Technical Information

TCBS Agar, Modified

Product Code: DM 1870A

Application: - TCBS Agar is used for selective isolation of *Vibrio cholerae* and other enteropathogenic *Vibrio s*.

Composition**

Ingredients	Gms / Litre
Peptone, special	10.000
Yeast extract	5.000
Sodium citrate	10.000
Sodium thiosulphate	10.000
Sodium cholate	3.000
Oxgall	5.000
Sucrose	20.000
Sodium chloride	10.000
Ferric citrate	1.000
Bromo thymol blue	0.040
Thymol blue	0.040
Agar	14.000
Final pH (at 25°C)	8.6±0.1

**Formula adjusted, standardized to suit performance parameters

Principle & Interpretation

Nakanishi [1] TCBS Agar formulated which was further modified by Kobayashi et al [2]. It promotes rapid growth of pathogenic *Vibrio* s after 24 hours incubation at 3 7°C. by suppressing the growth of non vibrio

Proteose peptone or peptone special, yeast extract provide nitrogenous compounds, vitamin B complex and other essential growth nutrients. Oxgall, a derivative of bile salts and the sodium citrate inhibit gram-positive bacteria [3]. Sodium thiosulphate serves as a good source of sulphur, which in combination with ferric citrate detects the production of hydrogen sulphide. For the metabolism of *Vibrio* s, sucrose is added as a fermentable carbohydrate. Bromo thymol blue and thymol blue are the pH indicators. The alkaline pH of the medium improves the recovery of *Vibrio cholerae.* Strains of *Vibrio cholerae* produce yellow colonies on TCBS Agar because of fermentation of sucrose. *Vibrio alginolyticus* also produce yellow colonies. *Vibrio parahaemolyticus* is a sucrose non-fermenting organism and produces blue-green colonies, as of *Vibro vulnificus.* As mentioned previously, occasional isolates of *Pseudomonas* and *Aeromonas* species also produce blue-green colonies, but overall TCBS Agar is highly selective and any H2S-negative colony is possibly *Vibrio* species.

The medium should be inoculated heavily with faecal specimens because some *Vibrio* species readily die off on the medium, owing to fermentation of sucrose and accumulation of acids.

Methodology

Suspend 8.8 grams of powder media in 1000 ml warm distilled water. Shake well heat to dissolve the medium completely. Bring just to boil and immediately remove from heat. DO NOT AUTOCLAVE. Cool to 50°C and pour into petriplates. Dry the plates overnight or at 37-45°C before use.

Quality Control

Physical Appearance

Light yellow to tan coloured homogeneous free flowing powder

Gelling

Firm, comparable with 1.4% Agar gel.

Colour and Clarity of prepared medium

Bluish green colured clear to slightly opalescent gel forms in petri plates.

Reaction
Reaction of 8.8% w/v aqueous solution at 25°C. pH : 8.6±0.1

pH Range 8.50-8.70
Cultural Response/Characteristics
DM 1870A: Cultural characteristics observed after an incubation at 35-37°C for 18-48 hours.

Organism	Inoculum (CFU)	Growth	Recovery	colour of colony
Escherichia coli ATCC 25922	>=10^3	inhibited	0%	
Proteus vulgaris ATCC 13315	>=10^3	inhibited	0%	
Shigellaflexneri ATCC 12022	>=10^3	inhibited	0%	
Enterococcusfaecalis ATCC 29212	>=10^3	inhibited	0%	
Vibrio cholerae ATCC 15748	50-100	good-luxuriant	>=50%	yellow
Vibrio fluvialis ATCC 33809	50-100	good-luxuriant	>=50%	yellow
Vibrio parahaemolyticus ATCC 17802	50-100	good-luxuriant	>=50%	blue
Vibrio vulnificus ATCC 29306	50-100	good-luxuriant	>=50%	Greenish yellow

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: 2-8^0 in sealable plastic bags for 2-5 days.

Further Reading

1. ,,Nakanishi, 1963, Modern MEdia, 9:246.
2. ,,Kobayashi, Enomoto, Sakazaki and Kuwahara, 1963, Jap. J. Bacteriol., 18:387.
3. ,,Howard B., 1994, Clinical and Pathogenic Microbiology, 2nd ed., The C.V. Mosby Co., Mosby-Year Book, Inc., St. Louis.

Disclaimer :

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