

1 **Supplemental material**

2

3 **Table S1-** Oligonucleotides used in this study

Target gene	Reaction	Oligonucleotide	Sequence (5'-3')	Amplimer (bp)	Ref.
<i>bla</i> _{TEM}	TEM PCR	UP LP	CTCACCCAGAAACGCTGGTG ATCCGCCTCCATCCAGTCTA	569	1
	TEM qPCR	UP LP TaqMan TEM Probe	CACTATTCTCAGAATGACTTGGT TGCATAATTCTCTTACTGTCATG FAM-CCAGTCACAGAAAAGCATCTTACGG-MGBNFQ	85	2
<i>bla</i> _{CTX-M-1}	CTX-M-1 PCR	UP LP	ACGTTAAACACCGCCATTCC TCGGTGACGATTTTAGCCCGC	356	1
	CTX-M-1 qPCR	UP CTX-M LP CTX-M TaqMan CTX-M Probe	ACCAACGATATCGCGGTGAT ACATCGCGACGGCTTTCT FAM-TCGTGCGCCGCTG- MGBNFQ	101	1
<i>mecA</i>	<i>mecA</i> PCR	UP LP	ATACTTAGTTCTTTAGCGAT GATAGCAGTTATATTTCTA	434	1
	<i>mecA</i> qPCR	UP LP	CGCAACGTTCAATTTAATTTTGTTAA TGGTCTTTCTGCATTCTGGA	92	3
<i>qnrA</i>	<i>qnrA</i> PCR	TaqMan <i>mecA</i> 1FAM probe UP LP	FAM-AATGACGCTATGATCCCAATCTAACTTCCACA-TAMRA ACGCCAGGATTTGAGTGAC CCAGGCACAGATCTTGAC	565	4
	<i>qnrA</i> qPCR	UP _{<i>qnrA</i>} LP _{<i>qnrA</i>} TaqMan _{<i>qnrA</i>} probe	AGGATTGCAGTTTCATTGAAAGC TGAACTCTATGCCAAAGCAGTTG FAM-TATGCCGATCTGCGCGA- MGBNFQ	138	This study
<i>qnrS</i>	<i>qnrS</i> PCR	UP LP	TTAAGTCTGACTCTTTTCAGTGATG CAAGCGGTGAAGGTGAGATCACTT	425	This study
	<i>qnrS</i> qPCR	UP _{<i>qnrS</i>} LP _{<i>qnrS</i>} TaqMan _{<i>qnrS</i>} probe	CGACGTGCTAACTTGCCTGA GGCATTGTTGGAAACTTGCA FAM-AGTTCATTGAACAGGGTGA-MGBNFQ	118	This study
<i>armA</i>	<i>armA</i> qPCR	UP _{<i>armA</i>} LP _{<i>armA</i>} TaqMan _{<i>armA</i>} probe	GAAAGAGTCGCAACATTAATGACTT GATTGAAGCCACAACCAAATCT FAM-TCAAACATGTCTCATCTATT-MGBNFQ	93	This study
pGEM	PCR	pGEM7up	TGTAATACGACTCACTAT		Promega
16S rDNA	PCR	UP	AAGAGTTTGATCCTGGCTCAG	1503	5
Eubacteria		LP	TACGGCTACCTTGTTACGACTT		

4 PCR: conventional PCR. qPCR: quantitative real time PCR. UP:upper primer, LP: lower primer

Supplementary references

1. **Colomer-Lluch M, Jofre J, Muniesa M.** 2011. Antibiotic resistance genes in the bacteriophage DNA fraction of environmental samples. *PLoS One.* **6**:e17549.
2. **Lachmayr KL, Kerkhof LJ, Dirienzo AG, Cavanaugh CM, Ford TE.** 2009. Quantifying nonspecific TEM beta-lactamase *bla*_{TEM} genes in a wastewater stream. *Appl. Environ. Microbiol.* **75**:203-211.
3. **Volkman H, Schwartz T, Bischoff P, Kirchen S, Obst U.** 2004. Detection of clinically relevant antibiotic-resistance genes in municipal wastewater using real-time PCR TaqMan. *J. Microbiol. Meth.* **56**:277-286.
4. **Lavilla S, González-López JJ, Sabaté M, García-Fernández A, Larrosa MN, Bartolomé RM, Carattoli A, Prats G.** 2008. Prevalence of *qnr* genes among extended-spectrum beta-lactamase-producing enterobacterial isolates in Barcelona, Spain. *J. Antimicrob. Chemother.* **61**: 291-295.
5. **Sander M, Schmieger H.** 2001. Method for host-independent detection of generalized transducing bacteriophages in natural habitats. *Appl. Environ. Microbiol.* **67**:1490-1493.