Modified Semi-Solid Rappaport-Vassiliadis (MSRV) Agar (ISO) (NCM0067)

Revision: 3 Effective Date: 2/5/2021

Intended Use

Modified Semi-Solid Rappaport-Vassiliadis (MSRV) Agar (ISO) is used with Novobiocin for the horizontal method for the rapid detection of motile *Salmonella* spp, as described in ISO 6579-1:2017. Modified Semi-Solid Rappaport-Vassiliadis (MSRV) Agar (ISO) is not intended for use in the diagnosis of disease or other conditions in humans.

Description

MSRV was developed in 1986 by De Smedt, Bolderdijk and Rappold as a rapid means of *Salmonella* detection. The medium, based upon Rappaport Vassiliadis broth, is inoculated directly from the pre-enrichment medium, in the center of the plate. Motile organisms spread from the center in the semi-solid agar, but non-salmonellas are inhibited by the selective agents. After overnight incubation the use of polyvalent salmonella antisera or a latex kit can confirm the presence of a *Salmonella.* Alternatively, a paper disc wetted with polyvalent H antiserum can be placed 1/3 of the way from the edge of the dish, and will signal the presence of a *Salmonella* by inhibiting the mobility of the organism around the disc. Using this medium De Smedt and Bolderdijk have reported the possibility of detecting *Salmonella* in 24hrs (1987). This medium conforms to the performance and formulation requirements of ISO 6579-1:2017.

Typical Formulation

Enzymatic Digest of Animal and Plant Tissue	4.6 g/L
Acid Hydrolysed Casein	4.6 g/L
Sodium Chloride	7.3 g/L
Potassium Dihydrogen Phosphate	1.5 g/L
Magnesium Chloride	10.9 g/L
Malachite Green	0.04 g/L
Agar	2.7 g/L

pH: 5.1 – 5.4 at 25°C
Formula may be adjusted and/or supplemented as required to meet performance specifications.

Supplements

NCM4040 Novobiocin

Precaution

Refer to SDS

Preparation

1. Suspend 31.6 grams of the medium in one liter of purified water.
2. Heat with frequent agitation and boil for one minute to completely dissolve the medium.
3. DO NOT AUTOCLAVE.
4. Cool to 45-50°C and add 1 vial of NCM4040-0.5*, Novobiocin, reconstituted using 5mL sterile deionized/RO water.
5. Mix well and dispense into petri dishes.

*Larger vials may be available. Please see appropriate supplement data sheet for availability and preparation instructions.

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Test Procedure
For detection and enumeration and Serotyping of Salmonella- Refer to ISO 6579-1:2017

Quality Control Specifications
Dehydrated Appearance: Powder is homogeneous, free flowing, and beige to pale blue beige.

Prepared Appearance: Prepared medium is trace to slightly hazy, dark blue and no precipitate.

Expected Cultural Response: Cultural response incubated aerobically at 41.5 ± 1°C and examined for growth after 21 – 51 hours.

Microorganism	Approx. Inoculum (per drop)	Expected Results	
		Growth	Motility
Enterococcus faecalis ATCC® 29212	$>10^4$	Complete Inhibition	N/A
Enterococcus faecalis ATCC® 19433	$>10^4$	Complete Inhibition	N/A
Escherichia coli ATCC® 8739	$>10^4$	Suppressed	Migration inhibited
Escherichia coli ATCC® 25922	$>10^4$	Suppressed	Migration inhibited
Salmonella enteritidis ATCC® 13076	10^3 to 10^4	Good growth	Good Migration
Salmonella typhimurium ATCC® 14028	10^3 to 10^4	Good growth	Good Migration

The organisms listed are the minimum that should be used for quality control testing.

Results
Positive: Growth of migrated cells is visible as a grey-white, turbid zone extending out from the inoculated drop. Test sample is considered presumptively positive for motile *Salmonella* spp.

Negative: Medium remains blue-green around inoculation drops, with no grey-white, turbid zone extending out from the drop. Test sample is considered negative for motile *Salmonella* spp.

Expiration
Refer to expiration date stamped on the container. The dehydrated medium should be discarded if not free flowing, or if the appearance has changed from the original color. Expiry applies to medium in its intact container when stored as directed.

Limitation of the Procedure
The combined inhibitory factors of this medium may inhibit certain *Salmonella*, such as *S. typhi* and S. *choleraesuis*. Isolation techniques should include a variety of enrichment broths and isolation media.

Storage
Store dehydrated culture media at 2 – 30°C away from direct sunlight. Once opened and recapped, place the container in a low humidity environment at the same storage temperature. Protect from moisture and light by keeping container tightly closed.

References

1. ISO 6579-1:2017 Microbiology of the food chain – Horizontal method for the detection, enumeration and serotyping of Salmonella.
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3. De Smedt, J.M. and Bolderdijk, R.F., Rappold H. and Lautenschlaeger, D. Rapid Salmonella Detection in Foods in Mobility Enrichment on a Modified Semi-Solid Rappaport- Vassiliadis Medium. Journal of Food Protection 49 510-514. (1986).

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6. Goossens, H., Wauters, G., De Boeck, M., Janssens, M., and Butzler, J.P. Semi-solid selective mobility enrichment medium for isolation of Salmonella from faecal specimens J. Clin. Microbiol 19 940-941. (1984).

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