Bile Esculin Agar (M1660)

Bile Esculin Agar (BEA) is recommended for use as a differential medium in the isolation and presumptive identification of enterococci/group D streptococci.

Composition

Ingredients	g/ L
Peptone	5.000
Beer extracts	3.000
Bile	40.000
Esculin	1.000
Ferric citrate	0.500
Agar	15.000

Description

Esculin hydrolysis was first described by Rochaix in 1924. Swan first introduced the use of Bile Esculin Agar in 1954. In 1970, Facklam and Moody determined that the use of the bile esculin test was a reliable way of identifying group D streptococci from non-group D streptococci. When using BEA in biochemical testing of group D streptococci, they found that all group D streptococci will blacken this medium.

Other researchers have used BEA for the presumptive identification of Enterobacter spp., Klebsiella spp., and Serratia spp., among the Enterobacteriaceae.

This medium contains esculin, ferric citrate to provide ferric ions, and 4% oxbile to inhibit most other strains of non-group D streptococci. Esculin is hydrolyzed by group D streptococci to form dextrose and esculin. This compound reacts with the ferric ions contained within the medium, turning the medium from its original amber color to a dark brown to black. Thus the tolerance to the presence of bile and the hydrolysis of esculin provide the means to presumptively identify group D streptococci.

Type of specimen

Isolated microorganisms

Specimen Collection and Handling

For clinical samples follow appropriate techniques for handling specimens as per established guidelines. After use, contaminated materials must be sterilized by autoclaving before discarding.

Warning and Precautions

In Vitro diagnostic use only. For professional use only. Read the label before opening the container. Wear protective gloves/protective clothing/eye protection/ face protection. Follow good microbiological lab practices while handling specimens and culture.

Limitations

1. This medium is general purpose medium and may not support the growth of fastidious organisms.

Performance and Evaluation

Performance of the medium is expected when used as per the direction on the label within the expiry period when stored at recommended temperature.

Quality control
Physical/Chemical control
Color : Amber pH: 6.40-6.80

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

Microbiological activity

Organisms	Inoculum CFU/ml	Result
Enterococcus faecalis ATCC 29212	50-100	growth, blackening of media around colonies
Streptococcus pyogenes ATCC 19615	50-100	partial to complete inhibition, negative reaction
Proteus mirabilis ATCC 12453	50-100	good growth, negative reaction

Storage and Shelf Life ,
Store between 2-8°C. Use before expiry date on the label. Product performance is best if used within stated expiry period.

Disposal
User must ensure safe disposal by autoclaving and/or incineration of used or unusable preparations of this product. Follow established laboratory procedures in disposing of infectious materials and material that comes into contact with sample must be decontaminated and disposed of in accordance with current laboratory techniques.

Reference
1. Isenberg, H.D. Clinical Microbiology Procedures Handbook, Vol. I, II & III. American Society for Microbiology,Washington, D.C.
2. Koneman, E.W., et al. Color Atlas and Textbook of Diagnostic Microbiology, J.B. Lippincott Company, Philadelphia, PA.
3. MacFaddin, J.F. 1985. Media for Isolation, Cultivation, Identification, Maintenance of Bacteria, Vol. I. Williams & Wilkins, Baltimore, MD.
4. Quality Assurance for Commercially Prepared Microbiological Culture Media, M22. Clinical and Laboratory Standards Institute (CLSI - formerly NCCLS).