

# TECHNICAL DATA SHEET

Article No. 7836

VRBD Agar (Violet Red Bile Dextrose Agar) Ph. Eur.

## SYNONYMS

MacConkey Dextrose Agar

## SPECIFICATION

Selective solid medium for the enumeration of enterobacteria, according to Ph.Eur. harm., ISO 21528.

## FORMULA\* IN G/L

Yeast extract	3.00
Pancreatic digest of gelatin	7.00
Bile salts	1.50
D(+)-Glucose monohydrate	10.00
Sodium chloride	5.00
Neutral red	0.03
Crystal violet	0.002
Agar	13.00

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. Heat to boiling with constant stirring. Distribute in suitable containers. Prolonged heating could cause slight precipitates. Do not autoclave.

## DESCRIPTION

This medium is a modification of the Violet Red Bile Agar (Art. no. 7883) and the MacConkey Agar (Art. no. 8796) 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 (Art. no. 8751) 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 at 35 °C  $\pm$ 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  $\pm$ 1 °C
- Incubation time: 24  $\pm$  2 h
- Inoculum: Practical range 50- 100 CFU (productivity)/10<sup>4</sup>-10<sup>6</sup> CFU (selectivity), according to Ph. Eur. and ISO 11133:2014/ Adm 2018.

Microorganism	Growth	Remarks
<i>Staphylococcus aureus</i> ATCC® 6538	Total inhibition	None
<i>Pseudomonas aeruginosa</i> ATCC® 9027	Productivity >0.50	None
<i>Escherichia coli</i> ATCC® 8739	Productivity >0.50	Rosa-Red colonies with precipitate zone
<i>Escherichia coli</i> ATCC® 25922	Productivity >0.50	Rosa-Red colonies with precipitate zone
<i>Salmonella typhimurium</i> ATCC® 14028	Productivity >0.50	Rosa-Red colonies with precipitate zone
<i>Salmonella abony</i> NCTC® 6017	Productivity >0.50	Rosa-Red colonies with precipitate zone
<i>Escherichia coli</i> ATCC® 8739	Productivity >0.50	Rosa-Red colonies with precipitate zone
<i>Enterococcus faecalis</i> ATCC® 19433	Total inhibition	None

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## REFERENCES

- EUROPEAN PHARMACOPOEIA 10.0 (2020) 10th 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.
- MOSSEL, D.A.A., H. MENGERINK & H.H. SCHOLTS (1962) Use a Modified MacConkey Agar Medium for the selective growth and enumeration of all Enterobacteriaceae. *J. Bact.* 84:381.
- MOSSEL, D.A.A., M. VISER & A.M.R. CORNELISSEN (1963) The examination of foods for Enterobacteriaceae using a test of the type generally adopted for the detection of salmonellae. *J. Appl. Bact.* 26:444-452.
- MOSSEL, D.A.A. & M.A. RATTO (1970) Rapid detection of sub-lethally impaired cells of Enterobacteriaceae in dried foods. *Appl. Microbiol.* 20:273-275.
- PASCUAL ANDERSON, M<sup>a</sup> R. (1992) *Microbiología Alimentaria*. Díaz de Santos, S.A. Madrid.
- USP 33 - NF 28 (2011) Microbiological examination of non-sterile products: Test for specified microorganisms. Harmonised Method. USP Corp. Inc. Rockville. MD. USA

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## STORAGE

Keep tightly closed, away from light, in a dry place (4-30 °C).

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## SHELF LIFE

4 years from date of production

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updated: 17.03.2023

