

Violet Red Bile Glucose Agar (i23193)

VRBD Agar (also known as VRBG Agar) is used for detecting and enumerating *Enterobacteriaceae* in food and dairy products.

Industry: Food / Water / Pharmaceutical / Veterinary / Quality Control / cosmetics

Principles & Uses

Violet Red Bile Glucose Agar (VRBG) is a modification of MacConkey Agar designed by Mossel in the 1960s, replacing lactose with glucose. While it doesn't distinguish between lactose-positive *coliforms* and lactose-negative genera like *Salmonella* or *Shigella*, it's valuable for overall *enterobacteria* concentration analysis with a higher recovery rate than MacConkey Agar. VRBG Agar is widely used for food, medicine, and cosmetic analysis. For low cell densities, a progressive enrichment in CASO Broth and then EE Broth before applying to VRBG Agar is recommended. The medium contains peptone and yeast extract for essential nutrients, glucose as the carbohydrate source, and bile salts and crystal violet to suppress gram-positive bacteria. Sodium chloride maintains osmotic equilibrium. *Enterobacteriaceae* form dark purple colonies with reddish halos, making it useful in various applications, such as food and cosmetic analysis.

The medium is recommended by ISO committees and is more selective when incubated under anaerobic conditions or at temperatures equal to or above 42°C. The pour plate method suppresses the growth of non-fermenting Gram-negative bacteria, stimulating glucose fermentation.

Composition (gr/L)

Peptone from Meat 7, Yeast Extract 3, Glucose 10, Bile Salts 1.5, Sodium Chloride 5, Neutral Red 0.03, Crystal Violet 0.002, Agar 13.

Final pH at 25°C 7.3 ± 0.2

Preparation from dehydrated Powder

Suspend 39.5 g of the powder in 1 Liter of purified water. Mix thoroughly. Heat with frequent agitation and boil for 1 minutes to completely dissolve the powder.

DO NOT AUTOCLAVE.

Quality Control

Dehydrated Appearance: Pink-beige to pink, free-flowing, homogeneous (may contain small dark particles).

Prepared Appearance: Reddish-purple, slightly opalescent.

Reaction of 3.95% Solution at 25°C: pH 7.3 ± 0.2

Cultural Response

Cultural characteristics were observed after incubation at 35 ± 2°C for 18- 24 hours.

Organism (ATCC*)	Recovery	Colony Color
<i>Escherichia coli</i> (25922)	Good	Red to purple colonies, with bile precipitate
<i>Salmonella typhimurium</i> (14028)	Growth	Red to purple colonies, with bile precipitate
<i>Staphylococcus aureus</i> (25923)	None to poor	Colorless to red colonies, no bile precipitate

*ATCC is a registered trade mark of the American Type Culture Collection.



E. coli on VRBGA, cultured using pour plate method.

Storage

Keep the container at 15-30 °C. Store prepared medium at 2-8 °C.