

**Product :
VIOLET RED BILE DEXTROSE AGAR (VRBD
AGAR) (EUR. PHARM.)**
Also known as

MacConkey Dextrose Agar; VRBG

Specification

Selective solid medium for the enumeration of enterobacteria, according to ISO standard 21528 and Pharmacopeial Harmonized Methods.

Formula * in g/L

Yeast extract.....	3.000
Pancreatic digest of gelatin.....	7.000
Bile salts.....	1.500
D(+)-Glucose monohydrate.....	10.000
Sodium chloride.....	5.000
Neutral red.....	0.030
Crystal violet.....	0.002
Agar.....	13.000

Final pH 7.4 ±0.2 at 25 °C

* Adjusted and /or supplemented as required to meet performance criteria

Directions

Suspend 39,5 g in 1 L of distilled water and let it soak. Mix well and dissolve by heating with frequent agitation. Boil for one minute until complete dissolution. Do not overheat. Cool to 47-50 °C and dispense immediately. Distribute in suitable containers. Prolonged heating in a water bath could cause slight precipitates. Do not autoclave.

Description

 This medium is a modification of the Violet Red Bile Agar and the MacConkey Agar as described by Mossel *et al.* The addition of glucose to the Violet Red Bile Agar enhances both the growth of the most fastidious enterobacteria and the recovery of those having suffered from adverse conditions. Mossel himself realized that by removing the lactose and keeping the glucose, the medium's efficiency remained stable.

 This medium can be used as a presumptive medium for *E. coli* (by fluorescent reaction) if before sterilization MUG is added.

Technique

Violet Red Bile Dextrose Agar is widely used in the analysis of food, medicines and cosmetics. It is particularly indicated for the recovery of bacteria which have been damaged during preparation. In such cases, a progressive enrichment is recommended in TSB and subsequently in EE Broth. The enriched culture can be inoculated in tubes or on Violet Red Bile Dextrose Agar plates. For a count of enterobacteria, follow the technique described for Violet Red Bile Agar.

Results can be read after 24 hours of incubation à 35 °C ±2.0. Enterobacterial colonies are an intense purple colour surrounded by a clearer zone. If enterococci colonies eventually develop, they will be small and pink coloured.

Quality control
Incubation temperature: 30-35 °C/ 37 ±1 °C **Incubation time:** 24 ± 2 h

Inoculum: Practical range 50-100 CFU (productivity)/ 10¹-10⁸ CFU (selectivity), according to Ph. Eur. and ISO 11133:2014/ Adm 2018.

Microorganism	Growth	Remarks
<i>Staphylococcus aureus</i> ATCC® 6538	Total inhibition/ 30-35 °C	-
<i>Pseudomonas aeruginosa</i> ATCC® 9027	Productivity > 0.50/ 30-35 °C	-
<i>Escherichia coli</i> ATCC® 8739	Productivity > 0.50/ 30-35 °C	Pink-Red colonies w. precipitate zone
<i>Escherichia coli</i> ATCC® 25922	Productivity > 0.50/ 37 °C	Pink-Red colonies w. precipitate zone
<i>Salmonella typhimurium</i> ATCC® 14028	Productivity > 0.50/ 37 °C	Pink-Red colonies w. precipitate zone
<i>Salmonella abony</i> NCTC® 6017	Productivity > 0.50/ 37 °C	Pink-Red colonies w. precipitate zone
<i>Escherichia coli</i> ATCC® 8739	Productivity > 0.50/ 37 °C	Pink-Red colonies w. precipitate zone
<i>Enterococcus faecalis</i> ATCC® 19433	Total inhibition/ 37 °C	-

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- EUROPEAN PHARMACOPOEIA 11.0 (2023) 11th ed. § 2.6.13. Microbiological examination of non-sterile products: Test for specified microorganisms. Harmonised Method. EDQM. Council of Europe. Strasbourg.
- ISO 21528-1:2017 Standard. Microbiology of food chain - Horizontal methods for the detection and enumeration of Enterobacteriaceae - Part 1: Detection of Enterobacteriaceae.
- ISO. Norma 21528-2 (2017) Microbiology of the food chain – Horizontal methods for the detection and enumeration of Enterobacteriaceae. – Part 2: Colony-count method.
- ISO 11133:2014/ Adm 1:2018. Microbiology of food, animal feed and water. Preparation, production, storage and performance testing of culture media.
- MOSSEL, D.A.A. (1985) Media for Enterobacteriaceae. *Int. J. Food Microbiol.* 2:27-35.
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- PASCUAL ANDERSON, M^a R. (1992) *Microbiología Alimentaria*. Díaz de Santos, S.A. Madrid.
- USP 33 - NF 28 (2011) <62> Microbiological examination of non-sterile products: Test for specified microorganisms. Harmonised Method. USP Corp. Inc. Rockville. MD. USA

Storage

For laboratory use only. Keep tightly closed, away from bright light, in a cool dry place (+4 °C to 30 °C).