Product :
VIOLET RED BILE LACTOSE DEXTROSE AGAR

Also known as
VRBLD Agar; VRBLDA Medium; Agar Medium F

Specification
Solid selective medium for the detection of Enterobacteriaceae according to the European Pharmacopoeia.

Formula * in g/L
Yeast extract..... 3.000
Peptone 7.000
Sodium chloride..... 5.000
Bile salts No. 3..... 1.500
Lactose monohydrate..... 10.000
Dextrose monohydrate..... 10.000
Neutral red..... 0.030
Crystal violet..... 0.002
Agar..... 15.000

Final pH 7,4 ±0,2 at 25 ºC
* Adjusted and /or supplemented as required to meet performance criteria

Directions
Suspend 51,5 g of powder in 1 L of distilled water and heat to the boil. Pour into Petri dishes immediately. Do not sterilize in the autoclave nor overheat.

Description
This medium developed in 1962 by Mossel *et al.* is more effective than MacConkey Agar for the detection of Enterobacteriaceae in foods. The formulation has been officially adopted by the European Pharmacopoeia 5.0 for the microbiological examination of non-sterile products. The medium is especially used in the recovery of process stressed bacteria using a progressive enrichment technique.
This medium can be used as presumptive medium for *E. coli* (by fluorescent reaction) if before sterilization MUG (Art. No 06-102LYO1) is added.

Technique
The product sample is diluted 1:10 in Lactose Broth and incubated for 2-5 hours at 35-37ºC. The pre-enrichment is then diluted ten fold in EE Broth and incubated at 35-37ºC for 18-24 hours. From this enrichment the surface of several plates of VRBDL Agar are inoculated. The product passes the test if after 18-24 hours of incubation at 35-37ºC there is no growth of Gram negative bacteria.
The Enterobacteriaceae colonies are deep purple in colour surrounded by a clearing zone. Sometimes colonies of Pseudmonas or Aeromonas are present, these can be easy differentiated using the oxidase test.

Quality control
Incubation temperature: 35°C ±2,0 **Incubation time:** 24 h
Inoculum: Practical range 50- 100 CFU (Productivity) / 10^4-10^6 CFU (Selectivity) according to Eu Ph. & ISO 11133:2014/Amd 1:2018

Microorganism	Growth	Remarks
Enterococcus faecalis ATCC® 19433	Total inhibition	Selectivity
Pseudomonas aeruginosa ATCC® 9027	Productivity > 0.50	-
Escherichia coli ATCC® 25922	Productivity > 0.50	Dark violet colonies, with a precipitate
Escherichia coli ATCC® 8739	Productivity > 0.50	Dark violet colonies, with a precipitate
Salmonella typhimurium ATCC® 14028	Productivity > 0.50	Dark violet colonies, with a precipitate
Salmonella abony NCTC® 6017	Productivity > 0.50	Dark violet colonies, with a precipitate

References

· EUROPEAN PHARMACOPOEIA (2005) § 2.6.13 Microbiological examination of non-sterile products. Tests for specified organisms. EDQM. Council of Europe. Strasbourg.

. 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 Nicrobiol. 2:27-35.

· MOSSEL, D.A.A., W. MENGERINK & H.H. SCHOLTS (1962) Use of a modified MacConkey Agar medium for selective growth and enumeration of 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.

Storage

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