

**(LAMP) for the rapid detection of nosocomial pathogens on environmental surfaces.**

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The formulas used for statistical analysis are provided below:

- Sensitivity (Se) = TP/TP+FN
- Specificity (Sp) = TN/TN+FP
- Accuracy (Acc) = TP+TN/TP+TN+FP+FN
- Positive Predictive Value (PPV) = TP/TP+FP
- Negative Predictive Value (NPV) = TN/TN+FN
- F1-score (F1) = 2·(Precision·Recall)/(Precision+Recall)
- Balanced Accuracy (Bal Acc) = (Sensitivity+Specificity)/2

**Table S1.** Number of CFU/plate for *P. aeruginosa* (ATCC 10145), *S. aureus* (ATCC 23235), and *E. faecalis* (ATCC 29212) 10-fold diluted bacterial suspensions.

Pathogen concentration (CFU/mL)										
		1.5x10 <sup>8</sup>	1.5x10 <sup>7</sup>	1.5x10 <sup>6</sup>	1.5x10 <sup>5</sup>	1.5x10 <sup>4</sup>	1.5x10 <sup>3</sup>	1.5x10 <sup>2</sup>	1.5x10 <sup>1</sup>	Negative control
CFU/plate (mean±sd)	<i>P. aeruginosa</i>	>100	>100	>100	>100	>100	136.33±9.55	14.33±2.52	0.67±0.58	0.00±0.00
	<i>S. aureus</i>	>100	>100	>100	>100	>100	109.67±5.96	11.00±2.00	1.67±0.58	0.00±0.00
	<i>E. faecalis</i>	>100	>100	>100	>100	>100	103.67±7.37	9.00±1.00	0.67±0.58	0.00±0.00

**Table S2.** Comparison of cultural results obtained by using TSA contact plates and swabs as different sampling methods for *P. aeruginosa* (ATCC 10145), *S. aureus* (ATCC 23235), and *E. faecalis* (ATCC 29212).

Applied pathogen concentration (CFU/mL)											
	Sampling method	1.5x10 <sup>8</sup>	1.5x10 <sup>7</sup>	1.5x10 <sup>6</sup>	1.5x10 <sup>5</sup>	1.5x10 <sup>4</sup>	1.5x10 <sup>3</sup>	1.5x10 <sup>2</sup>	1.5x10 <sup>1</sup>	Negative control	p-value
<i>P. aeruginosa</i> (CFU/cm <sup>2</sup> )	Contact plate	>4.17	>4.17	>4.17	>4.17	4.49±0.61	0.40±0.09	0.04±0.00	0.00±0.00	0.00±0.00	0.72
	Swab	>4.17	>4.17	>4.17	>4.17	3.89±0.24	0.42±0.00	0.14±0.24	0.00±0.00	0.00±0.00	
<i>S. aureus</i> (CFU/cm <sup>2</sup> )	Contact plate	>4.17	>4.17	>4.17	>4.17	>4.17	4.00±0.40	0.71±0.08	0.17±0.04	0.00±0.00	0.10
	Swab	>4.17	>4.17	>4.17	>4.17	>4.17	4.58±0.83	0.83±0.42	0.28±0.24	0.00±0.00	
<i>E. faecalis</i> (CFU/cm <sup>2</sup> )	Contact plate	>4.17	>4.17	>4.17	>4.17	4.01±0.24	0.67±0.13	0.13±0.04	0.00±0.00	0.00±0.00	0.64
	Swab	>4.17	>4.17	>4.17	>4.17	4.17±1.10	0.83±0.42	0.28±0.24	0.00±0.00	0.00±0.00	

Note: the value >4.17 CFU/cm<sup>2</sup> indicates counts exceeding 100 CFU, normalized to a 24 cm<sup>2</sup> test surface

**Table S3.** Performance metrics of LAMP detection kits at the different incubation times. Sensitivity (Se), specificity (Sp), accuracy (Acc), positive predictive value (PPV), negative predictive value (NPV), precision (Pre), F1-score (F1), and balanced accuracy (Bal Acc).

LAMP detection kit		Se	Sp	Acc	PPV	NPV	Pre	F1	Bal Acc
<i>P. aeruginosa</i>	3h	0.71	1.00	0.78	1.00	0.50	1.00	0.83	0.86
	6h	0.86	1.00	0.89	1.00	0.67	1.00	0.92	0.93
	9h	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
<i>S. aureus</i>	3h	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
	6h	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
	9h	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
<i>Enterococcus</i> spp.	3h	0.57	1.00	0.67	1.00	0.40	1.00	0.73	0.79
	6h	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
	9h	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

