

VRBD (Violet Red Bile Dextrose) Agar acc. to MOSSEL

Selective agar proposed by MOSSEL et al. (1962, 1963) for the isolation and enumeration of all Enterobacteriaceae species in foodstuffs.

General Information

This medium complies with the recommendations of the harmonized method in the European Pharmacopeia 5.6 and the United States Pharmacopeia 29.

This medium also complies with the recommendations of the International Organization for Standardization (ISO) (1977) and the German Minister of Health (Bundesminister für das Gesundheitswesen) (1967). HECHELMANN et al. (1973) obtained good results with this culture medium. The medium also complies with the German recommendations according § 35 LMBG for food examination and the DIN 10172-3 (1988)

Mode of Action

Crystal violet and bile salts inhibit the accompanying bacterial flora. Degradation of glucose is accompanied by production of acid, which is indicated by a colour change to red and by zones of precipitated bile acids surrounding the colonies. All Enterobacteriaceae are detected as they all degrade glucose to acid. The culture medium is not, however, absolutely specific for these organisms as some other accompanying bacteria (e.g. Aeromonas) also show these reactions.

Typical Composition (g/litre)

Peptone from gelatine 7.0; yeast extract 3.0; sodium chloride 5.0; D(+)-glucose 10.0; bile salt mixture 1.5; neutral red 0.03; crystal violet 0.002; agar-agar 13.0.

Preparation

Suspend 39.5 g in 1 litre of demin. water and heat to boiling with frequent stirring until completely dissolved. Afterwards do not boil more than 2 minutes.

■ Do not autoclave! Do not overheat!

pH: 7.4 ± 0.2 at 25 °C.

The prepared medium is clear and dark red.

Incubation: for 24 hours at 35 °C aerobically.

The identity of suspected Enterobacteriaceae colonies should be confirmed by further tests.

Appearance of Colonies	Microorganisms
Red, surrounded by reddish precipitation zones	Enterobacteriaceae and others
Colourless	No Enterobacteriaceae present

Literature

Bundesgesundheitsamt: Amtliche Sammlung von Untersuchungsverfahren nach § 35 LMBG. - Beuth Verlag Berlin, Köln.

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Ph.Eur. 5.6, Chapter 2.6.13 B (Harmonized Method)

HECHELMANN, H.; ROSSMANITH, E., PERIC, M., u. LEISTNER, L.: Untersuchung zur Ermittlung der Enterobacteriaceae-Zahl bei Schlachtgeflügel. - Fleischwirtsch., 53; 107-113 (1973).

International Organization for Standardization: Meat and meat products - detection and enumeration of Enterobacteriaceae without resuscitation (MPN technique and colony count technique) ISO 5552 (1997)

MOSSEL, D.A.A., MENGERINK, W. H.J., a. SCHOLTS, H.H.A.: Use of a modified MacConkey agar medium for the selective growth and enumeration of all Enterobacteriaceae. - J. Bact., 84; 381 (1962).

MOSSEL, D.A.A., a. CORNELISSEN, A.M.R.: 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 (1963).

United States Pharmacopeia 29-NF 24, Chapter <62>.

DIN 20172-3 (1988) Mikrobiologische Milchuntersuchung. Bestimmung der coliformen Keime. Verfahren mit festen Nährböden.

Ordering Information

Product	Ordering No.	Pack size
VRBD (Violet Red Bile Dextrose) Agar acc. to MOSSEL	1.10275.0500	500 g

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Quality control (spiral plating method)

Test strains	Inoculum [CFU]	Recovery %	Colony colour	Precipitate
<i>Escherichia coli</i> ATCC 8739	10-100	≥ 50	red	+
<i>Pseudomonas aeruginosa</i> ATCC 9027	10-100	≥ 50	slightly red	-
<i>Salmonella typhimurium</i> ATCC 14028	10-100	≥ 50	red	+
<i>Shigella flexneri</i> ATCC 29903	10-100	≥ 50	red	+
<i>Yersinia enterocolitica</i> ATCC 9610	10-100	≥ 50	red	
<i>Staphylococcus aureus</i> ATCC 6538	1·10 ⁴	≤ 0.01		
<i>Bacillus cereus</i> ATCC 11778	1·10 ⁴	≤ 0.01		
<i>Enterococcus faecalis</i> ATCC 19433	1·10 ⁴	≤ 0.01		



Escherichia coli ATCC 8739



Shigella flexneri ATCC 29903