



CERTIFICATION

AOAC Research Institute *Performance Tested Methods*SM

Certificate No.
102002

The AOAC Research Institute hereby certifies the method known as:

One Broth One Plate for *Salmonella* (OBOP *Salmonella*)

manufactured by

Neogen Corporation
620 Leshar Place
Lansing, MI 48912
USA

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A handwritten signature in black ink, appearing to read "Bradley A. Stawick".

Bradley A. Stawick, Senior Director
Signature for AOAC Research Institute

Issue Date
Expiration Date

December 05, 2024
December 31, 2026

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METHOD NAM One Broth One Plate for <i>Salmonella</i> (OBOP <i>Salmonella</i>)	CATALOG NUMBER NCM4000-10
INDEPENDENT LABORATORY Q Laboratories, Inc. 1930 Radcliff Drive Cincinnati, OH 45204 USA	APPLICABILITY OF METHOD Target Organism(s) – <i>Salmonella enterica</i> and <i>Salmonella bongori</i> Matrixes – FDA BAM CH 5: Queso fresco (25 g), smoked salmon (25 g), cantaloupe (25 g), dry pet food (25 g and 375 g), chocolate (25 g and 325 g), black pepper (25 g), chili powder (25 g), sponge samples from stainless steel surfaces (4 in x 4 in). MLG CH 4.10: raw ground turkey (25 g), chicken carcass rinse (whole carcass), pasteurized liquid egg (100 g) Performance claims – No statistically significant differences in performance between the One Broth One Plate for <i>Salmonella</i> method and the following reference methods: U.S. Food and Drug Administration <i>Bacteriological Analytical Manual</i> (BAM), Chapter 5 (2), <i>Salmonella</i> ; U.S. Department of Agriculture Food Safety and Inspection Service <i>Microbiology Laboratory Guidebook</i> (USDA/MLG), Chapter 4.10, Isolation and Identification of <i>Salmonella</i> from Meat, Poultry, Pasteurized Egg, and Siluriformes (Fish) Products and Carcass and Environmental Sponges (3).
ORIGINAL CERTIFICATION DATE October 14, 2020	CERTIFICATION RENEWAL RECORD Renewed annually through December 2025.
METHOD MODIFICATION RECORD 1. December 2021 Level 1	SUMMARY OF MODIFICATION 1. Editorial changes.
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PRINCIPLE OF THE METHOD (1)

One Broth One Plate for *Salmonella* (OBOP *Salmonella*) is a rapid and simple method based on traditional culture methodology. Samples are enriched in buffered peptone water (BPW) containing a *Salmonella* selective supplement for 18 ± 2 h at $41.5 \pm 1^\circ\text{C}$. After incubation, a 10 μL aliquot is streaked to CASE agar and incubated for 24 ± 3 h at $37 \pm 2^\circ\text{C}$. CASE agar uses a dual chromogenic system to differentiate *Salmonella* spp. from non-salmonellae. One chromogen is a target for esterase activity common to *Salmonella* spp., resulting in blue-green colonies. The second chromogen is a target for β -glucosidase activity present in some non-target organisms. Non-target organisms that are able to grow and that also possess esterase activity will form black colonies on CASE agar due to the β -glucosidase activity, masking the blue-green color formed by esterase activity. Other non-target organisms are either inhibited or form colorless colonies. Non-motile salmonellae (e.g., *Salmonella enterica* ser. Pullorum and *Salmonella enterica* ser. Gallinarum), monophasic variants (e.g., *S. enterica* I 4,[5],12:i:-), strains with weak esterase activity (e.g., *Salmonella enterica* ser. Dublin), lactose-positive strains (e.g., *Salmonella enterica* subsp. *arizonae*), and serovars of *Salmonella bongori* are all detectable on CASE agar.

DISCUSSION OF THE VALIDATION STUDY (1)

Results of the validation study demonstrate that the One Broth One Plate for *Salmonella* method is an effective procedure for detection of *Salmonella* spp. in select food and environmental samples. Sensitivity is equivalent to that of the FDA/BAM and USDA/MLG reference culture methods as determined by probability of detection analysis. Overall, in 15 trials with 10 foods and one environmental surface, there were 229 positive results (all confirmed) by the OBOP *Salmonella* method vs. 231 positive results by the reference culture procedures. Specificity of the OBOP *Salmonella* method was 100%; there were no false-positive results. Inclusivity and exclusivity were both 100%. Results of robustness testing showed that the method can withstand modest perturbations to multiple operating parameters simultaneously and still produce accurate results. The OBOP *Salmonella* method requires only traditional culture media. No diagnostic test kits or specialized equipment are needed. The method is simple to perform and provides results in as little as 37 h.

Table 1. Inclusivity Testing Results for the OBOP *Salmonella* Method (1)

Species and subspecies	Serovar Name	O group or Antigenic Formula	Source and Strain No.	Origin	OBOP <i>Salmonella</i> Result
<i>S. enterica</i> subsp. <i>arizonae</i>		51	ATCC ^c 13314	Not Available	Positive
<i>S. enterica</i> subsp. <i>arizonae</i>			ATCC BAA-1577	Not Available	Positive
<i>S. enterica</i> subsp. <i>diarizonae</i>			ATCC BAA-639	Human feces	Positive
<i>S. enterica</i> subsp. <i>diarizonae</i>		O	ATCC BAA-216	Human blood	Positive
<i>S. enterica</i> subsp. <i>houtenae</i>	Halmstad	3,15;g,s,t:-	QL ^b 024.1	Clinical isolate	Positive
<i>S. enterica</i> subsp. <i>houtenae</i>	Harmelen	51	ATCC 15783	Boa constrictor	Positive
<i>S. enterica</i> subsp. <i>houtenae</i>	Ochsenzoll	I	ATCC 29932	Not Available	Positive
<i>S. enterica</i> subsp. <i>indica</i>	Ferlac	H	ATCC 43976	Not Available	Positive
<i>S. enterica</i> subsp. <i>indica</i>	Ferlac	H	NCTC ^c 10458	Ceylonese desiccated coconut	Positive
<i>S. enterica</i> subsp. <i>indica</i>		W	ATCC BAA-1578	India	Positive
<i>S. enterica</i> subsp. <i>salamae</i>	Artis	56	ATCC 700149	Not Available	Positive
<i>S. enterica</i> subsp. <i>salamae</i>	Basel	58	ATCC 700151	Not Available	Positive
<i>S. enterica</i> subsp. <i>enterica</i>	Abaetetuba	F	ATCC 35640	Creek water	Positive
<i>S. enterica</i> subsp. <i>enterica</i>	Abortusequi	B	FDA ^d 9842	Not Available	Positive
<i>S. enterica</i> subsp. <i>enterica</i>	Abortusovis	B	NCTC 10241	Not Available	Positive
<i>S. enterica</i> subsp. <i>enterica</i>	Abony	B	NCTC 6017	Not Available	Positive
<i>S. enterica</i> subsp. <i>enterica</i>	Adelaide	O	UPenn ^e STS 2	Not Available	Positive
<i>S. enterica</i> subsp. <i>enterica</i>	Agona	B	ATCC 51957	Not Available	Positive
<i>S. enterica</i> subsp. <i>enterica</i>	Agama	B	UPenn STS 3	Not Available	Positive
<i>S. enterica</i> subsp. <i>enterica</i>	Agoueve	G	UPenn STS 5	Not Available	Positive
<i>S. enterica</i> subsp. <i>enterica</i>	Alachua	O	UPenn STS 6	Not Available	Positive
<i>S. enterica</i> subsp. <i>enterica</i>	Albany	C ₂	UPenn STS 7	Not Available	Positive
<i>S. enterica</i> subsp. <i>enterica</i>	Anatum	E ₁	ATCC 9270	Pork liver	Positive
<i>S. enterica</i> subsp. <i>enterica</i>	Arkansas	E ₃	UPenn STS 11	Not Available	Positive
<i>S. enterica</i> subsp. <i>enterica</i>	Bareilly	C ₁	FDA 1206H	Not Available	Positive
<i>S. enterica</i> subsp. <i>enterica</i>	Berta	D ₁	UPenn STS 13	Not Available	Positive
<i>S. enterica</i> subsp. <i>enterica</i>	Binza	E ₂	UPenn STS 14	Not Available	Positive
<i>S. enterica</i> subsp. <i>enterica</i>	Bovismorbificans	C ₂	UPenn STS 16	Not Available	Positive
<i>S. enterica</i> subsp. <i>enterica</i>	Brandenburg	B	UPenn STS 18	Not Available	Positive
<i>S. enterica</i> subsp. <i>enterica</i>	Bredeney	B	NCTC 5731	Not Available	Positive
<i>S. enterica</i> subsp. <i>enterica</i>	California	B	NCTC 6018	Not Available	Positive
<i>S. enterica</i> subsp. <i>enterica</i>	Cerro	K	UPenn STS 22	Not Available	Positive
<i>S. enterica</i> subsp. <i>enterica</i>	Choleraesuis	C ₁	ATCC 10708	Equine isolate	Positive
<i>S. enterica</i> subsp. <i>enterica</i>	Choleraesuis var Kunzendorf	C ₁	ATCC 12011	Not Available	Positive
<i>S. enterica</i> subsp. <i>enterica</i>	Cubana	G	UPenn STS 24	Not Available	Positive
<i>S. enterica</i> subsp. <i>enterica</i>	Derby	B	NCTC 5721	Not Available	Positive
<i>S. enterica</i> subsp. <i>enterica</i>	Drypool	E ₁	UPenn STS 26	Not Available	Positive
<i>S. enterica</i> subsp. <i>enterica</i>	Dublin	D ₁	UPenn STS 27	Not Available	Positive
<i>S. enterica</i> subsp. <i>enterica</i>	Eastbourne	D ₁	FDA 4017H	Not Available	Positive
<i>S. enterica</i> subsp. <i>enterica</i>	Enteritidis	D ₁	ATCC 13076	Not Available	Positive
<i>S. enterica</i> subsp. <i>enterica</i>	Galiema	C ₁	QL024.2	Environmental isolate	Positive
<i>S. enterica</i> subsp. <i>enterica</i>	Give	E ₁	UPenn STS 42	Not Available	Positive
<i>S. enterica</i> subsp. <i>enterica</i>	Haardt	C ₂	UPenn STS 44	Not Available	Positive
<i>S. enterica</i> subsp. <i>enterica</i>	Hadar	C ₂	ATCC 51956	Not Available	Positive
<i>S. enterica</i> subsp. <i>enterica</i>	Havana	G	UPenn STS 47	Not Available	Positive
<i>S. enterica</i> subsp. <i>enterica</i>	Heidelberg	B	ATCC 8326	Not Available	Positive
<i>S. enterica</i> subsp. <i>enterica</i>	Illinois	E ₃	ATCC 11646	Not Available	Positive
<i>S. enterica</i> subsp. <i>enterica</i>	Indiana	B	NCTC 11304	Turkey	Positive
<i>S. enterica</i> subsp. <i>enterica</i>	Infantis	C ₁	ATCC 51741	Pasta	Positive
<i>S. enterica</i> subsp. <i>enterica</i>	Javiana	D ₁	ATCC 10721	Not Available	Positive
<i>S. enterica</i> subsp. <i>enterica</i>	Jerusalem	C ₁	QL024.12	Pet food	Positive
<i>S. enterica</i> subsp. <i>enterica</i>	Johannesburg	R	UPenn STS 56	Not Available	Positive
<i>S. enterica</i> subsp. <i>enterica</i>	Kahla	T	ATCC 17980	Not Available	Positive
<i>S. enterica</i> subsp. <i>enterica</i>	Kaitaan	H	QL024.7	Pet food	Positive
<i>S. enterica</i> subsp. <i>enterica</i>	Kentucky	C ₂	ATCC 9263	Not Available	Positive
<i>S. enterica</i> subsp. <i>enterica</i>	Krefeld	E ₄	UPenn STS 58	Not Available	Positive
<i>S. enterica</i> subsp. <i>enterica</i>	Lille	C ₁	UPenn STS 59	Not Available	Positive
<i>S. enterica</i> subsp. <i>enterica</i>	Livingstone	C ₁	UPenn STS 63	Not Available	Positive
<i>S. enterica</i> subsp. <i>enterica</i>	London	E ₁	UPenn STS 64	Not Available	Positive
<i>S. enterica</i> subsp. <i>enterica</i>	Manhattan	C ₂	UPenn STS 65	Not Available	Positive
<i>S. enterica</i> subsp. <i>enterica</i>	Mbandaka	C ₁	FDA 37N	Low moisture ingredient	Positive
<i>S. enterica</i> subsp. <i>enterica</i>	Menden	C ₁	ATCC 15992	Feces	Positive
<i>S. enterica</i> subsp. <i>enterica</i>	Meleagridis	E ₁	QL12074-1	Environmental isolate	Positive

<i>S. enterica</i> subsp. <i>enterica</i>	Minnesota	L	UPenn STS 70	Not Available	Positive
<i>S. enterica</i> subsp. <i>enterica</i>	Montevideo	C ₁	ATCC 8387	Not Available	Positive
<i>S. enterica</i> subsp. <i>enterica</i>	Muenchen	C ₂	ATCC BAA-1594	Human stool	Positive
<i>S. enterica</i> subsp. <i>enterica</i>	Neasden	D ₁	QL024.4	Raw material	Positive
<i>S. enterica</i> subsp. <i>enterica</i>	Newington	E ₂	QL024.8	Fish oil	Positive
<i>S. enterica</i> subsp. <i>enterica</i>	Newport	C ₂	ATCC 6962	Food poisoning	Positive
<i>S. enterica</i> subsp. <i>enterica</i>	Ohio	C ₁	UPenn STS 81	Not Available	Positive
<i>S. enterica</i> subsp. <i>enterica</i>	Oranienburg	C ₁	ATCC 9239	Not Available	Positive
<i>S. enterica</i> subsp. <i>enterica</i>	Orthmarshen	C ₁	QL024.13	Pet kibble	Positive
<i>S. enterica</i> subsp. <i>enterica</i>	Paratyphi A	A	ATCC 9150	Not Available	Positive
<i>S. enterica</i> subsp. <i>enterica</i>	Paratyphi B	B	ATCC 10719	Not Available	Positive
<i>S. enterica</i> subsp. <i>enterica</i>	Paratyphi C	C ₁	ATCC 13428	Not Available	Positive
<i>S. enterica</i> subsp. <i>enterica</i>	Pomona	M	ATCC 10729	Clinical isolate	Positive
<i>S. enterica</i> subsp. <i>enterica</i>	Poona	G	NCTC 4840	Infant enteritis	Positive
<i>S. enterica</i> subsp. <i>enterica</i>	Potsdam	C ₁	QL15091-1A	Pet food	Positive
<i>S. enterica</i> subsp. <i>enterica</i>	Preston	B	QL024.16	Low moisture product	Positive
<i>S. enterica</i> subsp. <i>enterica</i>	Pullorum	D ₁	ATCC 13036	Egg	Positive
<i>S. enterica</i> subsp. <i>enterica</i>	Rubislaw	F	UPenn STS 92	Not Available	Positive
<i>S. enterica</i> subsp. <i>enterica</i>	Saintpaul	B	ATCC 9712	Cystitis	Positive
<i>S. enterica</i> subsp. <i>enterica</i>	Sandiego	B	UPenn STS 94	Not Available	Positive
<i>S. enterica</i> subsp. <i>enterica</i>	Schalkwijk	H	QL024.10	Cat food	Positive
<i>S. enterica</i> subsp. <i>enterica</i>	Schwarzengrund	B	UPenn STS 95	Not Available	Positive
<i>S. enterica</i> subsp. <i>enterica</i>	Senftenberg	E ₄	ATCC 43845	Not Available	Positive
<i>S. enterica</i> subsp. <i>enterica</i>	Stanley	B	ATCC 7308	Not Available	Positive
<i>S. enterica</i> subsp. <i>enterica</i>	Sylvania	H	QL091313.4	Raw dog food	Positive
<i>S. enterica</i> subsp. <i>enterica</i>	Tallahassee	C ₂	ATCC 12002	Not Available	Positive
<i>S. enterica</i> subsp. <i>enterica</i>	Tennessee	C ₁	QL024.6	Clinical isolate	Positive
<i>S. enterica</i> subsp. <i>enterica</i>	Thompson	C ₁	FDA 2051H	Not Available	Positive
<i>S. enterica</i> subsp. <i>enterica</i>	Tranoroa	55	NCTC 10252	Not Available	Positive
<i>S. enterica</i> subsp. <i>enterica</i>	Typhi	D ₁	ATCC 6539	Not Available	Positive
<i>S. enterica</i> subsp. <i>enterica</i>	Typhimurium	B	ATCC 14028	Animal tissue	Positive
<i>S. enterica</i> subsp. <i>enterica</i>	Utrecht	52	NCTC 10077	Not Available	Positive
<i>S. enterica</i> subsp. <i>enterica</i>	Urbana	N	UPenn STS 110	Not Available	Positive
<i>S. enterica</i> subsp. <i>enterica</i>	Vellore	B	ATCC 15611	Rectal swab	Positive
<i>S. enterica</i> subsp. <i>enterica</i>	Virchow	C ₁	ATCC 51955	Not Available	Positive
<i>S. enterica</i> subsp. <i>enterica</i>	Volta	F	QL024.9	Raw material	Positive
<i>S. enterica</i> subsp. <i>enterica</i>	Westhampton	E ₁	QL024.14	Dog kibble	Positive
<i>S. enterica</i> subsp. <i>enterica</i>	Worthington	G	UPenn STS 114	Not Available	Positive
<i>S. enterica</i> subsp. <i>enterica</i>	Zwickau	I	NCTC 15805	Not Available	Positive
<i>S. bongori</i>		66	ATCC 43975	Not Available	Positive
<i>S. bongori</i>	Brookfield	66	NCTC 12419	Not Available	Positive

^aATCC – American Type Culture Collection, Manassas, VA.^bQL – Q Laboratories Culture Collection, Cincinnati, OH.^cNCTC – National Collection of Type Cultures, Salisbury, UK.^dFDA – U.S. Food and Drug Administration Culture Collection, College Park, MD.^eUPenn – University of Pennsylvania Culture Collection, Philadelphia, PA.

Table 2. Exclusivity Testing Results for the OBOP *Salmonella* Method (1)

Organism	Source and Strain No.	Origin	OBOP <i>Salmonella</i> Result
<i>Aeromonas hydrophila</i>	ATCC ^a 49140	Clinical Isolate	Negative – No Growth
<i>Alcaligenes faecalis</i>	ATCC 8750	Not Available	Negative – No Growth
<i>Bacillus subtilis</i>	ATCC 6051	Not Available	Negative – No Growth
<i>Campylobacter jejuni</i>	ATCC 33560	Feces, bovine	Negative – No Growth
<i>Candida albicans</i>	ATCC 24433	Nail Infection	Negative – Colorless Colonies
<i>Carnobacterium maltaromaticum</i>	ATCC 43224	Vacuum-packed beef	Negative – No Growth
<i>Citrobacter youngae</i>	ATCC 11102	Not Available	Negative – Black Colonies
<i>Citrobacter farmer</i>	ATCC 51112	Feces, Human	Negative – Black Colonies
<i>Citrobacter freundii</i>	ATCC 8090	Not Available	Negative – Black Colonies
<i>Edwardsiella tarda</i>	ATCC 15947	Feces, Human	Negative – No Growth
<i>Enterobacter aerogenes</i>	ATCC 13048	Sputum	Negative – Black Colonies
<i>Enterobacter cloacae</i>	ATCC 23355	Not Available	Negative – Black Colonies
<i>Enterococcus faecalis</i>	ATCC 29212	Urine	Negative – No Growth
<i>Escherichia coli</i>	ATCC 25922	Clinical Isolate	Negative – Colorless Colonies
<i>Escherichia hermannii</i>	ATCC 33651	Arm Wound	Negative – Colorless Colonies
<i>Hafnia alvei</i>	ATCC 51813	Milk	Negative – Colorless Colonies
<i>Lactobacillus kefir</i>	ATCC 35411	Kefir	Negative – No Growth
<i>Lactobacillus lactis</i>	ATCC 4794	Not Available	Negative – No Growth
<i>Listeria monocytogenes</i>	ATCC 7644	Human Isolate	Negative – No Growth
<i>Kluyvera intermedia</i>	ATCC 33110	Surface Water	Negative – Black Colonies
<i>Klebsiella pneumonia</i>	ATCC 13883	Not Available	Negative – Black Colonies
<i>Kocuria rhizophila</i>	ATCC 9341	Soil	Negative – No Growth
<i>Morganella morganii</i>	ATCC 25829	Human	Negative – Colorless Colonies
<i>Proteus mirabilis</i>	ATCC 7002	Urine	Negative – No Growth
<i>Proteus vulgaris</i>	ATCC 6380	Clinical Isolate	Negative – No Growth
<i>Pseudomonas aeruginosa</i>	ATCC 27853	Clinical Isolate	Negative – No Growth
<i>Serratia marcescens</i>	ATCC 14756	Fort Detrick, MD	Negative – Black Colonies
<i>Serratia marcescens</i>	ATCC 13880	Human	Negative – Black Colonies
<i>Shigella sonnei</i>	ATCC 29930	Not Available	Negative – No Growth
<i>Shigella boydii</i>	ATCC 9207	Pork Liver	Negative – No Growth
<i>Staphylococcus aureus</i>	ATCC 10832	Not Available	Negative – No Growth
<i>Staphylococcus epidermidis</i>	ATCC 12228	Not Available	Negative – No Growth
<i>Streptococcus pneumoniae</i>	ATCC 6302	Not Available	Negative – No Growth

^aATCC – American Type Culture Collection, Manassas, VA.

Table 3. Method Comparison Results: OBOP *Salmonella* Presumptive vs. Confirmed (1)

Matrix	Strain	Level (CFU/portion) ^a	N ^b	OBOP <i>Salmonella</i> Presumptive			OBOP <i>Salmonella</i> Confirmed			dPOD _{CP} ^f	95% CI ^g
				x ^c	POD _{CP} ^d	95% CI	x	POD _{CC} ^e	95% CI		
Chili powder	<i>Salmonella</i>	-	5	0	0	0, 0.43	0	0	0, 0.43	0	-0.47, 0.47
	Oranienberg	0.47 (0.25, 0.78)	30	6	0.20	0.10, 0.37	6	0.20	0.10, 0.37	0	-0.09, 0.09
	ATCC ^h 9239	54 (18, 156)	5	5	1	0.57, 1	5	1	0.57, 1	0	-0.47, 0.47
Black pepper	<i>Salmonella</i>	-	5	0	0	0, 0.43	0	0	0, 0.43	0	-0.47, 0.47
	Weltevreden	0.43 (0.21, 0.71)	30	10	0.33	0.19, 0.51	10	0.33	0.19, 0.51	0	-0.09, 0.09
	CDC ⁱ 147	116 (25, 537)	5	5	1	0.57, 1	5	1	0.57, 1	0	-0.47, 0.47
Queso Fresco	<i>Salmonella</i>	-	5	0	0	0, 0.43	5	0	0, 0.43	0	-0.47, 0.47
	Agona	1.1 (0.71, 1.8)	30	14	0.47	0.30, 0.64	14	0.47	0.30, 0.64	0	-0.09, 0.09
	CDC 1201-82	6.0 (1.7, 22)	5	5	1	0.57, 1	5	1	0.57, 1	0	-0.47, 0.47
Queso Fresco ^j	<i>Salmonella</i>	-	5	0	0	0, 0.43	0	0	0, 0.43	0	-0.47, 0.47
	Agona	0.45 (0.22, 0.78)	20	9	0.45	0.26, 0.66	9	0.45	0.26, 0.66	0	-0.13, 0.13
	ATCC 51957	2.6 (1.1, 5.8)	5	5	1	0.57, 1	5	1	0.57, 1	0	-0.47, 0.47
Chocolate	<i>Salmonella</i>	-	5	0	0	0, 0.43	0	0	0, 0.43	0	-0.47, 0.47
	Senftenberg	1.3 (0.85, 2.0)	30	17	0.57	0.39, 0.73	17	0.57	0.39, 0.73	0	-0.09, 0.09
	ATCC 8400	6.0 (1.7, 22)	5	5	1	0.57, 1	5	1	0.57, 1	0	-0.47, 0.47
Dry Pet Food ^k , 25 g	<i>Salmonella</i>	-	5	0	0	0, 0.43	5	0	0, 0.43	0	-0.47, 0.47
	Othmarschen	0.70 (0.42, 1.1)	20	8	0.40	0.22, 0.61	8	0.40	0.22, 0.61	0	-0.13, 0.13
	QL024.16	2.6 (1.1, 5.8)	5	5	1	0.57, 1	5	1	0.57, 1	0	-0.47, 0.47
Dry Pet Food ^k , 375 g	<i>Salmonella</i>	-	5	0	0	0, 0.43	5	0	0, 0.43	0	-0.47, 0.47
	Othmarschen	0.70 (0.42, 1.1)	20	8	0.40	0.22, 0.61	8	0.40	0.22, 0.61	0	-0.13, 0.13
	QL024.16	2.6 (1.1, 5.8)	5	5	1	0.57, 1	5	1	0.57, 1	0	-0.47, 0.47

Matrix	Strain	Level (CFU/portion) ^a	N ^b	OBOP <i>Salmonella</i> Presumptive			OBOP <i>Salmonella</i> Confirmed			dPOD _{CP} ^f	95% CI ^g
				x ^c	POD _{CP} ^d	95% CI	x	POD _{CC} ^e	95% CI		
Cantaloupe ^k	<i>Salmonella</i>	-	5	0	0	0, 0.43	0	0	0, 0.43	0	-0.47, 0.47
	Newport	0.55 (0.29, 0.93)	20	11	0.55	0.34, 0.74	11	0.55	0.34, 0.74	0	-0.13, 0.13
	ATCC 6962	3.7 (1.0, 9.0)	5	5	1	0.57, 1	5	1	0.57, 1	0	-0.47, 0.47
Smoked Salmon ^k	<i>Salmonella</i>	-	5	0	0	0, 0.43	0	0	0, 0.43	0	-0.47, 0.47
	Montevideo	0.50 (0.25, 0.86)	20	8	0.40	0.22, 0.61	8	0.40	0.22, 0.61	0	-0.13, 0.13
	ATCC 8387	2.0 (0.91, 4.3)	5	5	1	0.57, 1	5	1	0.57, 1	0	-0.47, 0.47
Raw Ground Turkey ^k , 25 g	<i>Salmonella</i>	-	5	0	0	0, 0.43	0	0	0, 0.43	0	-0.47, 0.47
	Typhimurium	1.0 (0.61, 1.7)	20	14	0.70	0.48, 0.85	14	0.70	0.48, 0.85	0	-0.13, 0.13
	ATCC 14028	2.6 (1.1, 5.8)	5	5	1	0.57, 1	5	1	0.57, 1	0	-0.47, 0.47
Raw Ground Turkey ^k , 325 g	<i>Salmonella</i>	-	5	0	0	0, 0.43	0	0	0, 0.43	0	-0.47, 0.47
	Typhimurium	1.0 (0.61, 1.7)	20	11	0.55	0.34, 0.74	11	0.55	0.34, 0.74	0	-0.13, 0.13
	ATCC 14028	2.6 (1.1, 5.8)	5	5	1	0.57, 1	5	1	0.57, 1	0	-0.47, 0.47
Pasteurized Liquid Egg	<i>Salmonella</i>	-	5	0	0	0, 0.43	0	0	0, 0.43	0	-0.47, 0.47
	Enteritidis	0.35 (0.14, 0.62)	30	9	0.30	0.17, 0.48	9	0.30	0.17, 0.48	0	-0.09, 0.09
	ATCC 13076	43 (10, 186)	5	5	1	0.57, 1	5	1	0.57, 1	0	-0.47, 0.47
Pasteurized Liquid Egg ^j	<i>Salmonella</i>	-	5	0	0	0, 0.43	0	0	0, 0.43	0	-0.47, 0.47
	Enteritidis	0.75 (0.44, 1.2)	20	11	0.55	0.34, 0.74	11	0.55	0.34, 0.74	0	-0.13, 0.13
	ATCC 13076	3.7 (1.0, 9.0)	5	5	1	0.57, 1	5	1	0.57, 1	0	-0.47, 0.47
Chicken Carcass Rinse ^k	<i>Salmonella</i>	-	5	0	0	0, 0.43	0	0	0, 0.43	0	-0.47, 0.47
	Kentucky	26 ^l	20	10	0.50	0.30, 0.70	10	0.50	0.30, 0.70	0	-0.13, 0.13
	ATCC 9263	54 ^l	5	5	1	0.57, 1	5	1	0.57, 1	0	-0.47, 0.47

Matrix	Strain	Level (CFU/portion) ^a	N ^b	OBOP <i>Salmonella</i> Presumptive			OBOP <i>Salmonella</i> Confirmed			dPOD _{CP} ^f	95% CI ^g
				x ^c	POD _{CP} ^d	95% CI	x	POD _{CC} ^e	95% CI		
Stainless Steel ^k	<i>Salmonella</i> Derby	-	5	0	0	0, 0.43	0	0	0, 0.43	0	-0.47, 0.47
	NCTC ^m 5721 +	59/720 ⁿ	20	8	0.40	0.22, 0.61	8	0.40	0.22, 0.61	0	-0.13, 0.13
	<i>Citrobacter freundii</i>	240/3100 ⁿ	5	5	1	0.57, 1	5	1	0.57, 1	0	-0.47, 0.47
	ATCC 8090										

^aFrom MPN analysis.^bN = Number of test portions.^cx = Number of positive test portions.^dPOD_{CP} = Candidate method presumptive positive outcomes divided by the total number of trials.^ePOD_{CC} = Candidate method confirmed positive outcomes divided by the total number of trials.^fdPOD_{CP} = Difference between the candidate method presumptive result and candidate method confirmed result POD values.^g95% CI = If the confidence interval of a dPOD does not contain zero, then the difference is statistically significant at the 5% level.^hAmerican Type Culture Collection, Manassas, VA.ⁱCenters for Disease Control and Prevention, Atlanta, GA.^jTrial performed by the independent laboratory.^kTrial performed by an independent third-party laboratory as part of the MicroVal study.^lCFU per carcass, determined by plate count of the inoculum culture.^mNational Collection of Type Cultures, Salisbury, UK.ⁿCFU per test area, determined by plate count of the inoculum culture.

Table 4. Method Comparison Results: OBOP *Salmonella* Confirmed vs. Reference Method (1)

Matrix	Strain	Level (CFU/portion) ^a	N ^b	OBOP <i>Salmonella</i> Confirmed			Reference Method			dPOD _c ^f	95% CI ^g
				x ^c	POD _c ^d	95% CI	x	POD _R ^e	95% CI		
Chili powder	<i>Salmonella</i>	-	5	0	0	0, 0.43	0	0	0, 0.43	0	-0.43, 0.43
	Oranienberg	0.47 (0.25, 0.78)	30	6	0.20	0.10, 0.37	10	0.33	0.19, 0.51	-0.13	-0.34, 0.09
	ATCC ^h 9239	54 (18, 156)	5	5	1	0.57, 1	5	1	0.57, 1	0	-0.43, 0.43
Black pepper	<i>Salmonella</i>	-	5	0	0	0, 0.43	0	0	0, 0.43	0	-0.43, 0.43
	Weltevreden	0.43 (0.21, 0.71)	30	10	0.33	0.19, 0.51	10	0.33	0.19, 0.51	0	-0.23, 0.23
	CDC ⁱ 147	116 (25, 537)	5	5	1	0.57, 1	5	1	0.57, 1	0	-0.43, 0.43
Queso Fresco	<i>Salmonella</i>	-	5	0	0	0, 0.43	5	0	0, 0.43	0	-0.43, 0.43
	Agona	1.1 (0.71, 1.8)	30	14	0.47	0.30, 0.64	21	0.70	0.52, 0.83	-0.23	-0.44, 0.01
	CDC 1201-82	6.0 (1.7, 22)	5	5	1	0.57, 1	5	1	0.57, 1	0	-0.43, 0.43
Queso Fresco ^j	<i>Salmonella</i>	-	5	0	0	0, 0.43	0	0	0, 0.43	0	-0.43, 0.43
	Agona	0.45 (0.22, 0.78)	20	9	0.45	0.26, 0.66	7	0.35	0.18, 0.57	0.10	-0.19, 0.37
	ATCC 51957	2.6 (1.1, 5.8)	5	5	1	0.57, 1	5	1	0.57, 1	0	-0.43, 0.43
Chocolate	<i>Salmonella</i>	-	5	0	0	0, 0.43	0	0	0, 0.43	0	-0.47, 0.47
	Senftenberg	1.3 (0.85, 2.0)	30	17	0.57	0.39, 0.73	22	0.73	0.56, 0.86	-0.17	-0.38, 0.07
	ATCC 8400	6.0 (1.7, 22)	5	5	1	0.57, 1	5	1	0.57, 1	0	-0.47, 0.47
Dry Pet Food ^k , 25 g	<i>Salmonella</i>	-	5	0	0	0, 0.43	5	0	0, 0.43	0	-0.43, 0.43
	Othmarschen	0.70 (0.42, 1.1)	20	8	0.40	0.22, 0.61	7	0.35	0.18, 0.57	0.05	-0.23, 0.32
	QL024.16	2.6 (1.1, 5.8)	5	5	1	0.57, 1	5	1	0.57, 1	0	-0.43, 0.43
Dry Pet Food ^k , 375 g	<i>Salmonella</i>	-	5	0	0	0, 0.43	5	0	0, 0.43	0	-0.43, 0.43
	Othmarschen	0.70 (0.42, 1.1)	20	8	0.40	0.22, 0.61	7	0.35	0.18, 0.57	0.05	-0.23, 0.32
	QL024.16	2.6 (1.1, 5.8)	5	5	1	0.57, 1	5	1	0.57, 1	0	-0.43, 0.43

Matrix	Strain	Level (CFU/portion) ^a	N ^b	OBOP <i>Salmonella</i> Confirmed			Reference Method			dPOD _c ^f	95% CI ^g
				x ^c	POD _c ^d	95% CI	x	POD _R ^e	95% CI		
Cantaloupe ^k	<i>Salmonella</i>	-	5	0	0	0, 0.43	5	0	0, 0.43	0	-0.43, 0.43
	Newport	0.55 (0.29, 0.93)	20	11	0.55	0.34, 0.74	8	0.40	0.22, 0.61	0.15	-0.15, 0.41
	ATCC 6962	3.7 (1.0, 9.0)	5	5	1	0.57, 1	5	1	0.57, 1	0	-0.43, 0.43
Smoked Salmon ^k	<i>Salmonella</i>	-	5	0	0	0, 0.43	5	0	0, 0.43	0	-0.43, 0.43
	Montevideo	0.50 (0.25, 0.86)	20	8	0.40	0.22, 0.61	8	0.40	0.22, 0.61	0	-0.28, 0.28
	ATCC 8387	2.0 (0.91, 4.3)	5	5	1	0.57, 1	5	1	0.57, 1	0	-0.43, 0.43
Raw Ground Turkey ^k , 25 g	<i>Salmonella</i>	-	5	0	0	0, 0.43	5	0	0, 0.43	0	-0.43, 0.43
	Typhimurium	1.0 (0.61, 1.7)	20	14	0.70	0.48, 0.85	11	0.55	0.34, 0.74	0.15	-0.14, 0.41
	ATCC 14028	2.6 (1.1, 5.8)	5	5	1	0.57, 1	5	1	0.57, 1	0	-0.43, 0.43
Raw Ground Turkey ^k , 325 g	<i>Salmonella</i>	-	5	0	0	0, 0.43	5	0	0, 0.43	0	-0.43, 0.43
	Typhimurium	1.0 (0.61, 1.7)	20	11	0.55	0.34, 0.74	11	0.55	0.34, 0.74	0	-0.28, 0.28
	ATCC 14028	2.6 (1.1, 5.8)	5	5	1	0.57, 1	5	1	0.57, 1	0	-0.43, 0.43
Pasteurized Liquid Egg	<i>Salmonella</i>	-	5	0	0	0, 0.43	0	0	0, 0.43	0	-0.47, 0.47
	Enteritidis	0.35 (0.14, 0.62)	30	9	0.30	0.17, 0.48	13	0.43	0.27, 0.61	-0.13	-0.35, 0.11
	ATCC 13076	43 (10, 186)	5	5	1	0.57, 1	5	1	0.57, 1	0	-0.47, 0.47
Pasteurized Liquid Egg ^j	<i>Salmonella</i>	-	5	0	0	0, 0.43	5	0	0, 0.43	0	-0.43, 0.43
	Enteritidis	0.75 (0.44, 1.2)	20	11	0.55	0.34, 0.74	8	0.40	0.22, 0.61	0.15	-0.15, 0.41
	ATCC 13076	3.7 (1.0, 9.0)	5	5	1	0.57, 1	5	1	0.57, 1	0	-0.43, 0.43
Chicken Carcass Rinse ^k	<i>Salmonella</i>	-	5	0	0	0, 0.43	5	0	0, 0.43	0	-0.43, 0.43
	Kentucky	26 ^l	20	10	0.50	0.30, 0.70	6	0.30	0.15, 0.52	0.20	-0.10, 0.45
	ATCC 9263	54 ^l	5	5	1	0.57, 1	5	1	0.57, 1	0	-0.43, 0.43

Matrix	Strain	Level (CFU/portion) ^a	N ^b	OBOP <i>Salmonella</i> Confirmed			Reference Method		
				x ^c	POD _c ^d	95% CI	x	POD _R ^e	95% CI
Stainless Steel ^k	<i>Salmonella</i> Derby	-	5	0	0	0, 0.43	5	0	0, 0.43
	NCTC ^m 5721 +	59/720 ⁿ	20	8	0.40	0.22, 0.61	7	0.35	0.18, 0.57
	<i>Citrobacter freundii</i> ATCC 8090	240/3100 ⁿ	5	5	1	0.57, 1	5	1	0.57, 1

^aFrom MPN analysis.^bN = Number of test portions.^cx = Number of positive test portions.^dPOD_c = Candidate method confirmed positive outcomes divided by the total number of trials.^ePOD_R = Reference method confirmed positive outcomes divided by the total number of trials.^fdPOD_c = Difference between the candidate method and reference method POD values.^g95% CI = If the confidence interval of a dPOD does not contain zero, then the difference is statistically significant at the 5% level.^hAmerican Type Culture Collection, Manassas, VA.ⁱCenters for Disease Control and Prevention, Atlanta, GA.^jTrial performed by the independent laboratory.^kTrial performed by an independent third-party laboratory as part of the MicroVal study./CFU per carcass, determined by plate count of the inoculum culture.^mNational Collection of Type Cultures, Salisbury, UK.ⁿCFU per test area, determined by plate count of the inoculum culture.

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