Technical Information

Motility Sulphide Medium

Product Code: DM 1515

Application: - Motility Sulphide Medium is used for detection of motility and hydrogen sulphide production by pure cultures

Composition**

Ingredients	Gms / Litre
Proteose peptone	10.000
Beef extract	3.000
L-Cystine	0.200
Ferric ammonium citrate	0.200
Sodium citrate	2.000
Sodium chloride	5.000
Gelatin	80.000
Agar	4.000
Final pH (25°C)	7.3±0.2

**Formula adjusted, standardized to suit performance parameters

Principle & Interpretation

Motility Sulphide Medium originally formulated by Edwards and Bruner [1] was further modified by Hajna [2] for the determination of motility and hydrogen sulphide production. The medium is also used for indirect evidence of motility by non-fermenting gram-negative bacilli.

Proteose peptone and beef extract provide nitrogen compounds, carbon, sulphur and trace elements essential for bacterial growth. L-cystine and ferric ammonium citrate are the H2S indicators. Ferric ammonium citrate also provides extra nutrients for citrate-utilizing bacteria. Agar and gelatin preserve an intact stab line. Motile organisms grow away from stab line showing diffused growth while non-motile organisms grow along the stab line. Hydrogen sulphide production is indicated by the blackening of the medium. Due to the free L-cystine, generally negative organisms may give a positive reaction [3]. After observing motility and H2S production, same medium can be utilized to detect urea hydrolysis. The culture in the medium is overlaid with 1 ml of Urea Broth (M111A) and incubated at 35°C for upto 6 hours. A urease positive reaction is observed as a reddish-purple colour formation in the Urea Broth.

Methodology

Suspend 10.44 grams of powder media in 100 ml warm distilled water. Shake well & heat to boiling with constant agitation to dissolve the medium completely. Dispense in tubes in 4 ml amounts and sterilize by autoclaving at 115°C for 15 minutes. Allow the tubed medium to

Quality Control

Physical Appearance
Cream to yellow homogeneous coarse powder
Gelling
Semisolid,comparable with 0.4% Agar gel and 8.0% Gelatin gel.
Colour and Clarity of prepared medium
Yellow clear to slightly opalescent gel forms in tubes as butts
Reaction
Reactionof 10.44% w/v aqueous solution at 25°C.pH:-7.3±0.2
pH range 7.10-7.50
Cultural Response/ characteristices
DM1515: Cultural characteristics observed after an incubation at 35 - 37°C fo r 18 - 24 hours .

Organism	Inoculum (CFU)	Growth	Motility	H2S	Urease
Escherichia coli ATCC 8739	50-100	luxuriant	Possitive, growth away from stabline causing turbidity	negative, no blacking of medium	negative reaction, no change
Enterobacter aerogenes ATCC 13048	50-100	luxuriant	Possitive, growth away from stabline causing turbidity	negative, no blacking of medium	negative reaction, no change
Proteus mirabilis ATCC 25933	50-100	luxuriant	Motility is temperature dependent. It is more pronounced at 20°C and almost absent at 35°C	possitive, blacking of medium	possitive reaction, cerise colour
Salmonella Typhimurium ATCC 14028	50-100	luxuriant	Possitive, growth away from stabline causing turbidity	possitive, blacking of medium	negative reaction, no change
Shigella sonnei ATCC 25931	50-100	luxuriant	Negative, growth along the stabline, sorrounding medium remains clear	negative, no blacking of medium	negative reaction, no change
Staphylococcus aureus ATCC 25923	50-100	luxuriant	Negative, growth along the stabline, sorrounding medium remains clear	negative, no blacking of medium	negative reaction, no change

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. Edwards P. R. and Brunner D. W., 1942, Circulation of the Kentucky Agricultural Experimental Station, No. 54.
2. Hajna A. A., 1950, Public Health Lab., 8:36.
3. MacFaddin J. F., 1985, Media for Isolation-Cultivation-Identification-Maintenance of Medical Bacteria, Vol. 1, Williams and Wilkins, Baltimore.

Disclaimer :

- User must ensure suitability of the product(s) in their application prior to use.
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