AOAC
BAM
COMPF
ISO
SMWW

TCBS Agar (Vibrio Selective Agar)

Thiosulfate Citrate Bile Sucrose Agar

Thiosulfate Citrate Bile Sucrose Agar proposed by NAKANISHI (1962), modified by KOBAYASHI et al. (1963) is used for the isolation and selective cultivation of Vibrio cholerae and other enteropahtogenic vibrios (V. parahaemolyticus, NAG vibrios).

IVD

In Vitro Diagnostic Medical Device –

For professional use only

CE

Version 17-10-2008
Merck KGaA, 64271 Darmstadt

See also General Instruction for Use „How to use Dehydrated Culture Media"

For MSDS, warnings and precautions see our website: www.merck-chemicals.com

Principle

Microbiological method.

General Information

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

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 colour to yellow, when acid is formed, even in this strongly alkaline medium.

Typical Composition (g/litre)

Peptone from casein 5.0; peptone from meat 5.0; yeast extract 5.0; sodium citrate 10.0; sodium thiosulfate 10.0; ox bile 5.0; sodium cholate 3.0; sucrose 20.0; sodium chloride 10.0; iron(III) citrate 1.0; thymol blue 0.04; bromothymol blue 0.04; agar-agar 14.0.

Preparation

Suspend 88 g/litre and pour plates.

■ **Do not autoclave.**

pH: 8.6 ± 0.2 at 25 °C.

The plates are clear and green-blue.

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.

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 hours 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: Merck Cat. No. 1.05450.).

Appearance of Colonies	Microorganisms
Appearance of Colonies	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.).

TCBS Agar (Vibrio Selective Agar)

Thiosulfate Citrate Bile Sucrose Agar

Literature

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

BOCKEMÜHL, J.: Einfache Laboratoriumsdiagnostik der El Tor-Cholera. - **Ärztl. Lab., 20**; 32-41 (1974).

BURKHARDT, F.: Die bakteriologische Diagnose der Vibrio El Tor-Infektion. - **Zbl. Bakt. I. Orig., 212**; 177-189 (1969).

FINKELSTEIN, R.A., a. MUCKERJEE, S.: Haemagglutination a rapid method for differentiating V. cholerae and El Tor vibrios. - **Proc. Soc. Exp. Biol. 112**; 335-359 (1963).

KAMPELMACHER, E.H., MOSSEL, D.A.A., VAN NOORLE-JANSEN, a. VINCENTIE, H.: A survey on the occurrence of Vibrio parahaemolyticus on fish and shellfish, marketed in the Netherlands. - **J. Hyg. Camp., 68**; 189-196 (1970).

KOBAYASHI, T., ENOMOTO, S., SAKAZAKI, R., a. KUWAHARA, S.: A new selective isolation medium for pathogenic vibrios: TCBS-Agar. - **Jap. J. Bact., 18**; 391-397 (1963).

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

NAKANISHI, Y.: An isolation agar medium for cholerae and enteropathogenic halophilic vibrios. - **Modern Media, 9**; 246 (1963).

ROY, C., MRIDHA, K., a. MUCKERJEE, S.: Action of polymyxin on cholera vibrios. Techniques of determinatoin of polymyxin sensitivity. - **Proc. Soc. Exp. Biol., 119**; 893-896 (1965).

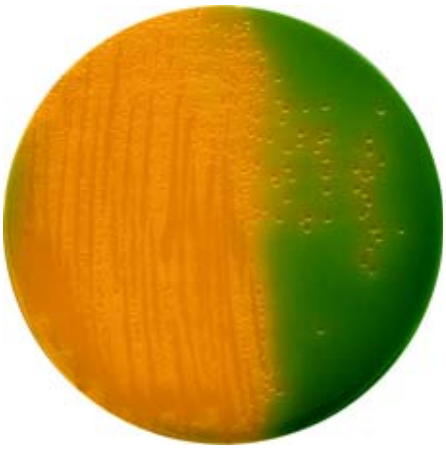
WHO Expert Committee on Cholera (2nd Rep. Techn. Rep. Series No. 352, 1967). WHO: Cholera Information (1965).

Ordering Information

Product	Ordering No.	Pack size
TCBS Agar (Vibrio Selective Agar)	1.10263.0500	500 g
Alkaline Peptone water	1.01800.0500	500 g

Quality control

Test strains	Growth	Colour change to yellow
Vibrio alginolyticus	good / very good	+
Vibrio cholerae Inaba NIH 35	good / very good	+
Vibrio cholerae El Tor Inaba CH 38	good / very good	+
Vibrio cholerae Ogawa NIH 41	good / very good	+
Vibrio cholerae El Tor Ogawa CH 60	good / very good	+
Vibrio parahaemolyticus ATCC 17802	good / very good	-
Escherichia coli ATCC 25922	none / poor	-
Enterobacter cloacae ATCC 13047	none / poor	-
Proteus mirabilis ATCC 14273	none / poor	-
Pseudomonas aeruginosa ATCC 27853	none / poor	-



Vibrio cholerae Inaba NIH 35

Vibrio parahaemolyticus ATCC 17802