VIOLET RED BILE AGAR

INTENDED USE
Remel Violet Red Bile Agar is a solid medium recommended for use in qualitative procedures for selective and differential isolation of coliforms in water, foods, milk, and other dairy products.

SUMMARY AND EXPLANATION
Violet Red Bile Agar (VRBA) is a selective medium of the type proposed by MacConkey in 1905 for detection of lactose-fermenting gram-negative bacteria. The medium was first used for testing water but has come to be useful for testing foods and dairy products.[1] Druce et al. recommended VRBA for determination of the coli-aerogenes content of milk and dairy equipment, during any stage of the pasteurization process.[2] VRBA is recommended by Food and Drug Administration (FDA) and the American Public Health Association (APHA) .[3-5]

PRINCIPLE
Gelatin peptone provides essential amino acids, peptides, and nitrogenous compounds essential for the growth of bacteria. Yeast extract supplies essential B-complex vitamins, and lactose is a ready source of energy. Sodium chloride maintains osmotic equilibrium. Bile salts and crystal violet are selective agents which inhibit the growth of gram-positive organisms. Neutral red serves as an indicator of acid production. Differentiation of gram-negative bacilli is based on fermentation of lactose and subsequent absorption of neutral red; lactose-fermenters produce pink to red colonies, lactose-nonfermenters form colonies which are colorless or transparent.

REAGENTS (CLASSICAL FORMULA)*

Lactose	10.0	g	Bile Salts #3	1.5	g
Gelatin Peptone	7.0	g	Neutral Red	30.0	mg
Sodium Chloride	5.0	g	Crystal Violet	2.0	mg
Yeast Extract	3.0	g	Agar	15.0	g
			Demineralized Water	1000.0	ml

pH 7.4 ± 0.2 @ 25°C

*Adjusted as required to meet performance standards.

PRECAUTIONS
This product is For Laboratory Use only. It is not intended for use in the diagnosis of disease or other conditions.

PREPARATION OF DEHYDRATED CULTURE MEDIUM
1. Suspend 41.5 g of medium in 1000 ml of demineralized water.
2. Heat to boiling with agitation to completely dissolve. **Do not autoclave**.
3. Mix well and dispense into appropriate containers.

PROCEDURE
1. Consult current editions of appropriate references for the recommended procedure for sample preparation, inoculation, and testing.[3-5]
2. Incubate aerobically for the proper time duration at the appropriate temperature following established laboratory procedures.
3. Examine for typical colony morphology. Lactose-fermenting colonies are pink to red in color; nonlactose-fermenters are colorless or transparent.

QUALITY CONTROL
Each lot number of Violet Red Bile Agar has been manufactured, packaged, and processed in accordance with current Good Manufacturing Practice regulations. All lot numbers have been tested using the following quality control organisms and found to be acceptable. Testing of control organisms should be performed in accordance with established laboratory quality control procedures at or prior to the time of use. If aberrant quality control results are noted, sample results should not be reported.

CONTROL	INCUBATION	RESULTS
Escherichia coli ATCC® 25922	Aerobic, 18-24 h @ 33-37°C	Red colonies with red zone
Salmonella enterica serovar Typhimurium ATCC® 14028	Aerobic, 18-24 h @ 33-37°C	Colorless colonies
Enterococcus faecalis ATCC® 29212	Aerobic, 18-24 h @ 33-37°C	Inhibition (partial to complete)

LIMITATIONS
1. The boiled, cooled medium should not be stored for more than one day before use.[5]

BIBLIOGRAPHY

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3. Downes, F.P. and K. Ito. 2001. Compendium of Methods for the Microbiological Examination of Foods. 4th ed. APHA, Washington, D.C.
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5. Wehr, H.M. and J.F. Frank. 2004. Standard Methods for the Examination of Dairy Products. 17th ed. APHA, Washington, D.C.
6. MacFaddin, J.F. 1985. Media for Isolation-Cultivation-Identification-Maintenance of Medical Bacteria. Vol. 1. Williams & Wilkins, Baltimore, MD.

Refer to the front of Remel *Technical Manual of Microbiological Media* for **General Information** regarding precautions, product storage and deterioration, specimen collection, storage and transportation, materials required, quality control, and limitations.

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