Supplementary Information

Portable and point-of-care molecular detection of pathogenic *Vibrio parahaemolyticus* in shrimp

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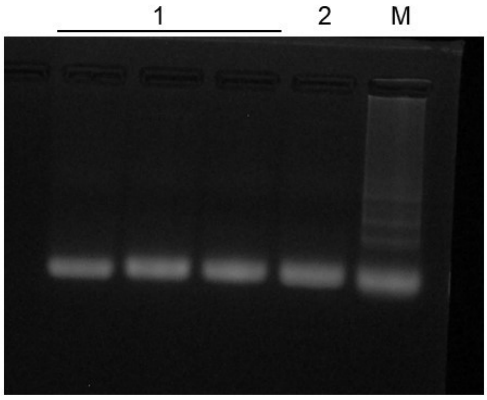
Table S1. Primer set used for LAMP assay detecting *pir*A gene

Bacteria	Gene	Primer name	Sequence	Length (bp)	5'pos	3'pos
V. parahaemolyticus	*pir*A	F3	CGTCACAGAAGTAGACAGC	19	113	131
		B3	CGTTGTAAATGGTAAGTTTCATCA	24	275	298
		FIP	CCACGTCCCGTATTCTCAATGT-AAACATACACCTATCATCCCG	43		
		BIP	GGAGCTTACCATTCAATACCAATG G-TTGTACCACATGTGATTTAGC	46		
		LB	GGTGCGCCATTTATGGCTGG	20	219	238

Optimization of LAMP condition for *pir*A primer set



M: ladder, 1: Reaction performed at 60 ^{o}C, 2: Negative control.

Fig. S1. Agarose gel electrophoresis result of LAMP assay obtained using *pir*A primer set at different temperatures.

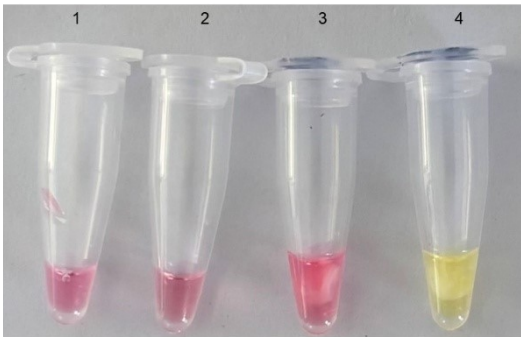


Fig. S2. Colorimetric results. 1, 2: No FTA card added. 3. FTA card not containing template was added. 4. FTA card containing template was added.

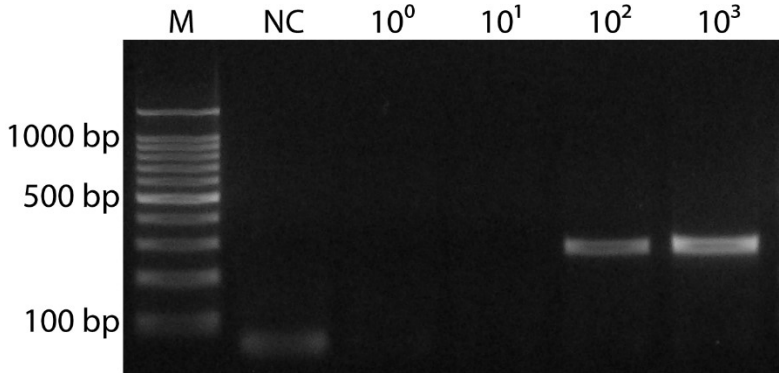
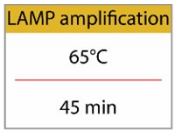
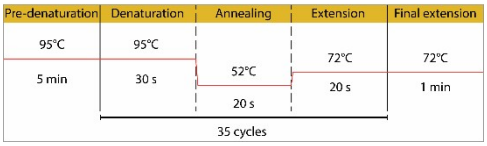
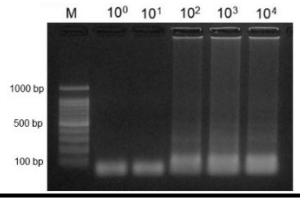
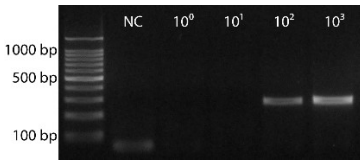
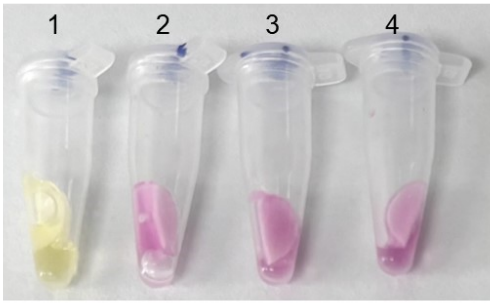


Fig. S3. Result of gel electrophoresis showing LOD of *V. parahaemolyticus*-causing AHPND on FTA card with conventional PCR amplification. NC: negative control.

Table S2. Comparison showing the LODs of *V. parahaemolyticus*-causing AHPND when LAMP and PCR were performed using templates serially diluted from 10^0 to 10^3

Criteria	LOD of LAMP amplification	LOD of PCR amplification
Definition	The lowest concentration of the genetic material which can be consistently detected in the serial dilution with the studied amplification	
Target genes	*V. parahaemolyticus*-causing AHPND dropped on the FTA card	
Polymerase	*Bst* polymerase	*Taq* polymerase
Running condition		
Validation levels	10^2 CFU/ml of *V. parahaemolyticus*-causing AHPND	
Gel electrophoresis		



1: *Vibrio parahaemolyticus*
2: *Vibrio alginolyticus*
3: *Vibrio harveyi*
4: *Vibrio vulnificus*

Fig. S4. LAMP assay performed for specificity test determining *V. parahaemolyticus*-causing AHPND. All experiments were repeated three times.

Table S3. Raw G values corresponding to the data presented in Figure 3b

	G value	
	50 µL	100 µL
Replication 1	174.272	218.649
Replication 2	170.212	210.953
Replication 3	162.79	218.091
Negative control	164.396	178.977

Table S4. Raw G values corresponding to the data presented in Figure 4b

V. harveyi	*V. parahaemolyticus*
177.048	214.201
198.668	206.528
202.991	208.368

Table S5. Raw G-values corresponding to the data presented in Figure 7d

Non-spiked shrimp	Spiked shrimp
191.147	210.923
179.708	216.106
179.041	214.887