TM 2071 – ESCULIN MANNITO AGAR

INTENDED USE

Recommended as a selective and differential media for the isolation of Staphylococci and Enterococci based on mannitol fermentation and esculin hydrolysis.

PRODUCT SUMMARY AND EXPLANATION

Staphylococci are widespread in nature, although they are mainly found on the skin, skin glands and mucous membranes of mammals and birds. The coagulase-positive species i.e *Staphylococcus aureus* is well documented as a human opportunistic pathogen and also considered potent pathogen from the point of view of food hygiene The ability to clot plasma continues to be the most widely used and accepted criterion for the identification of pathogenic staphylococci associated with acute infections.

Group D Streptococci possess the group D lipoteichoic acid antigen in their cell walls. Former Group D species, which are predominant normal inhabitants of the human gastrointestinal tract, are termed as faecal Streptococci or Enterococci. The unique ability of Enterococci to split esculin was reported by Meyer and Schonfeld. The use of esculin hydrolysis in identification of Enterococci was first cited by Rochaix.

Enterococcus species hydrolyse esculin and hence black precipitate is observed around the colonies. This medium helps in smultaneous differentiation of *Enterococcus* and *Staphylococcus* based on mannitol fermentation and esculin hydrolysis.

COMPOSITION

Ingredients	Gms / Ltr
Peptone	23.000
Mannitol	10.000
Sodium chloride	5.000
Corn starch	1.000
Esculin	1.000
Ferric ammonium citrate	0.500
Phenol red	0.025
Nalidixic acid	0.015
Colistin sulphate	0.010
Agar	15.000

PRINCIPLE

The medium consists of Peptone which supplies nitrogenous and carbonaceous compounds, long chain amino acids, other essential growth factors and trace nutrients to the growing bacteria. Sodium chloride maintains osmotic balance Mannitol is the fermentable carbohydrate, fermentation of which leads to acid production, detected by phenol red indicator. Corn starch helps in neutralizing the toxic compounds. Esculin in the medium is hydrolyzed to esculetin and dextrose. Esculetin reacts with ferric ammonium citrate to form a dark brown or black complex, visualized as a zone of black precipitate around the colonies. Esculin hydrolysis is shown by *Enterococcus* species. Nalidixic acid and Colistin sulphate helps in inhibiting gram negative bacteria. *S.aureus* ferment mannitol and produce yellow coloured colonies surrounded by yellow zones.

INSTRUCTION FOR USE

- Dissolve 55.55 grams in 1000 ml purified / distilled water.
- Heat to boiling to dissolve the medium completely.
- Sterilize by autoclaving at 15 psi pressure (121°C) for 15 minutes. Cool to 45-50°C.
- Mix well and pour into sterile Petri plates.

QUALITY CONTROL SPECIFICATIONS

Appearance of Powder : Light yellow to pink homogeneous free flowing powder.
Appearance of prepared medium : Red coloured clear to slightly opalescent gel forms in Petri plates.
pH (at 25°C) : 7.3 ± 0.2

INTERPRETATION

Cultural characteristics observed after incubation. Recovery rate is considered as 100% for bacteria growth on Soybean Casein Digest Agar.

Microorganism	ATCC	Inoculum (CFU/ml)	Growth	Recovery	Mannitol fermentation	Esculin hydrolysis	Incubation Temperature	Incubation Period
Staphylococcus aureus	6538	50-100	Luxuriant	>=70 %	Yellow/white colonies surrounded by yellow zone	-	35-37°C	18-72 Hours
Staphylococcus aureus	25923	50-100	Luxuriant	>=70 %	Yellow/white colonies surrounded by yellow zone	-	35-37°C	18-72 Hours
Enterococcus faecalis	29212	50-100	Luxuriant	>=50 %	-	Positive reaction, blackening of medium around the colony	35-37°C	18-72 Hours
Escherichia coli	25922	>=10^3	Inhibited	0%	-	-	35-37°C	18-72 Hours
Enterobacter aerogenes	13048	>=10^3	Inhibited	0%	-	-	35-37°C	18-72 Hours

PACKAGING:

In pack size of 500 gm bottles.

STORAGE

Dehydrated powder, hygroscopic in nature, store in a dry place, in tightly-sealed containers between 25-30°C and protect from direct sunlight. Under optimal conditions, the medium has a shelf life of 4 years. When the container is opened for the first time, note the time and date on the label space provided on the container. After the desired amount of medium has been taken out replace the cap tightly to protect from hydration.

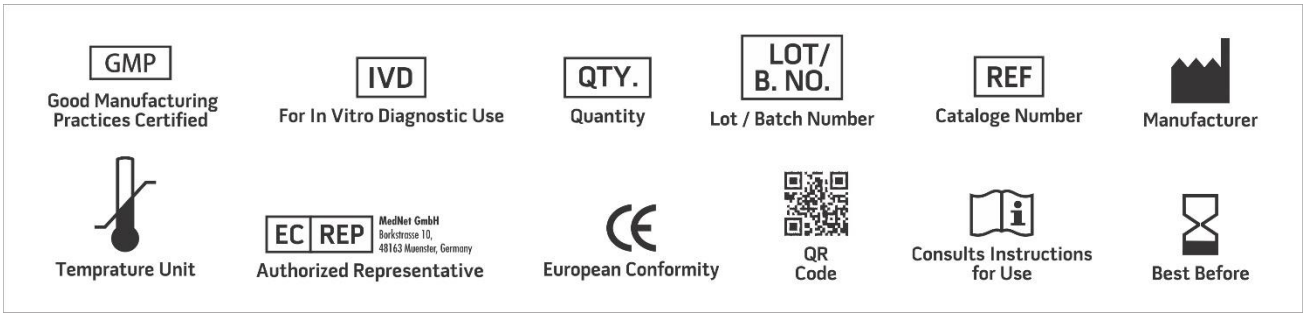
Product Deterioration: Do not use if they show evidence of microbial contamination, discoloration, drying or any other signs of deterioration.

DISPOSAL

After use, prepared plates, specimen/sample containers and other contaminated materials must be sterilized before discarding.

REFERENCES

1. Murray P. R., Baron J. H., Pfaller M. A., Jorgensen J. H. and Yolken R. H., (Ed.), 2003, Manual of Clinical Microbiology, 8th Ed., American Society for Microbiology, Washington, D.C.
2. Koneman E. W., Allen S. D., Janda W. M., Schreckenberger P. C., Winn W. C. Jr., 1992, Colour Atlas and Textbook of Diagnostic Microbiology, 4 th Ed., J. B. Lippinccott Company
3. Meyer and Schonfeld, 1926, Zentralbl. Bakeriol, Parasitenk. Infectionskr. Hyg. Abt. Orig. 99:402.
4. Rochaix, 1924, Comt. Rend. Soc. Biol., 90:771.



NOTE: Please consult the Material Safety Data Sheet for information regarding hazards and safe handling Practices.

***For Lab Use Only**

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