

Levine EMB Agar

I INTRODUCTION

Levine EMB Agar is a slightly selective and differential medium for the isolation, cultivation and differentiation of gram-negative enteric microorganisms isolated from both clinical and nonclinical specimens. It is widely used for the examination of materials of sanitary importance for the presence of coliforms.

PRODUCT INFORMATION

II INTENDED USE

Levine EMB Agar is a selective and differential plating medium for isolation of gram-negative enteric bacteria.

III SUMMARY AND EXPLANATION

Shortly following the publication by Holt-Harris and Teague of a paper describing a new culture medium for the differentiation of enteric microorganisms through the use of eosin and methylene blue dyes, Levine described a modification of their formulation which he claimed gave better differentiation between what are now referred to as *Escherichia* and *Enterobacter* species. The two formulations differ in that Levine EMB Agar does not contain sucrose. Both of these formulations were developed to improve upon the differentiating properties of Endo Agar, which was developed previously.

Levine EMB Agar utilizes dyes as selective agents. It is recommended for use in the microbiological examination of dairy products and foods by the American Public Health Association.

IV PROCEDURE

Instructions

The agar surface should be smooth and moist, but without excessive moisture.

Streak the specimen as soon as possible after it is received in the laboratory. The streak plate is used primarily to isolate pure cultures from specimens containing mixed flora. A nonselective medium should also be streaked to increase the chance of recovery when the population of gram-negative organisms is low and to provide an indication of other organisms present in the specimen.

Alternatively, if material is being cultured directly from a swab, roll the swab over a small area of the surface at the edge; then streak from this inoculated area.

Incubate plates, protected from light, at $35 \pm 2^\circ\text{C}$ for 18 to 24 h.

Visual Results on This Medium Should Be As Follows

After incubation most plates will show an area of confluent growth. Because the streaking procedure is, in effect, a “dilution” technique, diminishing numbers of microorganisms are deposited on the streaked areas. Consequently, one or more of these areas should exhibit isolated colonies of the organisms contained in the specimen. Better isolation is obtained due to the inhibitory action of the medium.

Typical colonial morphology on Levine EMB Agar is as follows:

E. coli	Large, blue-black, green metallic sheen
Enterobacter/Klebsiella	Large, mucoid, blue-black
Proteus	Large, colorless
Salmonella	Large, colorless
Shigella	Large, colorless
Pseudomonas	Irregular, colorless
Gram-positive bacteria	No growth to slight growth