33.33% (2/6)	0% (0/0)	0% (0/6)	0% (0/6)	0% (0/0)	0% (0/6)	0% (0/6)	33.33% (2/6)	0% (0/6)
Moraxellaceae	R	0% (0/4)	100% (4/4)	100% (4/4)	0% (0/0)	100% (4/4)	0% (0/4)	100% (4/4)	25% (1/4)	0% (0/4)	0% (0/4)	0% (0/0)	0% (0/4)	0% (0/4)	50% (2/4)	0% (0/4)	0% (0/0)	0% (0/0)	0% (0/0)	0% (0/0)	0% (0/0)	0% (0/0)	0% (0/0)	0% (0/0)
Moraxellaceae	I	0% (0/4)	0% (0/4)	0% (0/4)	0% (0/0)	0% (0/4)	0% (0/4)	0% (0/4)	0% (0/4)	50% (2/4)	0% (0/4)	0% (0/0)	0% (0/4)	0% (0/4)	0% (0/4)	75% (3/4)	0% (0/0)	0% (0/0)	0% (0/0)	0% (0/0)	0% (0/0)	0% (0/0)	0% (0/0)	0% (0/0)
Moraxellaceae	S	100% (4/4)	0% (0/4)	0% (0/4)	0% (0/0)	0% (0/4)	100% (4/4)	0% (0/4)	75% (3/4)	50% (2/4)	100% (4/4)	0% (0/0)	100% (4/4)	100% (4/4)	50% (2/4)	25% (1/4)	0% (0/0)	0% (0/0)	0% (0/0)	0% (0/0)	0% (0/0)	0% (0/0)	0% (0/0)	0% (0/0)
Pasteurellaceae	R	0% (0/18)	77.78% (14/18)	88.89% (16/18)	33.33% (6/18)	88.89% (16/18)	16.67% (3/18)	94.44% (17/18)	33.33% (6/18)	22.22% (4/18)	22.22% (4/18)	16.67% (3/18)	16.67% (3/18)	5.56% (1/18)	55.56% (10/18)	22.22% (4/18)	0% (0/0)	0% (0/0)	0% (0/0)	0% (0/0)	0% (0/0)	0% (0/0)	0% (0/0)	0% (0/0)

Family		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
Pasteurellaceae	I	0% (0/18)	0% (0/18)	0% (0/18)	0% (0/18)	0% (0/18)	0% (0/18)	0% (0/18)	0% (0/18)	0% (0/18)	0% (0/18)	0% (0/18)	0% (0/18)	0% (0/18)	0% (0/18)	0% (0/18)	0% (0/0)	0% (0/0)	0% (0/0)	0% (0/0)	0% (0/0)	0% (0/0)	0% (0/0)	0% (0/0)
Pasteurellaceae	S	100% (18/18)	22.22% (4/18)	11.11% (2/18)	66.67% (12/18)	11.11% (2/18)	83.33% (15/18)	5.56% (1/18)	66.67% (12/18)	77.78% (14/18)	77.78% (14/18)	83.33% (15/18)	83.33% (15/18)	94.44% (17/18)	44.44% (8/18)	77.78% (14/18)	0% (0/0)	0% (0/0)	0% (0/0)	0% (0/0)	0% (0/0)	0% (0/0)	0% (0/0)	0% (0/0)
Staphylococcaceae	R	0% (0/0)	0% (0/0)	0% (0/0)	0% (0/0)	0% (0/0)	0% (0/0)	0% (0/0)	0% (0/0)	0% (0/0)	34.09% (15/44)	56.82% (25/44)	22.73% (10/44)	0% (0/0)	52.27% (23/44)	43.18% (19/44)	86.36% (38/44)	93.18% (41/44)	88.64% (39/44)	93.18% (41/44)	93.18% (41/44)	90.91% (40/44)	90.91% (40/44)	0% (0/0)
Staphylococcaceae	I	0% (0/0)	0% (0/0)	0% (0/0)	0% (0/0)	0% (0/0)	0% (0/0)	0% (0/0)	0% (0/0)	0% (0/0)	6.82% (3/44)	9.09% (4/44)	11.36% (5/44)	0% (0/0)	6.82% (3/44)	20.45% (9/44)	6.82% (3/44)	0% (0/44)	6.82% (3/44)	0% (0/44)	0% (0/44)	0% (0/44)	0% (0/44)	0% (0/0)
Staphylococcaceae	S	0% (0/0)	0% (0/0)	0% (0/0)	0% (0/0)	0% (0/0)	0% (0/0)	0% (0/0)	0% (0/0)	0% (0/0)	59.09% (26/44)	34.09% (15/44)	65.91% (29/44)	0% (0/0)	40.91% (18/44)	36.36% (16/44)	6.82% (3/44)	6.82% (3/44)	4.55% (2/44)	6.82% (3/44)	6.82% (3/44)	9.09% (4/44)	9.09% (4/44)	0% (0/0)

Table S8. Loading matrix showing the main components of the Gram-positive rod/bacillus and Staphylococcaceae resistance and susceptibility dataset isolated from the Meia Ponte River sediment and water samples.

	PCA 1	PCA 2	PCA 3	PCA 4	PCA 5	PCA 6	PCA 7	PCA 8	PCA 9	PCA 10	PCA 11	PCA 12
CIP	0.48	-0.49	0.15	-0.21	0.10	-0.64	-0.20	0.06	-0.01	0.06	-0.04	-0.02
CLO	0.70	0.31	0.22	-0.17	0.20	-0.08	0.34	0.18	-0.36	-0.11	0.01	-0.02
GEN	0.44	-0.49	-0.10	0.48	-0.44	-0.03	0.27	0.25	-0.05	0.00	0.01	0.02
SUT	-0.33	0.47	0.60	0.48	-0.10	-0.16	-0.18	0.04	-0.04	0.10	-0.02	0.00
TET	0.33	-0.53	0.32	0.23	0.54	0.38	-0.12	0.04	-0.03	-0.01	-0.01	0.01
AZI	-0.73	0.04	-0.32	0.03	-0.02	0.04	-0.40	0.38	-0.21	-0.13	-0.06	0.00
CLI	-0.38	-0.28	0.54	-0.44	-0.47	0.25	-0.06	0.03	-0.05	-0.05	0.00	-0.02
ERI	-0.79	-0.22	0.05	0.22	0.00	-0.20	0.02	-0.37	-0.13	-0.27	0.08	-0.02
OXA	-0.84	0.01	0.12	-0.01	0.18	-0.09	0.19	0.31	0.27	-0.06	0.08	-0.17
LNZ	-0.90	-0.14	-0.05	0.02	0.06	0.00	0.24	-0.12	-0.11	0.10	-0.26	-0.08
PEN	-0.89	-0.06	0.13	-0.10	0.15	-0.12	0.19	0.14	0.10	-0.04	-0.02	0.26
RIF	-0.89	-0.16	-0.10	-0.05	0.07	0.01	0.04	-0.01	-0.25	0.28	0.18	0.00
Eigenvalue	5.52	1.26	0.98	0.84	0.83	0.71	0.56	0.51	0.36	0.21	0.12	0.11
% Total variance	45.98	10.49	8.17	7.02	6.88	5.89	4.70	4.26	2.99	1.74	0.99	0.89
Cumulative Eigenvalue	5.52	6.78	7.76	8.60	9.42	10.13	10.70	11.21	11.57	11.77	11.89	12.00
Cumulative %	45.98	56.47	64.64	71.66	78.54	84.43	89.13	93.39	96.38	98.12	99.11	100.00

Table S9. Loading matrix showing the main components of the resistance and susceptibility dataset of Enterobacteriaceae and Pasteurellaceae isolated from water and sediment samples from the Meia Ponte River.

	PCA 1	PCA 2	PCA 3	PCA 4	PCA 5	PCA 6	PCA 7	PCA 8	PCA 9	PCA 10	PCA 11	PCA 12	PCA 13	PCA 14	PCA 15
AMI	-0.42	-0.35	-0.34	-0.15	-0.47	0.21	0.29	0.23	0.25	0.03	0.09	-0.24	-0.14	-0.02	0.08
AMC	0.48	-0.65	-0.02	-0.26	0.05	-0.01	-0.07	0.19	0.14	0.16	-0.17	0.34	-0.01	-0.08	0.17
AMP	0.47	-0.49	0.09	-0.02	0.35	-0.02	0.30	-0.40	0.20	-0.15	0.21	-0.13	0.18	-0.02	0.10
ATM	-0.64	-0.36	0.29	0.25	0.25	-0.05	-0.08	0.27	0.10	-0.07	-0.13	-0.08	0.07	0.35	0.07
CFZ	0.64	-0.54	-0.09	-0.32	0.04	-0.02	-0.09	-0.06	0.09	0.09	-0.15	-0.13	-0.06	0.11	-0.31
CPM	-0.66	-0.31	0.23	0.06	-0.04	0.01	-0.39	-0.27	0.00	0.14	-0.24	-0.24	0.03	-0.22	0.07
CFO	0.34	-0.31	-0.30	0.36	0.19	0.52	-0.35	0.16	-0.09	-0.29	0.10	-0.01	-0.04	-0.08	-0.02
CAZ	-0.57	-0.43	0.10	0.25	-0.02	0.29	0.14	-0.11	-0.20	0.40	0.25	0.15	0.07	0.03	-0.10
CRO	-0.61	-0.41	0.02	0.01	0.33	-0.31	0.20	-0.01	-0.21	-0.17	0.03	0.05	-0.36	-0.10	-0.04
CIP	0.46	-0.22	-0.04	0.59	-0.16	-0.22	0.35	0.24	-0.17	0.00	-0.23	-0.07	0.17	-0.14	-0.05
CLO	-0.53	0.00	-0.45	0.34	-0.16	0.04	0.07	-0.38	0.31	-0.14	-0.23	0.23	-0.01	0.06	-0.06
GEN	-0.52	-0.09	0.22	-0.52	-0.10	0.34	0.23	0.01	-0.26	-0.29	-0.20	0.07	0.19	-0.03	-0.04
MPM	-0.42	-0.37	-0.38	-0.16	-0.26	-0.46	-0.29	0.07	-0.10	-0.14	0.25	0.05	0.23	-0.01	-0.04
SUT	0.58	-0.28	0.13	0.10	-0.51	-0.01	-0.07	-0.31	-0.35	-0.08	-0.02	-0.01	-0.14	0.19	0.13
TET	0.05	-0.11	0.79	0.16	-0.37	-0.03	-0.07	0.07	0.30	-0.18	0.16	0.11	-0.05	-0.10	-0.11
Eigenvalue	3.96	2.03	1.41	1.24	1.07	0.88	0.80	0.74	0.65	0.51	0.49	0.38	0.34	0.28	0.21
% Total variance	26.41	13.56	9.42	8.30	7.14	5.89	5.34	4.96	4.30	3.42	3.24	2.51	2.24	1.89	1.39
Cumulative Eigenvalue	3.96	5.99	7.41	8.65	9.72	10.61	11.41	12.15	12.80	13.31	13.80	14.17	14.51	14.79	15.00
Cumulative %	26.41	39.96	49.38	57.68	64.82	70.70	76.04	81.00	85.31	88.73	91.97	94.48	96.72	98.61	100.00

Table S10. Spearman correlation of the resistance and susceptibility dataset of Gram-positive rod/bacillus and Staphylococcaceae isolated from water and sediment samples from the Meia Ponte River.

	CIP	CLO	GEN	SUT	TET	AZI	CLI	ERI	OXA	LNZ	PEN	RIF
CIP	1.00											
CLO	0.35	1.00										
GEN	0.32	0.16	1.00									
SUT	-0.33	-0.14	-0.26	1.00								
TET	0.34	0.24	0.21	-0.18	1.00							
AZI	-0.38	-0.61	-0.34	0.21	-0.31	1.00						
CLI	-0.12	-0.28	-0.11	0.14	-0.07	0.17	1.00					
ERI	-0.32	-0.66	-0.26	0.28	-0.22	0.57	0.25	1.00				
OXA	-0.35	-0.49	-0.37	0.34	-0.24	0.61	0.27	0.61	1.00			
LNZ	-0.45	-0.61	-0.32	0.21	-0.27	0.61	0.30	0.82	0.72	1.00		
PEN	-0.35	-0.52	-0.41	0.30	-0.27	0.62	0.35	0.71	0.86	0.81	1.00	
RIF	-0.39	-0.62	-0.35	0.18	-0.26	0.72	0.32	0.74	0.67	0.84	0.77	1.00

Values highlighted in red are statistically significant (p-value ≤0.05).).

Table S11. Spearman correlation of the resistance and susceptibility dataset from the resistance and susceptibility dataset of Enterobacteriaceae and Pasteurellaceae isolated from water and sediment samples from the Meia Ponte River.

	AMI	AMC	AMP	ATM	CFZ	CPM	CFO	CAZ	CRO	CIP	CLO	GEN	MPM	SUT	TET
AMI	1.00														
AMC	-0.06	1.00													
AMP	-0.17	0.56	1.00												
ATM	0.28	-0.05	-0.17	1.00											
CFZ	-0.07	0.67	0.68	-0.28	1.00										
CPM	0.32	-0.15	-0.21	0.61	-0.22	1.00									
CFO	-0.07	0.36	0.30	-0.08	0.36	-0.15	1.00								
CAZ	0.31	-0.04	-0.14	0.52	-0.26	0.48	0.00	1.00							
CRO	0.24	-0.04	-0.07	0.56	-0.20	0.47	-0.20	0.44	1.00						

CIP	-0.19	0.22	0.23	-0.15	0.23	-0.33	0.28	-0.16	-0.20	1.00					
CLO	0.35	-0.36	-0.29	0.21	-0.37	0.30	-0.05	0.24	0.24	-0.15	1.00				
GEN	0.42	-0.11	-0.18	0.26	-0.20	0.32	-0.26	0.29	0.36	-0.40	0.08	1.00			
MPM	0.43	-0.08	-0.18	0.25	-0.09	0.42	-0.10	0.24	0.39	-0.21	0.29	0.17	1.00		
SUT	-0.15	0.29	0.33	-0.37	0.44	-0.21	0.25	-0.18	-0.31	0.41	-0.27	-0.20	-0.08	1.00	
TET	-0.03	0.05	0.01	0.20	-0.03	0.11	-0.13	0.07	-0.08	0.14	-0.22	0.00	-0.11	0.25	1.00

Values highlighted in red are statistically significant (p-value ≤ 0.05).

Table S12. Detection of the presence or absence of resistance genes in water and sediment samples from the Meia Ponte River, discrimination of prevalence by period and sample.

Antibiotic Class	Target gene	Rain period				Dry period				Water sample				Sediment sample			
		P (nº)	P (%)	A (nº)	A (%)	P (nº)	P (%)	A (nº)	A (%)	P (nº)	P (%)	A (nº)	A (%)	P (nº)	P (%)	A (nº)	A (%)
β-lactams	*bla*KPC	8	100.00%	0	0.00%	5	62.50%	3	37.50%	5	62.50%	3	37.50%	8	100.00%	0	0.00%
	*bla*CTX-M	0	0.00%	8	100.00%	0	0.00%	8	100.00%	0	0.00%	8	100.00%	0	0.00%	8	100.00%
	*bla*SHV	2	25.00%	6	75.00%	4	50.00%	4	50.00%	3	37.50%	6	75.00%	3	37.50%	5	62.50%
	*bla*OXA	8	100.00%	0	0.00%	4	50.00%	4	50.00%	5	62.50%	3	37.50%	7	87.50%	1	12.50%
	*bla*CMY	8	100.00%	0	0.00%	5	62.50%	3	37.50%	5	62.50%	3	37.50%	8	100.00%	0	0.00%
	*bla*TEM	0	0.00%	8	100.00%	0	0.00%	8	100.00%	0	0.00%	8	100.00%	0	0.00%	8	100.00%
Quinolones	*qnr*A	8	100.00%	0	0.00%	6	75.00%	2	25.00%	6	75.00%	2	25.00%	8	100.00%	0	0.00%
	*qnr*B	7	87.50%	1	12.50%	8	100.00%	0	0.00%	8	100.00%	0	0.00%	7	87.50%	1	12.50%
	*qnr*S	8	100.00%	0	0.00%	4	50.00%	4	50.00%	4	50.00%	4	50.00%	8	100.00%	0	0.00%
Fluoroquinolones	*aac('6)-ib*	8	100.00%	0	0.00%	7	87.50%	1	12.50%	7	87.50%	1	12.50%	8	100.00%	0	0.00%
Sulfonamides	*sul*1	8	100.00%	0	0.00%	7	87.50%	1	12.50%	7	87.50%	1	12.50%	8	100.00%	0	0.00%
	*sul*2	8	100.00%	0	0.00%	8	100.00%	0	0.00%	8	100.00%	0	0.00%	8	100.00%	0	0.00%
	*sul*3	8	100.00%	0	0.00%	5	62.50%	3	37.50%	6	75.00%	2	25.00%	7	87.50%	1	12.50%
Tetracyclines	*tet*(A)	8	100.00%	0	0.00%	6	75.00%	2	25.00%	6	75.00%	2	25.00%	8	100.00%	0	0.00%
	tet(B)	8	100.00%	0	0.00%	4	50.00%	4	50.00%	4	50.00%	4	50.00%	8	100.00%	0	0.00%
	tet(M)	8	100.00%	0	0.00%	5	62.50%	3	37.50%	5	62.50%	3	37.50%	8	100.00%	0	0.00%
	tet(O)	8	100.00%	0	0.00%	5	62.50%	3	37.50%	6	75.00%	2	25.00%	7	87.50%	1	12.50%
Macrolides	*erm*B	8	100.00%	0	0.00%	5	62.50%	3	37.50%	5	62.50%	3	37.50%	8	100.00%	0	0.00%
	*erm*C	8	100.00%	0	0.00%	8	100.00%	0	0.00%	8	100.00%	0	0.00%	8	100.00%	0	0.00%
Integron integrase class I	*IntI1*	7	87.50%	1	12.50%	4	50.00%	4	50.00%	3	37.50%	4	50.00%	8	100.00%	0	0.00%
Amphenicols	*floR*	8	100.00%	0	0.00%	6	75.00%	2	25.00%	6	75.00%	2	25.00%	8	100.00%	0	0.00%
	cfr	8	100.00%	0	0.00%	5	62.50%	3	37.50%	5	62.50%	3	37.50%	8	100.00%	0	0.00%
	cmlA	0	0.00%	8	100.00%	0	0.00%	8	100.00%	0	0.00%	8	100.00%	0	0.00%	8	100.00%
	fexB	0	0.00%	8	100.00%	0	0.00%	8	100.00%	0	0.00%	8	100.00%	0	0.00%	8	100.00%
Total		152	39.58%	40	10.42%	111	28.91%	81	21.09%	112	29.17%	80	20.83%	151	39.32%	41	10.68%

a: denota ausência; p: denota presença. MP__: rio Meia Ponte seguido do número do ponto amostral.

Table S13. Loading matrix showing the main components of the presence and absence of ARGs in the water and sediment samples of the Meia Ponte River.

	PCA 1	PCA 2	PCA 3	PCA 4	PCA 5	PCA 6	PCA 7	PCA 8
*bla*KPC	-0.91	-0.10	0.35	-0.16	0.08	-0.01	0.04	-0.02
*bla*SHV	0.05	0.51	0.38	0.54	-0.05	-0.54	0.06	-0.12
*bla*OXA	-0.80	-0.06	0.43	0.23	-0.28	0.15	0.04	0.06
*bla*CMY	-0.91	-0.10	0.35	-0.16	0.08	-0.01	0.04	-0.02
*qnr*A	-0.69	-0.68	0.21	-0.04	0.06	-0.06	0.01	-0.04
*qnr*B	0.18	-0.04	-0.03	-0.64	-0.69	-0.26	-0.01	-0.01
*qnr*S	-0.97	-0.02	-0.19	-0.06	0.04	-0.01	-0.10	-0.10
aac('6)-ib	-0.53	0.77	0.28	-0.20	0.06	0.07	0.05	0.02
*sul*1	-0.53	0.77	0.28	-0.20	0.06	0.07	0.05	0.02
*sul*3	-0.57	-0.55	0.31	0.38	-0.35	0.12	0.02	0.05
tet(A)	-0.58	-0.25	-0.69	0.11	-0.03	-0.09	0.31	0.04
tet(B)	-0.97	-0.02	-0.19	-0.06	0.04	-0.01	-0.10	-0.10
tet(M)	-0.75	-0.50	-0.38	0.06	0.00	-0.05	-0.14	-0.12
tet(O)	-0.47	0.59	-0.25	0.39	-0.41	0.21	-0.11	0.01
*erm*B	-0.91	-0.10	0.35	-0.16	0.08	-0.01	0.04	-0.02
*Int*I1	-0.85	0.01	-0.16	0.03	0.13	-0.31	-0.25	0.28
*flo*R	-0.58	0.66	-0.45	-0.03	-0.01	0.05	-0.14	-0.08
cfr	-0.82	0.26	-0.41	-0.03	0.01	-0.04	0.30	0.05
MP01 rainy water	1.79	-0.20	-0.10	-0.36	0.46	0.66	0.04	0.11
MP02 rainy water	1.23	0.36	0.19	0.66	0.65	-1.64	-0.64	1.01
MP03 rainy water	1.82	0.35	0.42	0.60	0.37	-0.77	0.25	-0.52
MP04 rainy water	1.79	-0.20	-0.10	-0.36	0.46	0.66	0.04	0.11
MP01 dry water	-6.01	5.35	1.54	-0.81	0.20	0.19	0.11	0.03
MP02 dry water	-4.79	-3.21	1.82	-0.24	0.18	0.13	-1.42	-0.35
MP03 dry water	-6.01	-3.26	-0.26	0.00	0.10	-0.35	1.45	0.27
MP04 dry water	-2.99	0.87	-4.96	0.64	-0.25	0.00	-0.52	-0.19
MP01 rainy sediment	1.79	-0.20	-0.10	-0.36	0.46	0.66	0.04	0.11
MP02 rainy sediment	1.79	-0.20	-0.10	-0.36	0.46	0.66	0.04	0.11
MP03 rainy sediment	1.79	-0.20	-0.10	-0.36	0.46	0.66	0.04	0.11
MP04 rainy sediment	2.02	-0.29	-0.19	-2.69	-2.47	-0.73	-0.02	-0.02
MP01 dry sediment	1.79	-0.20	-0.10	-0.36	0.46	0.66	0.04	0.11
MP02 dry sediment	1.82	0.35	0.42	0.60	0.37	-0.77	0.25	-0.52
MP03 dry sediment	1.82	0.35	0.42	0.60	0.37	-0.77	0.25	-0.52
MP04 dry sediment	0.38	0.32	1.17	2.80	-2.27	0.77	0.03	0.19
Eigenvalue	9.26	3.42	2.16	1.23	0.90	0.56	0.33	0.15
% Total variance	51.42	18.99	11.98	6.85	4.99	3.11	1.85	0.81
Cumulative Eigenvalue	9.26	12.67	14.83	16.06	16.96	17.52	17.85	18.00
Cumulative %	51.42	70.42	82.40	89.24	94.24	97.34	99.19	100.00

Table S14. Spearman correlation of the dataset of the presence and absence of ARGs from water and sediment samples from the Meia Ponte River.

	blaKPC	blaSHV	blaOXA	blaCMY	qnrA	qnrB	qnrS	aac('6)-ib	sul1	sul3	tet(A)	tet(B)	tet(M)	tet(O)	ermB	IntI1	floR	cfr
blaKPC	1.00																	
blaSHV	-0.04	1.00																
blaOXA	0.83	0.15	1.00															
blaCMY	1.00	-0.04	0.83	1.00														
qnrA	0.79	-0.29	0.65	0.79	1.00													
qnrB	-0.12	-0.20	-0.15	-0.12	-0.10	1.00												
qnrS	0.83	-0.15	0.67	0.83	0.65	-0.15	1.00											
aac('6)-ib	0.54	0.33	0.45	0.54	-0.10	-0.07	0.45	1.00										
sul1	0.54	0.33	0.45	0.54	-0.10	-0.07	0.45	1.00	1.00									
sul3	0.59	-0.04	0.83	0.59	0.79	-0.12	0.46	-0.12	-0.12	1.00								
tet(A)	0.30	-0.29	0.22	0.30	0.43	-0.10	0.65	-0.10	-0.10	0.30	1.00							
tet(B)	0.83	-0.15	0.67	0.83	0.65	-0.15	1.00	0.45	0.45	0.46	0.65	1.00						
tet(M)	0.59	-0.37	0.46	0.59	0.79	-0.12	0.83	-0.12	-0.12	0.59	0.79	0.83	1.00					
tet(O)	0.18	0.29	0.46	0.18	-0.18	-0.12	0.46	0.54	0.54	0.18	0.30	0.46	0.18	1.00				
ermB	1.00	-0.04	0.83	1.00	0.79	-0.12	0.83	0.54	0.54	0.59	0.30	0.83	0.59	0.18	1.00			
IntI1	0.71	0.03	0.54	0.71	0.56	-0.17	0.86	0.38	0.38	0.37	0.56	0.86	0.71	0.37	0.71	1.00		
floR	0.30	0.10	0.22	0.30	-0.14	-0.10	0.65	0.68	0.68	-0.18	0.43	0.65	0.30	0.79	0.30	0.56	1.00	
cfr	0.59	-0.04	0.46	0.59	0.30	-0.12	0.83	0.54	0.54	0.18	0.79	0.83	0.59	0.59	0.59	0.71	0.79	1.00

Values highlighted in red are statistically significant (p-value ≤0.05).
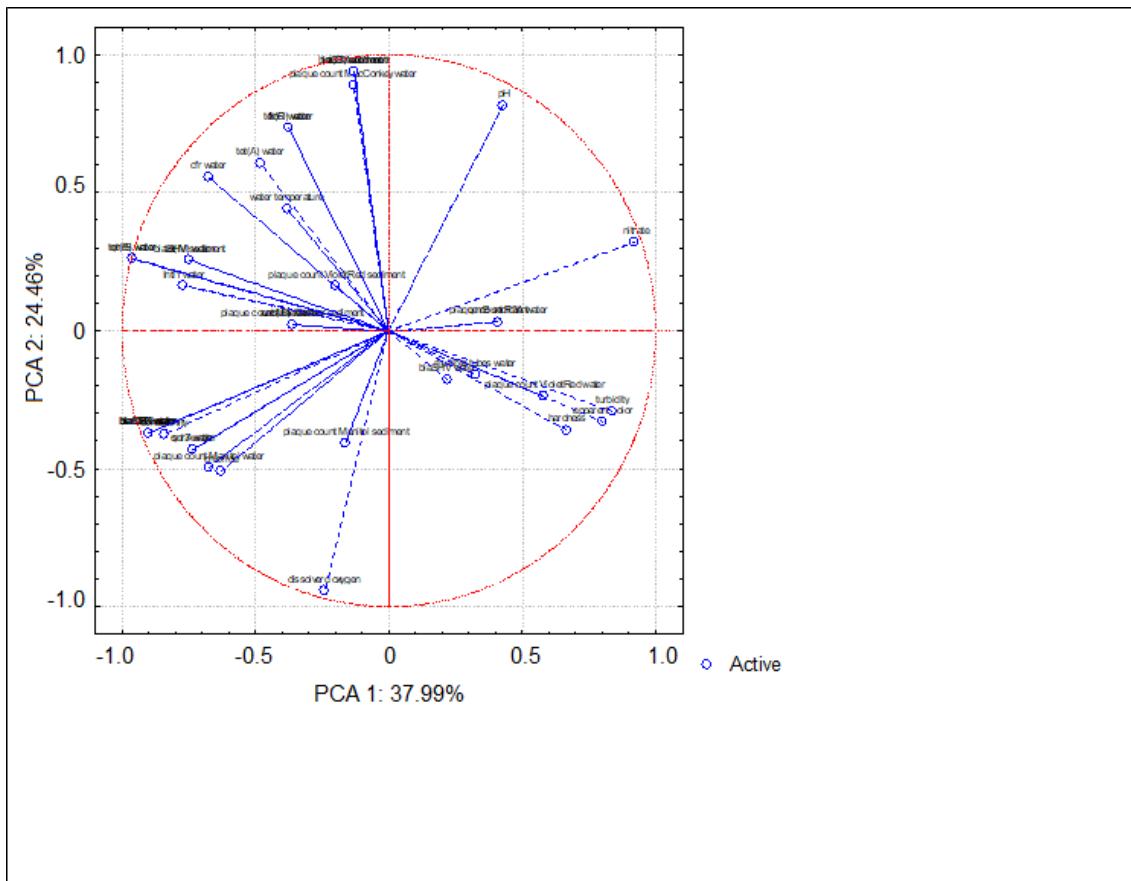
Figure S2. PCA of physicochemical, microbiological parameters and presence and absence of ARGs.

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