Technical Information

Violet Red Bile Agar

Product Code: DM 1049A

Application: Violet Red Bile Agar is recommended for selective isolation and enumeration of coli-aerogenes bacteria in water, milk and other dairy food products.

Composition**

Ingredients	Gms / Litre
Peptic digest of animal tissue	7.000
Yeast extract	3.000
Lactose	10.000
Bile salts mixture	1.500
Sodium chloride	5.000
Neutral red	0.030
Crystal violet	0.002
Agar	12.000
Final pH (at 25°C)	7.4±0.2

**Formula adjusted, standardized to suit performance parameters

Principle & Interpretation

Violet Red Bile Agar, a modification of MacConkeys formulation [1] is used for the enumeration of coli-aerogenes bacterial group. It relies on the use of the selective inhibitory components crystals violet and bile salts and the indicator system lactose, and neutral red. Thus, the growth of many unwanted organisms is suppressed, while tentative identification of required bacteria can be made. Organisms, which rapidly ferment lactose, produce purple colonies surrounded by purple halos. Nonfermenters or late lactose-fermenters produce pale colonies with greenish zones [2] VRBA is recommended by APHA [3, 4]. Violet Red Bile Agar (1.2 % Agar) (DM1049A) is prepared, in accordance with the ISO Committee [9].

Selectivity of VRBA can be increased by incubation under anaerobic conditions and/ or at ambient sstemperature, i.e. equal to or above 42°C [5-7]

Peptic digest of animal tissue and yeast extract serve as sources of carbon, nitrogen, vitamins and other essential growth nutrients. Lactose is the fermentable carbohydrate, utilization of which leads to the production of acids. Neutral red indicator detects the acidity so formed. Crystal violet and bile salts mixture help to inhibit the accompanying gram-positive and unrelated flora. Sodium chloride maintains the osmotic equilibrium. Violet Red Bile Agar is not completely specific for enterics; other accompanying bacteria may give the same reaction. Further biochemical tests are necessary for positive identification [8].

Methodology

Suspend 38.53 grams of powder media in 1000 ml distilled water. Shake well & heat with stirring to dissolve the medium completely. DO NOT AUTOCLAVE. Cool to 45°C and pour into sterile Petri plates containing the inoculums.

Quality Control

Physical Appearance
Light yellow to pink homogeneous free flowing powder

Gelling
Firm, comparable with 1.2% Agar gel.

Colour and Clarity of prepared medium
Reddish purple coloured clear to slightly opalescent gel forms in Petri plates.

Reaction
Reaction of 3.85% w/v aqueous solution at 25°C. pH : 7.4±0.2

pH range
7.20-7.60

Cultural Response/Characteristics

DM 1049A: Cultural characteristics observed after an incubation at 35-37°C for 18-24 hours.

Organism	Inoculum(CFU)	Growth	Recovery	Colour of colony
Enterobacter aerogenes ATCC 13048	50-100	luxuriant	>=50%	pink to pinkish red
Escherichia coli ATCC 25922	50-100	Luxuriant	>=50%	pinkish red with bile precipitation
Salmonella Enteritidis ATCC 13076	50-100	luxuriant	>=50%	Colourless to orangish yellow
Staphylococcus aureus ATCC 25923	>=10^3	luxuriant	0%	

Storage and Shelf Life

Dried Media: Store below 30°C in tightly closed container and use before expiry date as mentioned on the label.
Prepared Media: 2-8^0 in sealable plastic bags for 2-5 days.

Further Reading

1.MacConkey A., 1905, J. Hyg., 5, 333-379
2. Corry J. E. L., Curtis G. D. W. and Baird R. M., (Ed.), 1995, Culture Media for Food Microbiology, Vol. 34, Progress in Industrial Microbiology, Elsevier, Amsterdam.
3.Downes F. P. and Ito K., (Ed.), 2001, Compendium of Methods for the Microbiological Examination of Foods, 4th Ed., American Public Health Association, Washington, D.C.
4. Marshall R. T., (Ed.), 1992, Standard Methods for the Examination of Dairy Products, 16th Ed., APHA, Washington, D. C.
5.Mossel D. A. A. and Vega C. L., 1973, Hlth. Lab. Sci., 11:303
6.Mossel D. A. A., Eclderink I., Koopmans M. and Van Rossem F., 1979, Food Protect., 42 : 470
7. Mossel D. A. A. et al, 1986, J. Appl. Bacteriol., 60:289.
8. MacFaddin J. F., 1985, Media for Isolation-Cultivation-Identification-Maintenance of Medical Bacteria, Vol. 1, Williams and Wilkins, Baltimore.
9.International Organization for Standardization (ISO), 1991, Draft ISO/DIS 4382

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