SUPPLEMENTARY MATERIAL

A biphasic accelerated strand exchange amplification strategy for culture-independent and rapid detection of *Salmonella enterica* in food samples

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Table S1 Sequences information used in this work

Method	Name	Sequence (5'-3')
ASEA	*Salmonella enterica* strain *fimY* gene ([a]CP051213.1 [b]3426259-3426297)	CGCTTAACCAGCTACGCG**C**GCTCAGTT GGCAACAAAGC
	F1	CGCTTAACCAGCTACGCG
	R1	GCTTTGTTGCCAACTGAGC
[c] Real-time PCR	F2	TCGCACCGTCAAAGGAACCGTAAAGC
	R2	GCATTATCGATCAGTACCAGCCGTCT

[a] GenBank accession number. [b] The position of the specific sequence in the *fimY* gene. The underlined portion is the same sequence as that of primer F1. The sequence complementary to primer R1 is shown in bold. [c] The primers of real-time PCR were designed according to Chinese national standard (GB/T 28642-2012).

Table S2 The performance of the biphasic ASEA method compared with other bacteria detection methods

Detection method	**Detection limit (CFU/mL)**	**Assay time (min)**	**Reference**
DNA aptamer-enzyme-linked colorimetric method	$<10^3$	30-40	1
LAMP-lateral flow dipstick	3×10^2	90	2
Biacore surface plasmon resonance (SPR)-based biosensor method	23	<60	3
Immunosensing method	10	30	4
Photosensitization colorimetric method	13 (*Salmonella* in pure culture)	65	5
Fluorescent lateral flow immunoassay method	50 cells/mL	15	6
Biphasic ASEA method	50 (*Salmonella* in milk sample)	50	This work

Table S3 Biphasic ASEA and gold standard culture-based methods for detection of *S. enterica* in 82 food samples

Kind of samples*	Samples number*	Detection results	
		Biphasic ASEA (this study)	**Culture-based method**
Milk	1-9	□	□
	10-14	□	□
	15-19	□	□
Scallop	20-23	□	□
	24-30	□	□
	31	□	□
Oyster	32-36	□	□
	37-39	□	□
	40	□	□
Duck	41-43	□	□
	44-47	□	□
	48	□	□
	49-55	□	□
Lettuce	56-58	□	□
	59-61	□	□
	62-66	□	□
	67	□	□
Cucumber	68	□	□
	69-70	□	□
	71-77	□	□
	78	-	□
	79-82	□	□

*The 82 samples included 19 of milk, 12 of scallop, 12 of oyster, 15 of duck, 10 of lettuce, and 14 of cucumber.

□represented that *S. enterica* was detected as positive;□represented that *S. enterica* was detected as negative.

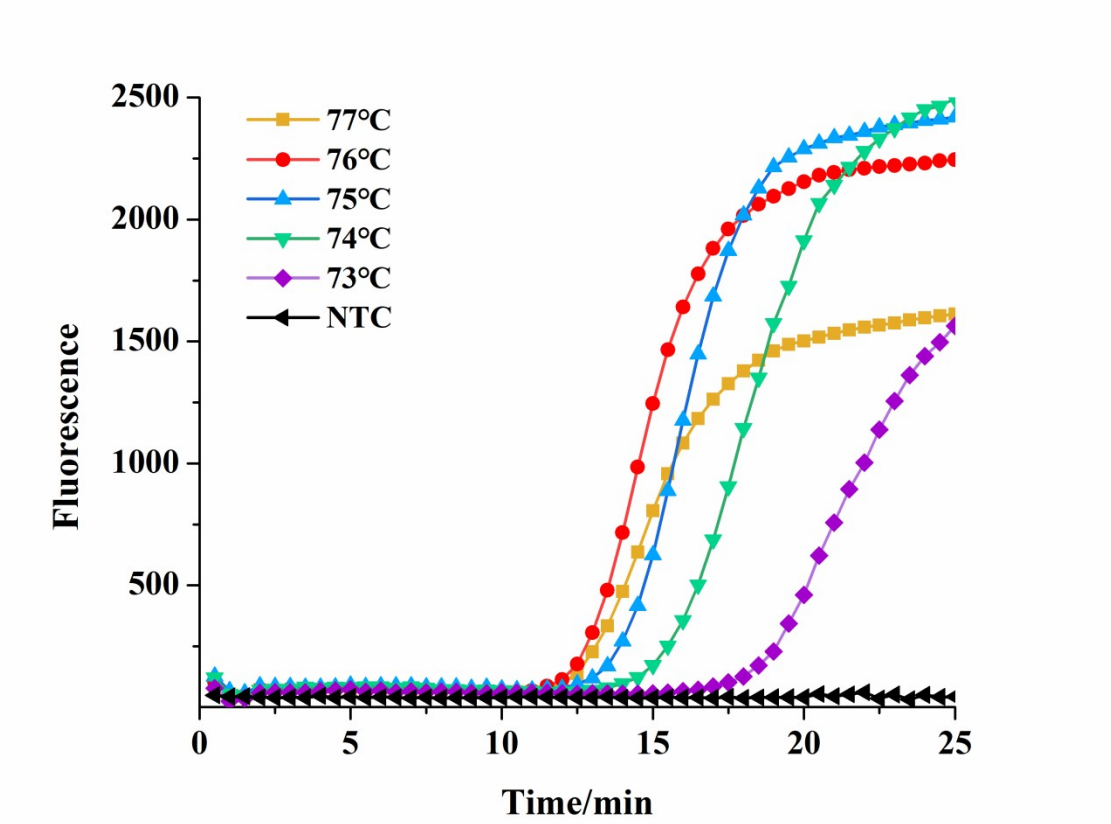

Fig. S1 Real-time fluorescence curves of biphasic ASEA reaction with serial initial Td values from 73 to 77°C. Non-targeted control (NTC) was conducted with DNase-free water as the target.

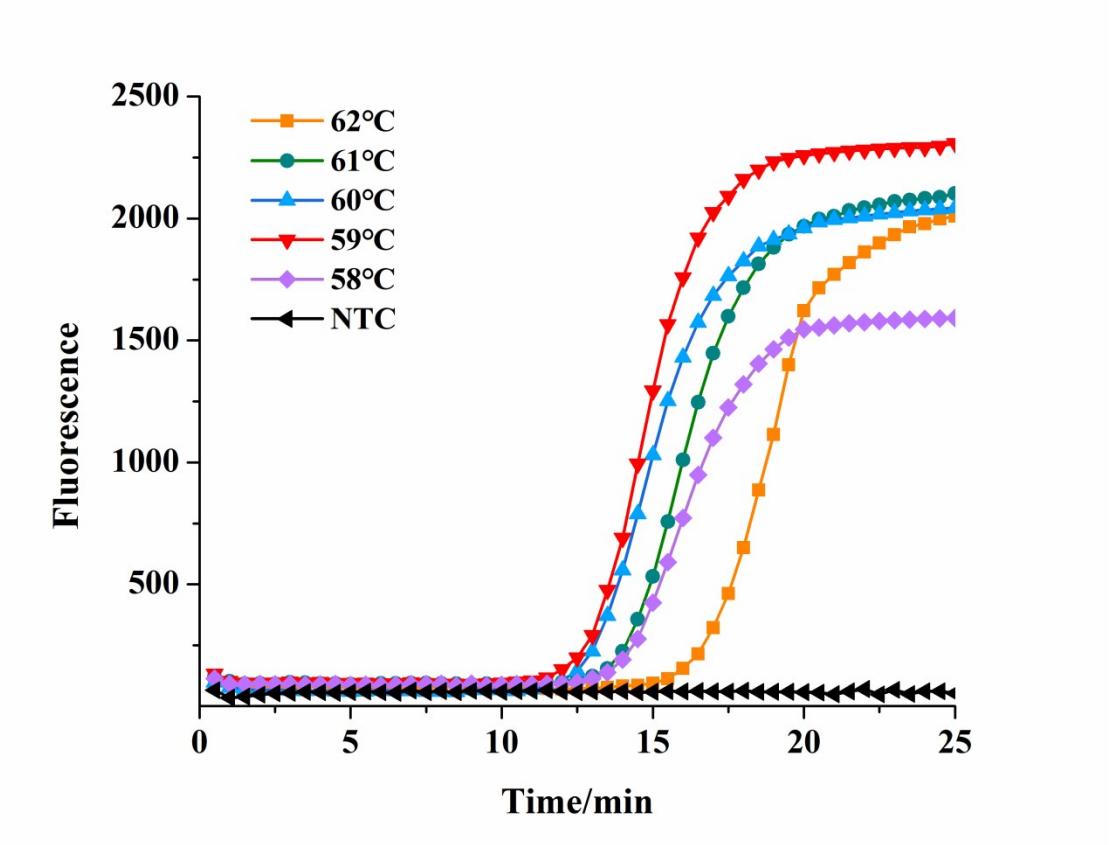

Fig. S2 Real-time fluorescence curves of biphasic ASEA reaction with serial Tr values from 58 to 62°C. NTC was conducted with DNase-free water as the target.

References

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