microgen
Dehydrated Culture Media
Bases / Media Supplements

Technical Information

Staphylococcus Agar No.110

Product Code: DM 1521

Application: - Staphylococcus Agar No.110 is used as a selective medium for the isolation and testing of pathogenic Staphylococci.

Composition**

Ingredients	Gms / Litre
Casein enzymic hydrolysate	10.000
Yeast extract	2.500
Gelatin	30.000
Lactose	2.000
D-Mannitol	10.000
Sodium chloride	75.000
Dipotassium phosphate	5.000
Agar	15.000
Final pH (at 25°C)	7.0±0.2

**Formula adjusted, standardized to suit performance parameters

Principle & Interpretation

Staphylococci are widespread in nature though they are mainly found as commensal on the skin, skin glands and mucous membrane of mammals and birds. These organisms are also associated with staphylococcal food poisoning. Staphylococcus Agar No. 110 [2, 3, 1] also known as Stone Gelatin Agar [4] is used for the isolation of pathogenic Staphylococci on the basis of pigment production, mannitol fermentation and gelatin liquefaction the few characteristics of pathogenic Staphylococci [5, 6].

Staphylococcus Agar No. 110 is also recommended by APHA [7] and AOAC [8]. The medium can be used with Egg Yolk Emulsion (MS2045) to study the egg yolk reactions [9].

Casein enzymic hydrolysate and yeast extract serve as sources of carbon, nitrogen and other essential nutrients and growth factors including vitamins. D-Mannitol is the fermentable carbohydrate with lactose being an additional source of carbon. Sodium chloride maintains the osmotic equilibrium while phosphate buffers the medium. Gelatin serves as the substrate for gelatin liquefaction.

Mannitol fermentation can be visualized as yellow colouration by addition of a few drops of bromothymol blue to the areas of the plates where colonies have been removed. Gelatin liquefaction can be seen when the plates are flooded with a saturated aqueous solution of ammonium sulphate. On incubation at 35-37°C for 10 minutes, clear zone are observed.

Enterococcus faecalis may grow on this medium as small colonies with weak mannitol fermentation [1].

Methodology

Suspend 149.5 grams of powder media in 1000 ml of distilled water. Mix thoroughly. Shake well & heat to dissolve the medium completely. Sterilize by autoclaving at 15 lbs pressure (121°C) for 15 minutes. Resuspend the precipitate by gentle agitation to avoid bubbles and pour the plates while the medium is hot. Alternatively, cool the medium to 45 - 50°C and add blood or egg yolk if desired. This medium may also be used without sterilization; it should be boiled for 5 minutes and used at once.

Quality Control

Physical Appearance
Cream to yellow homogeneous free flowing powder
Gelling
Firm, comparable with 1.5% Agar gel and 3.0% gelatin gel
Colour and Clarity of prepared medium
Light amber coloured clear to slightly opalescent gel forms in Petri plates
Reaction
Reaction of 14.95% w/v aqueous solution at 25°C. pH : 7.0±0.2
pH range 6.80-7.20
Cultural Response/ characteristices
DM 1521: Cultural characteristics observed after an incubation at 35-37°C for 48 hours. (Mannitol fermentation - on addition of BTB ; Gelatinase production : flooding plate with standard aqueous solution of ammonium sulphate).

Organism	Inoculum (CFU)	Growth	Recovery	Mannitol fermentation	Pigment Production	Gelatinase Production
Staphylococcus aureus ATCC 25923	50-100	good-luxuriant	>=50%	Positive reaction	positive	Positive reaction
Staphylococcus epidermidis ATCC 12228	50-100	good-luxuriant	>=50%	Variable reaction	negative	Positive reaction
Enterococcus faecalis ATCC 29212	50-100	none-poor	<=10%	slight reaction	negative	Variable reaction
Escherichia coli ATCC 25922	$>=10^3$	inhibited	0%			

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. Chapman G. H., 1946, J. Bacteriol., 5 1:409.
2. Chapman G. H., 1947, J. Bacteriol., 53:504.
3. Chapman G. H., 1952, J. Bacteriol., 63:147.
4. MacFaddin J. F., 1985, Media for Isolation-Cultivation-Identification-Maintenance of Medical Bacteria, Vol. 1, Williams and Wilkins, Baltimore
5. Stone R. V., 1935. Proc. Soc. Exper. Biol. and Med. 33:185-187.
6. Chapman G. H., Lieb C. W. and Cumco L. G., 1937, Food Research 2., 349-367
7. Speck M. L., (Eds.), 1984, Compendium of Methods for the Microbiological Examination of Foods, 2nd Ed., APHA, Washington, D.C.
8. Association of Official Analytical Chemists (AOAC), Bacteriological Analytical Manual, 5th Ed., 1978, AOAC International, Gaithersburg, Md.
9. Carter C. H., 1960, J. Bacteriol., 79:753.
10. Smucker S. A. and Appleman. M. D., 1964, Appl. Microbiol., 12(4):355.

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