

# PRODUCT INFORMATION

Product Type: Tubes

## Cat No. TT145 - BILE ESCULIN AGAR

### Intended Use:

For the isolation and presumptive identification of enterococci and for studies of fermentation of esculin by *Yersinia*.

### Applications:

For Selective isolation of Enterococci and Confirmation of *Yersinia enterocolitica* in Clinical / Food Industry.

**Regulations:** ISO 10273 / BAM

### Principles and uses:

Bile Esculin Agar is ideal for the isolation and differentiation of intestinal *enterococci*, based on Esculin hydrolysis in the presence of bile. It is also recommended by ISO 10273 for fermentation studies of esculin by *Yersinia*. An esculin test shall be carried out to determine presumed pathogenicity since pathogenic *Yersinia enterocolitica* strains are esculin negative. This test for fermentation of esculin is equivalent to the test for fermentation of salicin.

Organisms positive for esculin hydrolysis hydrolyze the glycoside esculin to esculetin and dextrose. The esculetin reacts with the Ferric citrate to form a dark brown or black colony. Bile Salts do not inhibit enterococci while other Gram-positive bacteria are inhibited. Beef extract and peptone supply the nutrients essential for growth. Bacteriological agar is the solidifying agent. Tolerance to bile and the ability to hydrolyze esculin constitutes a reliable presumptive test for the identification of *Enterococci*. The brown color (positive reaction) around the colonies appears after 18-24 hours of incubation at a temperature of  $35 \pm 2$  °C.

The presence of intestinal *enterococci*, is an indicator for faecal contamination, especially when the contamination occurred a long before and the less resistant coliform bacteria, including *Escherichia coli*, may already be dead when the analysis is carried out.

### Instructions for use

**For clinical diagnosis, the type of sample is bacteria isolated from faeces.**

- Inoculate on the surface making parallel striae with the handle or hyssop.
- Incubate in aerobic conditions at  $35 \pm 2$  °C for 18-24 hours.
- Reading and interpretation of the results.

**For other uses not covered by the CE marking:**

**Isolation and presumptive identification of enterococci:**

- Streak the slant surface of the agar.
- Incubate at a temperature of  $35 \pm 2$  °C for 18-24 horas
- Positive cultures are confirmed on KAA Confirmatory Agar (Cat. 1027) or KF Streptococcal Agar (Cat. 1034).

**Confirmation of pathogenic *Yersinia enterocolitica* according to ISO 10273:**

- From the colonies selected for confirmation growth in CIN, streak the bacteria in a slanted tube of Bile Esculin Agar.
- Incubate at 30 °C for  $24 \pm 2$  h.
- The appearance of a black halo around the colonies indicates a positive reaction.

## References

1. Bact. Proceedings M33. 1969 Clin. Lab Forum July 1970.
2. Swan, A. 1954. The use of bile-esculin medium and of Maxted's technique of Lancefield grouping in the identification of enterococci (Group D streptococci). J. Clin Pathol 7:160 Facklam, R.R. and M.D. Moody 1 970 Presumptive identification of Group D streptococci, The bile esculin test. Appl. Microbiol 20:245.
3. Farmer J.J. III 1995 Enterobacteriaceae P.R. Murray, E.J. Baron, M.A. Pfaller, F.C. Tenover and R.H. Tenover (eds) Manual of clinical microbiology, 6th ed. American Society for Microbiology, Washington, D.C.
4. ISO 10273. Microbiology of the food chain. Horizontal method for the detection of pathogenic *Yersinia enterocolitica*

## Composition:

Bacteriological agar 15 g/L  
Bile salts 40 g/L  
Esculin 1 g/L  
Beef extract 3 g/L  
Meat peptone 5 g/L  
Ferric citrate 0,5 g/L

**Storage:** 15°-25°C

**Appearance:** Light yellow to amber, clear to slightly opalescent

**pH Range:** 6.4 - 6.8

**Exp. Date:** Printed on label and on the item.

**Required materials not supplied:** Laboratory equipment as required.

## Warning and Precautions:

Warning and Precautions - For professional use only. Follow good microbiological lab practices while handling specimens and culture. Do not use Tubes if they show evidence of microbial contamination, discoloration, drying, cracking, or other signs of deterioration. Avoid freezing and overheating. The Tubes may be used / inoculated up to the expiration date and incubated for the recommended incubation times. After use and prior to discarding, specimen containers and all contaminated material, including the used culture media and contaminated culture containers, must be sterilized or incinerated by validated procedures. Since the nutritional requirements of organisms vary, some strains may be encountered that fail to grow or grow poorly on this medium.

## Waste Disposal

After interpretation all items should be destroyed by standard incineration methods.

## Performance Testing Results:

Test	ATCC NO	Incubation Temp. (°C)	Incubation Cond.	Reaction 1	
<i>Enterococcus faecalis</i>	19433	33-37 °C	Aerobic, 24 hours	Growth	Esculin hydrolysis (+), black background
<i>Enterococcus faecium</i>	19434	33-37 °C	Aerobic, 24 hours	Growth	Esculin hydrolysis (+), black background
<i>Staphylococcus aureus</i>	25923	33-37 °C	Aerobic, 24 hours	Growth	Esculin hydrolysis (+, -) (light)
<i>Escherichia coli</i>	25922	33-37 °C	Aerobic, 24 hours	Growth	Esculin hydrolysis (-)
<i>Streptococcus uberis</i>	27958	33-37 °C	Aerobic, 24 hours	Inhibited	

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