

Rappaport-VASSILIADIS Broth

RVS Broth

For the selective enrichment of *Salmonella* with the exception of *S. typhi* and *S. paratyphi* A from foodstuffs and other materials.

The medium complies with the recommendations of the APHA for the examination of foods and ISO Standard 6579 (2002 fourth edition).

This culture medium is a modification of the *Salmonella* Enrichment Broth acc. to RAPPAPORT (MERCK, Cat. No. 1.10236.0500) and was proposed by VASSILIADIS et al. (1976) who called it R 10 medium and later RVS Broth. It displays a higher selectivity towards *Salmonella* and produces better yields than other comparable media, especially after preliminary enrichment and at an incubation temperature of 43 °C (MAIJALA et al. 1992; VAN SCHOTHORST and RENAUD 1983; FRICKER et al. 1983; TONGPIM et al. 1984; PIETZSCH 1984; KALAPOTHAKI et al. 1982; VASSILIADIS 1983; VASSILIADIS et al. 1977, 1978, 1981, 1984, JONAS et al. 1986 etc.). DE SMEDT et al. (1986) made a semi-solid RV medium by adding agar which they used for a faster *Salmonella* detection using mobility enrichment.

Mode of Action

The malachite green and magnesium chloride concentrations of the present culture medium are less than those of the *Salmonella* Enrichment Broth according to RAPPAPORT in order to improve the growth of *Salmonella* at 43 °C. Peptone from soy meal is also used for the same reason. Lowering pH to 5.2 increases selectivity.

ALCAIDE et al. (1982) have reported that addition of novobiocin (40 mg/litre) enhances the inhibition of accompanying flora.

Typical Composition (g/litre)

Peptone from soy meal 4.5; magnesium chloride hexahydrate 28.6; sodium chloride 7.2; di-potassium hydrogen phosphate 0.18; potassium di-hydrogen phosphate 1.26; malachite-green 0.036.

Preparation

Suspend 41.8 g/litre, heat gently, if necessary dispense into test tubes, autoclave gently (15 min at 115 °C).

pH: 5.2 ± 0.2 at 25 °C.

The broth is clear and dark-blue.

The prepared culture medium can be stored in the refrigerator for at least 7 months (VASSILIADIS et al. 1985).

Experimental Procedure and Evaluation

Inoculate the culture medium with the sample or material from a pre-enriched culture (e.g. Peptone Water Buffered) and incubate for 24 hours at 41.5 °C. Streak material from the resulting cultures onto selective culture media.

Literature

- ALCAIDE, E.T., MARTINEZ, J.P., MARTINEZ-GERMEX, P., a. GARAY, E.: Improved *Salmonella* recovery from moderate to highly polluted waters. - *J. Appl. Bact.*, 53; 143-146 (1982).
- FRICKER, C.R., GIRDWOOD, R.W.A., a. MONRO, D.: A comparison of enrichment media for the isolation of salmonellae from seagull cloacal swabs. - *J. Hyg.*, 91; 53-58 (1983).
- KALAPOTHAKI, F., VASSILIADIS, P., MAVROMMATI, CH., a. TRICHOPOULOS, D.: Comparison of Rappaport-VASSILIADIS Enrichment Medium und Tetrathionate Brilliant Green Broth for Isolation of *Salmonellae* from Meat Products. - *J. Food Protection*, 46, 7; 618-621 (1982).
- MAIJALA, R.: JOHANSSON, T., HIRN, J.: Growth of *Salmonella* and competing flora in five commercial Rappaport-Vassiliadis (RV)-media. - *Intern. J. Food Microbiology*, 17; 1-8 (1992).
- PIETZSCH, O.: Neue Aspekte des Anreicherungsverfahrens für *Salmonellen*. - 25. Arbeitstagung des Arbeitsgebietes "Lebensmittelhygiene" der DVG, Garmisch-Partenkirchen (1984).
- VAN SCHOTHORST, M., a. RENAUD, A.M.: Dynamics of salmonellae isolation with modified Rappaport's medium (R 10). - *J. Appl. Bact.*, 54; 209-215 (1983).
- TONGPIM, S. BEUMER, R.R., TAMMINGA, S.K., a. KAMPELMACHER, E.H.: Comparison of modified Rappaport's medium (RV) and Muller-Kauffmann medium (MK-iso) for the detection of *Salmonella* in meat products. - *Int. J. Food Microbiol.*, 1; 33-42 (1984)
- VASSILIADIS, P.: The Rappaport-Vassiliadis (RV) enrichment medium for the isolation of salmonellas: An overview. - *J. Appl. Bact.*, 54; 69-76 (1983).
- VASSILIADIS, P., KALAPOTHAKI, V., MAVROMMATI, CH., a. TRICHOPOULOS, D.: A comparison of the original Rappaport medium (R medium) and the Rappaport-Vassiliadis medium (RV medium) in the isolation of salmonellae from meat products. - *J. Hyg. Comb.*, 93; 51-58 (1984).
- VASSILIADIS, P., KALAPOTHAKI, V., TRICHOPOULOS, D. MAVROMMATI, CH., a. SERIE, C.: Improved Isolation of *Salmonellae* from Naturally Contaminated Meat Products by Using Rappaport-Vassiliadis Enrichment Broth. - *Appl. Environm. Microbiol.*, 42, 4; 615-618 (1981).
- VASSILIADIS, P., MAVROMMATI, CH., EFSTRATIOU, M., a. CHROMAS, G.: A note on the stability of Rappaport-Vassiliadis enrichment medium.. - *J. Appl. Bact.*, 59; 143-145 (1985).
- VASSILIADIS, P., PALLANDIOU, E., PAPOUTSAKIS, G., TRICHOPOULOS, D., a. PAPADAKIS, J.: Essai des Milieux de Rappaport Modifiés à pH plus Elevé, dans la Multiplication des *Salmonelles*. - *Arch. de l'inst. Pasteur Hellenique* (1977).
- VASSILIADIS, P., PATERAKI, E., PAPAICONOMOU, N., PAPADAKIS, J.A., a. TRICHOPOULOS, D.: Nouveau procédé d'enrichissement de *Salmonell*. - *Ann. Microbiol. (Inst. Pasteur)*, 127 B; 195-100 (1976).
- VASSILIADIS, P., TRICHOPOULOS, D., PAPADAKIS, J., KALAPOTHAKI, V., ZAVITSANOS, X., a. SERIE, CH.: *Salmonella* Isolation with Rappaport's Enrichment Medium of Different Compositions. - *Zbl. Bakt. Hyg. I. Abt. Orig. B*, 173; 382-389 (1981)
- VASSILIADIS, P.; TRICHOPOULOS, D., PATERAKI, E., a. PAPAICONOMOU, N.: Isolation of *Salmonella* from minced meat by the use of a new procedure of enrichment. - *Zbl. Bakt. Hyg. I. Abt. Orig. B*, 166; 81-86 (1978).

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Ordering Information

Product	Merck Cat. No.	Pack size
Salmonella Enrichment Broth acc. to RAPPAPORT and VASSILIADIS (RVS Broth)	1.07700.0500	500 g
Peptone Water (buffered)	1.07228.0500	500 g
Novobiocin monosodium salt	EMD Biosciences	
Singlepath® Salmonella	1.04140.0001	25 tests

Quality control

Test strains	Inoculum	Growth after 24 h	Singlepath® Salmonella
Escherichia coli ATCC 25922	approx. 99 %	≤ 10 %	-
Salmonella typhimurium ATCC 14028	approx. 1 %	≥ 90 %	+
Pseudomonas aeruginosa ATCC 27853	> 10 ⁴	none	-
Enterococcus faecalis ATCC 29212	> 10 ⁴	none	-