

EMB Agar (i23068)

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

Industry: Clinical / Food

Principles & Uses

This culture medium, known as Eosin Methylene Blue (EMB) Agar, is a selective and differential medium used for the isolation of *Enterobacteria*, particularly *coliforms*. It originally formulated by Holt-Harris and Teague and further modified by Levine. It contains lactose and sucrose, along with two indicator dyes, Eosin Y and Methylene Blue. These dyes help differentiate between organisms that can ferment lactose and/or sucrose and those that cannot. Peptones provide essential nutrients, while dipotassium phosphate acts as a buffer. *Coliforms* produce blue-black colonies due to the eosin-methylene blue dye complex, and *Escherichia coli* colonies may exhibit a green metallic sheen due to rapid lactose fermentation. Non-fermenting bacteria appear as colorless or transparent amber colonies.

EMB Agar is widely used in medical bacteriology and recommended by APHA for detecting and enumerating *coliforms* in food and water samples. It helps distinguish lactose-negative organisms, such as *Salmonellae* and *Shigella*, from other lactose-negative and sucrose-positive species. This medium is valuable for quality control and contamination assessment in various fields.

Composition (gr/L)

Peptone 10, Lactose 10, Dipotassium Phosphate 2, Eosin Y 0.4, Methylene Blue 0.065, Agar 13.5.

Final pH at 25°C 7.1 ± 0.2

Preparation from dehydrated Powder

Suspend 36 g of the powder in 1 Liter of distilled water. Autoclave at 121°C for 15 minutes.

Quality Control

Dehydrated Appearance: Fine, homogeneous, may contain up to a large amount of minute to small dark red purple particles.

Prepared Appearance: Medium to dark, green orange brown, hazy.

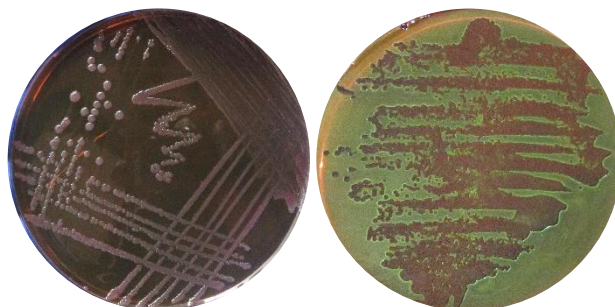
Reaction of 3.6% Solution at 25°C: pH 7.1 ± 0.2

Cultural Response

Cultural characteristics were observed after incubation at 35 ± 2°C for 24 hours. *Coliforms* that use lactose and/or sucrose produce blue-black colonies with dark centers and a greenish metallic sheen.

Organism (ATCC*)	Recovery	Reaction
<i>Escherichia coli</i> (25922)	Good	Metallic sheen
<i>Enterococcus faecalis</i> (29212)	Partial inhibition	-
<i>Salmonella enterica</i> subsp. <i>enterica</i> serotype <i>Typhi</i> (19430)	Good	No metallic sheen
<i>Shigella flexneri</i> (12022)	Good	No metallic sheen

*ATCC is a registered trade mark of the American Type Culture Collection.



Salmonella displaying colorless colonies (left), and *E. coli* with green colonies and a metallic sheen (right).

Storage

Keep the container at 15-30 °C. Store prepared medium at 2-8 °C. Keep away from light to avoid photooxidation.