Electronic Supplementary Material (ESI) for JAAS.
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SUPPLEMENTARY INFORMATION

ICP-MS: A tool for detection and quantitation of fosfomycin residues in cleaning samples of finished product by estimation of phosphorus load

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1) Equation S1 : Accuracy/precision stock solution preparation

$$Accuracy\ stock\ solution\ (43.624\ \mu g/mL\ of\ phosphorus) = \frac{37.06}{100} \times \frac{30.974}{259.19} \times \frac{98.50}{100} \times 1000$$

..... (1)

Where,

30.974 = Molecular weight of phosphorus
259.19 = Molecular weight of fosfomycin tromethamine salt
98.5 = Potency of fosfomycin tromethamine salt

2) Equation S2: Calculation for critical limit level concentration (CLLC) of phosphorus

$$Limit\ of\ fosfomycin\ (\mu g/mL) = \frac{MACO\ value\ (5\ \mu g/Inch^2)}{Swab\ sample\ volume\ (10\ mL)} \times Swab\ surface\ area\ (4\ Inch^2)$$

..... (2a)

$$Subsequent\ limit\ of\ P\ (ng/mL) = Fosfomycin\ limit\ (2\ \mu g/mL) \times \frac{30.974}{138.06} \times 1000$$

..... (2b)

$$Residue\ of\ Fosfomycin\left(\frac{\mu g}{Inch^2}\right) = \frac{(CT - CSB)}{1000} \times \frac{138.06}{30.974} \times \frac{10}{SA}$$

..... (2c)

Where,

CT = Concentration of phosphorus element in sample solution (ng/mL)
CSB = Concentration of phosphorus element in swab blank solution (ng/mL)
138.06 = Molecular weight of fosfomycin
30.974 = Molecular weight of phosphorus
10 = Swab sample volume (mL)
SA = Surface area as per cleaning method validation (4 Inch²)

3) Linearity and Range:

Table S1. Linearity data for concentration of phosphorus

Level	Linearity stock Solution (mL)	Internal standard solution (mL)	Volume made with diluent-2 (mL)	Concentration of phosphorus (ng/mL)
10%	0.1	1	50	44.92
25%	0.25	1	50	112.3
50%	0.5	1	50	224.6
100%	1.0	1	50	449.2
150%	1.5	1	50	673.8
200%	2.0	1	50	898.4

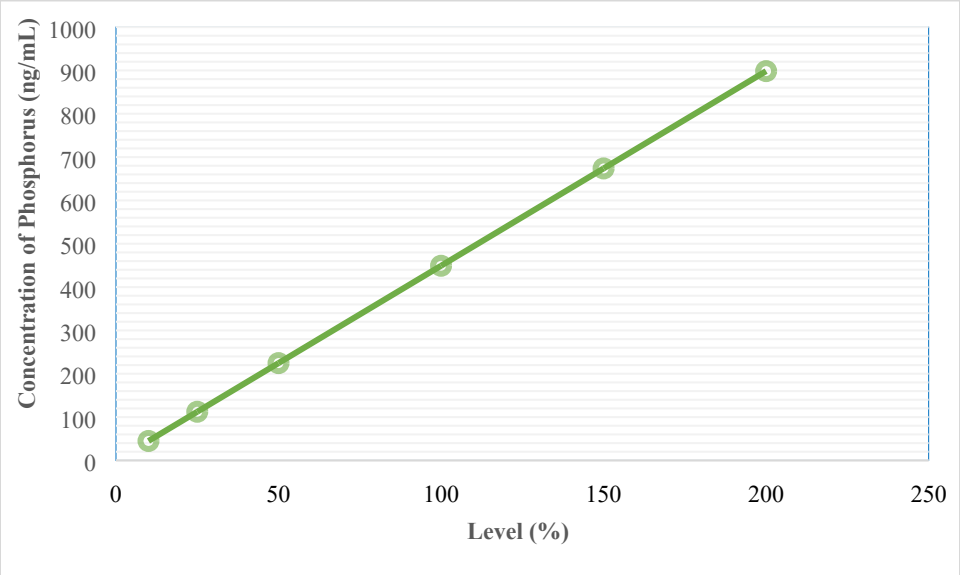

Figure S1. Linearity graph for developed method

4) Equation S3: Calculation of % drift and % bias

$$\%\ \text{Bias} = \text{ABS}\left|\frac{[\text{Standard conc. of standard solution (150\%) in ng/mL}] - [\text{Obtained conc. of standard solution (150\%) of drift check in ng/mL}]}{[\text{Standard conc. of standard solution (150\%) in ng/mL}]}\right| \times 100 \quad \ldots\ldots\ldots\ldots\ldots \text{(3a)}$$

$$\%\ \text{Drift} = \text{ABS}\left|\frac{[\text{Standard solution (150\%) before sample solution aspiration (ng/mL)}] - [\text{Standard solution (150\%) after sample solution aspiration (ng/mL)}]}{[\text{Standard solution (150\%) before sample solution aspiration (ng/mL)}]}\right| \times 100 \quad \ldots\ldots\ldots\ldots\ldots \text{(3b)}$$

Where, ABS represents to absolute

5) Table S2: Results of swab sample analysis of Fosfomycin

Sr. No.	Swab Sample Name	Result (µg/Inch^2 of Fosfomycin)
1	Equipment-1@, Location-A	Below LOD*
2	Equipment-1@, Location-B	Below LOD*
3	Equipment-1@, Location-C	Below LOD*
4	Equipment-2@, Location-A	Below LOD*
5	Equipment-2@, Location-B	Below LOD*
6	Equipment-2@, Location-C	Below LOD*
7	Equipment-2@, Location-D	Below LOD*
8	Equipment-3@, Location-A	Below LOD*
9	Equipment-3@, Location-B	Below LOD*
10	Equipment-3@, Location-C	Below LOD*
11	Equipment-3@, Location-D	Below LOD*

*LOD (Limit of detection) value: 0.25 µg/Inch^2

@Actual equipment Id has been coded.