Technical Information

Esculin Agar

Product Code: DM 2386

Application: - 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

Principle & Interpretation

Esculin is a glycoside when added act as a differential agent help in 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 depending on their ability to hydrolyze esculin and produce H_2S. The unhydrolyzed esculin can be seen 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 medium.

Methodology

Suspend 41.5 grams of powder media in 1000 ml distilled water. Shake well & heat 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.

Quality Control

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

pH range 7.10-7.50

Cultural Response/ characteristices
DM 2386: Cultural characteristics observed after an incubation at 35-37°C for 18-24 hours.

Organism	Inoculum (CFU)	Growth	Esculin hydrolysis
Escherichia coli ATCC 25922	50-100	good	Negative reaction
Enterococcus faecalis ATCC 29212	50-100	luxuriant	Positive reaction, blackening of medium
Streptococcus pyogenes ATCC 19615	50-100	luxuriant	Negative reaction

Storage and Shelf Life

Dried Media: Store below 30°C in tightly closed container and use before expiry date as mentioned on the label.
Prepared Media: 2-8° in sealable plastic bags for 2-5 days.

Further Reading

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. Lippinccott- 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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