MAST® Culture Media and Supplements

Technical Information Sheet

Product Code DM 269

Buffered Rappaport-Vassiliadis Broth

A selective enrichment broth for the isolation of *Salmonella* spp.

1. Description

Rappaport *et al*[1] took several characteristics of the species *Salmonella* into consideration when developing an enrichment medium for their isolation:

1. their ability to survive relatively high osmotic pressures.

2. their ability to multiply at relatively low pH values.

3. their relatively high resistance to malachite green.

4. their modest nutritional requirements.

Therefore using a high molar concentration of magnesium chloride, a pH of 5.2, a malachite green concentration of 106mg/l and only 5g/l peptone, Rappaport produced an enrichment medium for *Salmonella* that could be incubated at 37°C.

Vassiliadis *et al*[2] modified this medium by lowering the concentration of malachite green to 36mg/l which allowed incubation at 43°C. This was found to be superior to the previous formulation especially when small inocula of preenrichment broth were used[3].

The formulation was modified further by Van Schothorst *et al*[4] by the addition of dipotassium hydrogen phosphate which buffers the medium, maintaining the pH during preparation and storage. This is believed to enhance the reliability of this selective enrichment broth.

2. Technical Formula*

Formula	grams per litre
Soya peptone	4.5
Sodium chloride	7.2
Potassium dihydrogen phosphate	1.26
Di potassium hydrogen phosphate	0.18
Magnesium chloride (anhydrous)	13.58
Malachite green	0.036
pH approx. 5.2	

3. Directions

1. Suspend 26.75g in 1 litre of distilled water, mix well and warm to dissolve.

2. Dispense 10ml volumes into screw capped bottles.

3. Sterilise at 115°C (10 p.s.i.) for 15 minutes.

*Formulation may be modified to meet performance criteria

4. In Use

Pre-enrichment of a test sample is usually required before inoculating the Buffered Rapport Vassiliadis (RV) Broth. Pre-enrichment involves adding 25g or 25ml of the test sample to 225ml of Buffered Peptone Water (DM494) and incubating at 37ºC for 18-20 hours. 0.1ml of this pre-enrichment culture is transferred to 10ml of Buffered RV Broth which is incubated at 42ºC ± 1.0ºC for 24 hours. Peterz et al5 recommend incubation at 42ºC ± 01ºC in a water bath for optimum recovery. The Broth is then subcultured by streaking onto selective media such as Brilliant Green Agar (modified) (DM105-2).

No pre-enrichment is required for faecal specimens. One to two 3mm loopsful of liquid faeces (or an emulsion of faeces in saline) are added to 10ml of Buffered RV Broth, incubated at 42ºC ± 1.0ºC for 24 hours and subcultured onto selective agar.

5. References

1. Rappaport F, Konforti N, Navon B. A new enrichment medium for certain salmonellae. *J Clin Path*. 1956; **9:** 261-266.

2. Vassiliadis P, Pateraki E, Papaiconomou N, Papadakis JA, Trichopoulos D. Noveau procede d'enrichissment de salmonella. *Ann Microbiol*. (Inst.Pasteur) 1976; **127B:** 195-200.

3. Vassiliadis P, Trichopoulos D, Kalandidi A, Xirouchaki E. Isolation of salmonellas from sewage with a new procedure of enrichment. *J Appl Bact*. 1978; **44:** 233-239.

4. Van Schothorst, Renaud M, Van Beek C. Salmonella isolation using RV broth and MLCB agar. *Food Microbiol*. 1987; **4:** 11-18. Peterz M, Wiberg C, Norberg P. *J Appl Bact*. 1989; **66:** 523-528.

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