

70189 Violet Red Bile Glucose Agar (VRBG Agar; VRBD Agar; Violet Red Bile Dextrose Agar)

VRBG Agar is a selective medium for the isolation and enumeration of Enterobacteriaceae.

Composition:

Ingredients	Grams/Litre
Peptone (from gelatin)	7.0
Yeast extract	3.0
Sodium chloride	5.0
Bile salts	1.5
Glucose	10.0
Neutral red	0.03
Crystal violet	0.002
Agar	13.0

Final pH 7.4 +/- 0.2 at 25°C

Store prepared media below 8°C, protected from direct light. Store dehydrated powder, in a dry place, in tightly-sealed containers at 2-25°C. Use before expiry date on the label.

Appearance: Slightly beige, homogeneous, free flowing powder.

Gelling: Firm

Colour and Clarity: Deep red coloured, clear solution

Directions:

Suspend 39.5g in 1 litre of distilled water and let soak. Bring to the boil to fully dissolve the powder.

Sterilize by boiling for 1 minute with frequent agitation. DO NOT AUTOCLAVE.

Prolonged heating in thermostatic bath could cause slight precipitates.

Principle and Interpretation:

Violet Red Bile Glucose Agar is a modification of MacConkey Agar, developed by Mossel in the 1960s, where lactose is replaced by glucose (1). Consequently, it does not differentiate lactose-positive coliforms from lactose-negative genera as *Salmonella* or *Shigella* but allows to determine an overall concentration of enterobacteria with a better recovery rate than MacConkey Agar. This is why VRBG Agar finds extensive application in the analysis of food, medicines and cosmetics.

For low cell densities it can be advisable to perform a progressive enrichment in CASO Broth (22098) first and subsequently EE Broth (69965) before applying to VRBG Agar.

Peptone is a source of carbon, nitrogen, vitamins and minerals. Yeast extracts provides vitamins, especially of the B-complex for bacterial growth stimulation. Glucose supplies carbon and energy. Bile salts and crystal violet are added in order to suppress gram-positive bacteria.

Enterobacteriaceae form dark purple colonies surrounded by reddish halos



Cultural characteristics observed after 24 hours at 31°C.

Organisms (ATCC)	Growth	Color of Colony
<i>Enterococcus faecalis</i> (29212)	-	-
<i>Pseudomonas aeruginosa</i> (27853)	-/+	-
<i>Escherichia coli</i> (11775)	++	dark violet with precipitate zone
<i>Escherichia coli</i> (25922)	++	dark violet with precipitate zone
<i>Salmonella typhimurium</i> (14028)	++	dark violet with precipitate zone
<i>Salmonella abony</i> (NCTC6017)	++	dark violet with precipitate zone
<i>Escherichia coli</i> (8739)	++	dark violet with precipitate zone

References:

1. D.A.A. Mossel et al. *J. Appl. Bacteriol.* 26, 444, (1963)
2. D.L. Cousins, F. Marlatt *J. Food Prot.* 53, 568, (1990)
3. *Appl. Microbiol.* 20, 273, (1970)
4. ISO 21528-1:2017, Microbiology of the food chain — Horizontal method for the detection and enumeration of Enterobacteriaceae — Part 1: Detection of Enterobacteriaceae
5. ISO 21528-2:2017, Microbiology of the food chain — Horizontal method for the detection and enumeration of Enterobacteriaceae — Part 2: Colony-count technique

Precautions and Disclaimer

This product is for R&D use only, not for drug, household, or other uses. Please consult the Material Safety Data Sheet for information regarding hazards and safe handling practices.

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