AOAC
BAM
COMPF
SMD
USP

LEVINE EMB Agar (Eosin Methylene-blue Lactose Agar acc. to LEVINE)

For the isolation and differentiation of Escherichia coli and Enterobacter and for the rapid identification of Candida albicans according to LEVINE (1918, 1921).

IVD *in vitro diagnosticum –*
For professional use only

CE

See also General Instruction of Use
Warnings and precautions see ChemDAT® (www.chemdat.info)

The culture medium complies with the recommendations of the APHA Standard Methods for the Examination of Water and Wastewater (1998) and the United States Pharmacopeia XXVI (2003).

Principle

Microbiological method

Mode of Action

The dyes contained in this medium inhibit the growth of many accompanying Gram-positive microorganisms. According to WELD (1952, 1953) and VOGEL and MOSES (1957), LEVINE EMB Agar can be used to identify Candida albicans in clinical specimens, if chlorotetracycline hydrochloride is added to inhibit the entire accompanying bacterial flora. LEVINE EMB Agar can also be utilized for the identification of coagulase-positive staphylococci which grow characteristically as colourless "pin-point" colonies and which show good agreement with the results of the coagulase test (MENOLASINO et al. 1960).

Typical Composition (g/litre)

Peptone from gelatine 10.0; lactose 10.0; di-potassium hydrogen phosphate 2.0; eosin, yellowish 0.4; methylene blue 0.065; agar-agar 13.5.

Preparation and Storage

Usable up to the expiry date when stored dry and tightly closed at +15 to +25° C. Protect from light.

After first opening of the bottle the content can be used up to the expiry date when stored dry and tightly closed at +15 to +25° C.

Suspend 36 g/litre, autoclave (15 min at 121 °C), and pour plates.

pH: 7.1 ± 0.2 at 25 °C.

The plates are clear and red-brown.

If cultivating Candida, add 0,1 mg tetracycline hydrochloride/ litre after autoclaving and mix homogeneously. The culture medium then is blue.

Specimen

e.g. Stool.
Clinical specimen collection, handling and processing, see general instruction of use.

Experimental Procedure and Evaluation

Inoculate by thinly spreading the sample material on the surface of the culture medium.

Incubation: 1-2 days at 35 °C aerobically.

To obtain a primary culture of Candida, incubate the plates containing chlorotetracycline in a 10 % carbon dioxide atmosphere (e.g. with Anaerocult® C or C mini).

Appearance of Colonies	Microorganisms
Diameter 2-3 mm, greenish metallic sheen in reflected light, dark or even black centre in transmitted light	Escherichia coli
Diameter 4-6 mm, graybrown centre in transmitted light, no metallic sheen	Enterobacter
Transparent, amber-coloured	Salmonella and Shigella
Colourless, "pin-point" colonies	Coagulase-positive staphylococci
"Spidery" - or "feathery"	Candida albicans
Yeast-like, round, smooth	Other Candida species. Sometimes Nocardia

Literature

American Public Health Association, American Water Works Association and Water Pollution Control Federation: Standard Methods for the Examination of Water and Wastewater, 20th ed., Washington 1998.

LEVINE, M.: Differentation of E. coli and A. aerogenes on a simplified eosin-methylene blue agar. - **J. Infect. Dis., 23**; 43-47 (1918).

LEVINE, M.: Bacteria fermenting lactose and the significance in water analysis. - **Bull., 62**; Iowa State College Engr. Exp. Station (1921).

MENOLASINO, N.I., GRIEVES, B., a PAYNE, P.: Isolation and Identification of coagulase-positive staphylococci on Levine's eosin-methylene blue agar. - **J. Lab. Clin. Med., 56 (6)**; 908-910 (1960).

VOGEL, R.A., a. MOSES, M.R.: Welds method for the rapid identification of Candida albicans in clinical materials. - **Am. J. Clin. Path., 28 (1)**; 103-106 (1957).

WELD, J.T.: Candida albicans. Rapid identification in pure cultures with carbon dioxyde on modified eosin-methylene blue medium. - **Arch. Dermat. Syph., 66**; 691-694 (1952).

WELD, J.T.: Candida albicans. Rapid identification in cultures made directly from human materials. - **Arch. Dermat. Syph., 67 (5)**; 473-478 (1953).
United States Pharmacopeia XXVI, Chapter "Microbial Limit Tests", 1985.

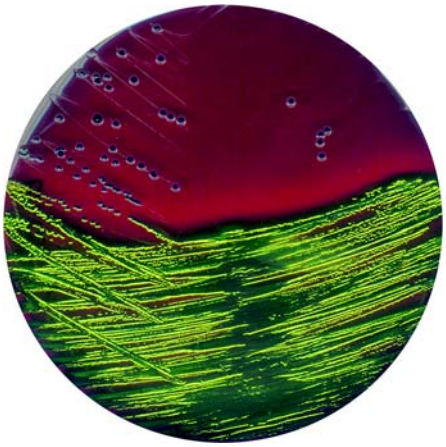
LEVINE EMB Agar (Eosin Methylene-blue Lactose Agar acc. to LEVINE)

Ordering Information

Product	Merck Cat. No.	Pack size
LEVINE EMB Agar (Eosin Methylene-blue Lactose Agar acc. to LEVINE)	1.01342.0500	500 g
Anaerobic jar	1.16387.0001	1 ea
Anaeroclip®	1.14226.0001	1 x 25
Anaerocult® C	1.16275.0001	1 x 10
Anaerocult® C mini	1.13682.0001	1 x 25
Plate basket	1.07040.0001	1ea
Tetracycline hydrochloride	EMD Biosciences	

Quality control

Test strains	Growth	Colonies	
		Blue	Metallic sheen
Escherichia coli ATCC 25922	good / very good	+	+
Escherichia coli ATCC 11775	good / very good	+	+
Escherichia coli 194	good / very good	+	+
Enterobacter cloacae ATCC 13047	good / very good	pale blue	-
Shigella sonnei ATCC 11060	good / very good	-	-
Salmonella typhimurium ATCC 14028	good / very good	-	-
Proteus mirabilis ATCC 14273	good / very good	-	-
Staphylococcus aureus ATCC 25923	none / poor	-	-



Escherichia coli ATCC 11775