Technical Information

KF Streptococcal Agar Base

Product Code: DM 1248

Application: - KF Streptococcal Agar Base is used for the detection and enumeration of faecal Streptococci present in water, faeces and other materials.

Composition**

Ingredients	Gms / Litre
Peptone, special	10.000
Yeast extract	10.000
Sodium chloride	5.000
Sodium glycerophosphate	10.000
Maltose	20.000
Lactose	1.000
Sodium azide	0.400
Agar	20.000
Final pH (25°C)	7.2±0.2

**Formula adjusted, standardized to suit performance parameters

Principle & Interpretation

Streptococci are spherical, gram-positive bacteria. They form part of the normal commensal flora of the mouth, skin, intestine, upper respiratory tract of humans. Streptococci found in the faeces are named as faecal Streptococci and share group D Lancefield antigens of Streptococci. The types include *Streptococcus faecalis, Streptococcus faecium, Streptococcus bovis* and *Streptococcus duran* . They are low-grade pathogens and rarely cause disease. However, they may cause urinary tract infection in catheterized patients; mixed abdominal wound infections following gut surgery; and endocarditis on abnormal valves. Kenner-Faecal (KF) Medium wasdeveloped by Kenner et al [1, 2] for detecting Streptococci in water and food materials. KF Streptococcus Agar Base is recommended by APHA for enumerating faecal Streptococci in food materials [3].

Special peptone with yeast extract provide nitrogen, carbon, sulphur, amino acids, vitamins and trace ingredients to the faecal Streptococci. Lactose and maltose are the fermentable carbohydrates and therefore serve as energy sources. Sodium azide is a selective agent, which hampers the growth of gram-negative bacteria.

2,3,4-Triphenyl Tetrazolium Chloride is reduced to insoluble formazan by actively metabolizing cells, resulting in the formation of pink or red colonies. Bacteria resistant to azide, utilize lactose and / or maltose. The acidity so produced changes the colour of the indicator dyes to yellow.

Samples can be directly streaked or sterile membrane filters through which the water samples have been passed are aseptically placed on the media. After an incubation at 35-37°C for 24-48 hours, Enterococci appear as pink to red colonies. After this presumptive identification, further confirmatory tests should be carried out [4, 5].

Methodology

Suspend 76.4 grams of powder media in 1000 ml distilled water. Add rehydrated contents of 1 vial of Bromo Cresol Purple (MS2093). Shake well & heat to dissolve the medium completely. DO NOT AUTOCLAVE. Overheating will lower the pH and render the medium less productive. Cool to 50°C and aseptically add 10 ml of 1% 2, 3, 5-Triphenyl Tetrazolium Chloride (TTC) (MS2057) to sterile medium. Mix well and pour into sterile Petri plates.

Caution: Sodium azide has a tendency to form explosive metal azides with plumbing materials. It is advisable to use enough water to flush of the disposables.

Quality Control

Physical Appearance
Cream to yellow homogeneous free flowing powder

Gelling
Firm, comparable with 2.0% Agar gel.

Colour and Clarity of prepared medium
Basal medium: Light yellow. After addition of (MS2093) (Bromo Cresol Purple): Light purple coloured clear to slightly opalescent gel forms in Petri plates.

Reaction
Reaction of 7.64% w/v aqueous solution at 25°C. pH : 7.2±0.2

pH Range 7.00-7.40%

Cultural Response/ characteristics
DM 1248: Cultural characteristics observed with added (MS2057) and (MS2093), after an incubation at 35-37°C for 48-72 hours.

Organism	Inoculum (CFU)	Growth	Recovery	Colour of colony
Enterobacter aerogenes ATCC 13048	>=10^3	inhibited	0%	
Enterococcusfaecalis ATCC 29212	50-100	good-luxuriant	>=50%	red-maroon
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^{o} in sealable plastic bags for 2-5 days.

Further Reading

1. Kenner B. A., Clark H. F. and Kabler P. W., 1960, Am. J. Public Health, 50:1553.
2. Kenner B. A., Clark H. F. and Kabler P. W., 1961, Appl. Microbiol., 9:15.
3. Downes F. P. and Ito K., (Eds.), 2001, Compendium of Methods for the Microbiological Examination of Foods, 4th Ed., APHA, Washington, D.C.
4. MacFaddin J. F., 1985, Media for Isolation-Cultivation-Identification-Maintenance of Medical Bacteria, Vol. 1, Williams and Wilkins, Baltimore.
5. Facklam R. R. and Moody M. P., 1970, Appl. Microbiol., 20:245

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