



Esculin Agar

M1386

Esculin Agar is a differential medium for demonstrating esculin hydrolysis by various microorganisms

Composition**

Ingredients	Gms / Litre
Casein enzymic hydrolysate	13.000
Sodium chloride	5.000
Yeast extract	5.000
Beef heart infusion (solids)	2.000
Esculin	1.000
Ferric citrate	0.500
Agar	15.000
Final pH (at 25°C)	7.3±0.2

**Formula adjusted, standardized to suit performance parameters

Directions

Suspend 41.5 grams in 1000 ml distilled water. Heat to boiling to dissolve the medium completely. Distribute into screw-capped tubes in 3 ml volumes or as desired. Sterilize by autoclaving at 15 lbs pressure (121°C) for 15 minutes. Cool tubes in a slanted position.

Principle And Interpretation

Esculin is a glycoside incorporated as a differential agent to facilitate the identification of various organisms, including *Enterobacteriaceae*, Enterococci and anaerobes.

Esculin Agar is based on the formula recommended (1), for the cultivation and differentiation of bacteria based on their ability to hydrolyze esculin and produce H₂S. The unhydrolyzed esculin can be detected using long wave UV light at 360 nm since they will remain unchanged and fluorescence under UV light (2, 3). Hydrolyzed esculin will not fluoresce and medium turns black (3).

Casein enzymic hydrolysate and beef heart infusion (solids) provide amino acids and other nitrogenous substances that support bacterial growth. Esculin is a differentiating agent, which helps in identification of esculin-positive organism. Esculin is hydrolyzed to dextrose and esculetin, which forms a brown black complex in the presence of iron salt (ferric citrate) (2). Blackening of the agar med

Quality Control

Appearance

Cream to yellow homogeneous free flowing powder

Gelling

Firm, comparable with 1.5% Agar gel

Colour and Clarity of prepared medium

Amber coloured, clear to slightly opalescent gel forms in tubes as slants

Reaction

Reaction of 4.15% w/v aqueous solution at 25°C. pH : 7.3±0.2

pH

7.10-7.50

Cultural Response

M1386: Cultural characteristics observed after an incubation at 35-37°C for 18-24 hours

Organism	Inoculum (CFU)	Growth	Esculin hydrolysis
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Cultural Response

<i>Escherichia coli</i> ATCC 25922	50-100	good	negative reaction
<i>Enterococcus faecalis</i> ATCC 29212	50-100	luxuriant	positive reaction, blackening of medium
<i>Streptococcus pyogenes</i> ATCC 19615	50-100	luxuriant	negative reaction

Storage and Shelf Life

Store below 30°C in tightly closed container and the prepared medium at 2 - 8°C. Use before expiry date on the label.

Reference

1. Atlas R. M., 1996, Handbook of Microbiological Media, 2nd Ed., CRC Press,
2. Koneman E. W., Allen S. D., Janda W. M., Schreckenberger P. C., Winn W. C. Jr., 1997, Colour Atlas and Textbook of Diagnostic Microbiology, 5th Ed., J. B. Lippincott- Raven Publishers, Philadelphia, Pa.
3. Shigei, 1992, In Isenberg (Ed.), Clinical Microbiology Procedures Handbook, Vol. 1, American Society for Microbiology, Washington, D.C.

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