Technical Data Sheet

CE TCBS (Thiosulfate Citrate Bile Salts Sucrose) Agar

Ordering number: 1.10263.0500

Thiosulfate Citrate Bile Sucrose Agar proposed by Nakanishi (1962), modified by Kobayashi et al. (1963) is a highly selective medium recommended for the isolation and selective cultivation of Vibrio cholerae and other enteropahtogenic vibrios (Vibrio parahaemolyticus, NAG vibrios).

This culture medium complies with the recommendations of the World Health Organization WHO (1965, 1967) and the APHA (1992).

IVD in vitro diagnosticum - For professional use only

Mode of Action

The high concentrations of thiosulfate and citrate and the strong alkalinity of this medium largely inhibit the growth of *Enterobacteriaceae*. Ox bile and cholate suppress primarily *enterococci*. Any coliform bacteria, which may grow, cannot metabolize sucrose. Only a few sucrose-positive *Proteus* strains can grow to form yellow, vibrid-like colonies. The mixed indicator thymol blue-bromothymol blue changes its color to yellow, when acid is formed, even in this strongly alkaline medium.

Typical Composition

Peptone from Casein	5 g/l
Peptone from Meat	5 g/l
Yeast Extract	5 g/l
Sodium Citrate	10 g/l
$Na_2S_2O_3$	10 g/l
Ox Bile	5 g/l
Sodium Cholate	3 g/l
Sucrose	20 g/l
NaCl	10 g/l
Iron(III) Citrate	1 g/l
Thymol Blue	0.04 g/l
Bromothymol Blue	0.04 g/l
Agar-Agar	14 g/l

Preparation

Suspend 88 g/l and pour plates.

Do not autoclave.

The appearance of the plates is clear and green-blue.

The pH value at 25 °C is in the range of 8.4-8.8.

Experimental Procedure and Evaluation

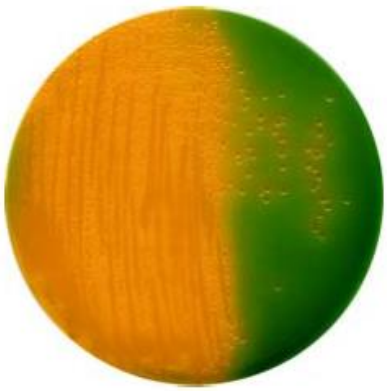
Inoculate by spreading the sample or material from an enrichment culture, Alkaline Peptone water, on the surface of the plates.

Incubation: 18-24 h at 35 °C aerobically.

According to Burkhardt (1969), it is advised to use, in addition to a liquid enrichment medium, two different solid culture media - a highly selective (e.g. TCBS Agar) and a less selective culture medium (e.g. Nutrient Agar).

Appearance of Medium	**Microorganisms**
Flat, 2-3 mm in diameter, yellow	*Vibrio cholerae*, *Vibrio cholerae* type El Tor
Small, blue-green centre	*Vibrio parahaemolyticus*
Large, yellow	*Vibrio alginolyticus*
Blue	*Pseudomonas*, *Aeromonas* and others
Very small, translucent	*Enterobacteriaceae* and others

Further tests are necessary for complete identification (Muckerjee 1961, Finkelstein and Muckerjee 1963, Roy et al. 1965, Bockemühl 1974 etc.).



Vibrio cholerae Inaba NIH 35

Vibrio parahaemolyticus ATCC 17802

Storage

Usable up to the expiry date when stored dry and tightly closed at +15 to +25 °C. Protect from light.

After first opening of the bottle the content can be used up to the expiry date when stored dry and tightly closed at +15 to +25 °C.

Specimen

e.g. Stool

Clinical specimen collection, handling and processing. See general instructions of use.

Quality Control

Control Strains	ATCC #	Incubation	Expected Results
Vibrio alginolyticus		24 h at 35 °C	Growth good to very good, color change to yellow
Vibrio cholerae Inaba	35 (NIH #)	24 h at 35 °C	Growth good to very good, color change to yellow
Vibrio cholerae Eltor Inaba	38 (CH #)	24 h at 35 °C	Growth good to very good, color change to yellow
Vibrio cholerae Ogawa	41 (NIH #)	24 h at 35 °C	Growth good to very good, color change to yellow
Vibrio cholerae Eltor Ogawa	60 (CH #)	24 h at 35 °C	Growth good to very good, color change to yellow
Vibrio parahaemolyticus	17802	24 h at 35 °C	Growth good to very good, no color change to yellow
Escherichia coli	25922	24 h at 35 °C	Growth none to poor, no color change to yellow
Enterobacter cloacae	13047	24 h at 35 °C	Growth none to poor, no color change to yellow
Proteus mirabilis	14273	24 h at 35 °C	Growth none to poor, no color change to yellow
Pseudomonas aeruginosa	27853	24 h at 35 °C	Growth none to poor, no color change to yellow

Please refer to the actual batch related Certificate of Analysis.

Literature

American Public Health Association (1992): Compendium of methods for the microbiological examination of foods. 3rd edition.

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Kobayashi, T., Enomoto, S., Sakazaki, R. and Kuwahara, S. (1963): A new selective isolation medium for pathogenic vibrios: TCBS-agar. Japanese Journal of Bacteriology, **18**: 387-391.

Muckerjee, S. (1961): Diagnostic use of bacteriophage. J. Hyg. **59:** 109-115.

Nakanishi, Y. (1963): An isolation agar medium for cholerae and enteropathogenic halophilic vibrios. Modern media. **9**: 246.

Roy, C., Mridha, K. and Mukerjee, S. (1965): Action of Polymyxin of Cholera Vibrios. Techniques of Determination of Polymyxin-Sensitivity. Experimental Biology and Medicine. **119**: 893-896.

WHO Expert Committee on Cholera (1965): 2nd Rep. Techn. Rep. Series No. 352, 1967. WHO: Cholera Information.

Ordering Information

Product	Cat. No.	Pack size
TCBS (Thiosulfate Citrate Bile Salts Sucrose) Agar	1.10263.0500	500 g
TCBS (Thiosulfate Citrate Bile Salts Sucrose) Agar acc ISO 21872 and FDA-BAM	1.46718.0020	20 plates
Nutrient Agar	1.05450.0500	500 g
Alkaline Peptone Pater	1.01800.0500	500 g

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