ARENA BioScien

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TCBS Agar

Recommended for the selective isolation and cultivation of *Vibrio* Sp. and differentiating between them

REF: BS.1/TB01.100.0100	100 Gram	REF: BS.1/TB01.250.0250	250 Gram
REF: BS.1/TB01.500.0500	500 Gram		

CLINICAL SIGNIFICANCE

Thiosulfate-Citrate-Bile salts-Sucrose (TCBS) Agar is a selective differential medium that is recommended by the World Health Organization (WHO) for the isolation and cultivation of *Vibrio cholera* and other *Vibrio* species from clinical specimens and other materials. TCBS Agar was developed for selective isolation of vibrios causing cholera, diarrhea, and food poisoning.

METHOD PRINCIPLE

Peptone and yeast extract act as sources of nitrogenous compounds, vitamin B complex and other essential growth nutrients. Bile salts and sodium citrate inhibit the growth of gram-positive bacteria and coliforms. Sodium thiosulphate works 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 supplemented as a source fermentable carbohydrate. Vibrios that are able to utilize sucrose will from yellow colonies. Bromothymol blue and thymol blue are the pH indicators in this medium. The alkaline pH of the medium improves the recovery of *V.cholerae*. Strains of *V. cholerae* produce yellow colonies on TCBS Agar due to sucrose fermentation. *V.parahaemolyticus* is a sucrose non-fermenting microorganism and therefore produces blue-green colonies, as well as *V.vulnificus*

MEDIA COMPOSITION

Item	Formula per liter of medium
Yeast extract	5 gm
Peptone	10 gm
Sodium thiosulphate	10 gm
Sodium citrate	10 gm
Bile salts	8 gm
Sucrose	20 gm
Sodium chloride	10 gm
Ferric citrate	1 gm
Bromothymol blue	0.04 gm
Thymol blue	0.04
Agar	15 gm

PRECAUTIONS AND WARNINGS

Media to be handled by entitled and professionally educated person. Do not ingest or inhale.

Good Laboratories practices using appropriate precautions should be followed in:

- Wearing personnel protective equipment (overall, gloves, glasses,).
- Do not pipette by mouth.
- In case of contact with eyes or skin; rinse immediately with plenty of soap and water. In case of severe injuries; seek medical advice immediately.
- Respect country requirement for waste disposal.
  S56: dispose of this material and its container at hazardous or special waste collection point.
  S57: use appropriate container to avoid environmental contamination.
  S61: avoid release in environment.

For further information, refer to the TCBS Agar material safety data sheet.

STORAGE AND STABILITY

BioScien TCBS Agar should be stored between 10-30°C in a firmly closed container and the prepared medium at 2-8°C. Use before expiry date on the label. On opening, product should be properly stored dry, after tightly capping the bottle in order to avoid lump development due to the hygroscopic nature of the product. Improper storage of the product may lead to lump formation. Store in a dry ventilated area protected from extremes of temperature and sources of ignition. Seal the container tightly after use. Product performance is best if used within stated expiry period.

Final pH 8.6 ± 0.2 at 25°C

PREPARATION

Suspend 89.08 grams in 1 liter distilled water. Heat to boiling to dissolve the medium completely. DO NOT AUTOCLAVE. Cool to 45-50°C. Mix well and pour into sterile Petri plates.

Deterioration

The color of ***BioScien*** TCBS Agar is light yellow homogeneous free flowing powder. Prepared Media is bluish green in color. If there are any physical changes for powder or signs of deterioration (shrinking, cracking, or discoloration), and contaminations for hydrated media, discard the medium.

SPECIMEN

Faecal specimens, food specimens and water specimens.

EQUIPMENT REQUIRED NOT PROVIDED

- Sterile petri dishes
- Incubator
- Autoclave

PERFORMANCE CHARACTERISTICS

Microorganisms	Result	Colony color
Vibrio cholerae ATCC 15748	Luxuriant growth	Yellow
Vibrio fluvialis ATCC 33809	Luxuriant growth	Yellow
Vibrio parahaemolyticus ATCC 17802	Luxuriant growth	Bluish green
Vibrio vulnificus ATCC 29307	Fair-good growth	Greenish yellow
Escherichia coli ATCC 25922	Inhibited	-
Proteus vulgaris ATCC 13315	Inhibited	-

QUALITY CONTROL

To ensure adequate quality control, it is recommended that positive and negative control included in each run. If control still out of range please contact ***BioScien*** technical support.

REFERENCES

1. Furniss A. L., Lee J. V. and Donovan T. J., 1978, The Vibrios, Public Health Laboratory Service Monograph Series No. 11, Maidstone Public Health Laboratory, H.M.S.O., London, England.
2. MacFaddin J. F., 1985, Media for Isolation-Cultivation-Identification-Maintenance of Medical Bacteria, Vol. 1, Williams & Wilkins, Baltimore, Md.
3. ISO 21872-1:2017 Microbiology of the food chain – Horizontal method for the determination of Vibrio spp. – Part 1: Detection of potentially enteropathogenic Vibrio parahaemolyticus, Vibrio cholerae and Vibrio vulnificus.
4. Isenberg, H.D. Clinical Microbiology Procedures Handbook. 2nd Edition.
5. Baird R.B., Eaton A.D., and Rice E.W., (Eds.), 2015, Standard Methods for the Examination of Water and Wastewater, 23rd ed., APHA, Washington, D.C.
6.www.fda.gov/Food/ScienceResearch/LaboratoryMethods/BacteriologicalAnalytical manualBAM/ default.htm.
7. Vanderzant, C. and D. F. Splittstoesser (eds.). 2015. Compendium of methods for the microbiological examination of food. 4th ed. American Public Health Association, Washington, D.C. 6.

SYMBOLS IN PRODUCT LABELLING			
IVD	For in-vitro diagnostic use	Σ	Number of <n> test in the pack
LOT	Batch Code/Lot number	⚠	Caution
REF	Catalogue Number		Do not use if package is damaged
	Temperature Limitation		Consult Instruction for use
	Expiration Date		
	Manufactured by		