

TCBS AGAR

CAT N°: 21074

For the selective isolation of *Vibrio* from a variety of clinical samples and other materials

FORMULA IN g/l

Sucrose	20.00	Ox Bile	5.00
Sodium Chloride	10.00	Sodium Cholate	3.00
Sodium Thiosulfate	10.00	Ferric Ammonium Citrate	1.00
Sodium Citrate	10.00	Thymol Blue	0.04
Meat Peptone	5.00	Bromothymol Blue	0.04
Casein Peptone	5.00	Bacteriological Agar	14.00
Yeast Extract	5.00		

Final pH 8.6 ± 0.2 at 25°C

PREPARATION

Suspend 88 grams of the medium in one liter of distilled water. Mix well. Dissolve by heating with frequent agitation. Boil for one minute until complete dissolution. DO NOT OVEARHEAT. DO NOT AUTOCLAVE. Cool to 45-50°C, mix well and dispense into plates. The prepared medium should be stored at 8-15°C. The color is green.

The dehydrated medium should be homogeneous, free-flowing and light toasted with a green tint in color. If there are any physical changes, discard the medium.

USES

TCBS AGAR is a selective medium widely used to isolate and cultivate practically all bacteria of the genus *Vibrio*, including *V. cholerae* and *V. alginolyticus*, pathogenic to humans causing cholera, cholera diarrhea or food poisoning from contaminated foods and from stool specimens. The last 2 conditions especially can be caused by ingesting raw or partially processed fish or seafood containing *Vibrio parahemolyticus*. The only *Vibrio* that does not grow in TCBS is *V. hollisae*.

The Meat and Casein peptones provide nitrogen, vitamins, minerals and amino acids essential for growth. Yeast extract is a source of vitamins, particularly of the B-group. Sodium citrate, Sodium thiosulfate and Ox bile are the selective agents, inhibiting the Gram positive bacteria. Sodium thiosulfate provides sulphur, and Ferric citrate is the indicator for H₂S production. Sucrose is the carbohydrate energy

source. Bromothymol blue and Thymol blue are pH indicators. Sodium chloride promotes growth (*Vibrio* grows well in salty media). Bacteriological agar is the solidifying agent. The alkaline pH of the medium enhances the recovery of *V. cholerae*.

The suspect material (faeces, vomit, rectal swabs, fish, and other food) is heavily inoculated on the surface of the plate, incubated at 35 ± 2°C for 18 - 24 hours. Sucrose-positive vibrios, such as *Vibrio cholerae* and *Vibrio alginolyticus*, are yellow on TCBS. Sucrose-negative ones, such as *Vibrio parahemolyticus* and *Vibrio vulnificus*, produce blue- green colonies.

Almost all *Vibrio* ferment sucrose and yield yellow colonies from the production of acid. Some types of *Proteus* (fermenters of sucrose) can form yellow colonies similar to those of *Vibrio*.

MICROBIOLOGICAL TEST

The following results in the were obtained performance of the medium from type cultures after incubation at a temperature of 35 ± 2°C and observed after 18 - 24 hours.

Microorganisms	Growth	Colony Color
<i>Vibrio cholerae</i> Inaba	Good	Yellow
<i>Vibrio cholerae</i> Ogawa	Good	Yellow
<i>Vibrio alginolyticus</i> ATCC 19108	Moderate	Yellow
<i>Vibrio parahemolyticus</i> ATCC 17802	Good	Blue
<i>Enterobacter cloacae</i> ATCC 13047	Inhibited	Yellow
<i>Proteus mirabilis</i> ATCC 14273	Moderate	Light-blue
<i>Escherichia coli</i> ATCC 25922	Null	
<i>Pseudomonas aeruginosa</i> ATCC 27853	Inhibited	Blue

BIBLIOGRAPHY



Cholera Information (WHO, 1965). WHO Expert Committee on Cholera (2 and Rep. Techn., Rep. Series No. 352. 1967. Felsemfeld, Bull World Otg. 34:161. 1966. Kobayashi. T. Enomoto S. Sakasaki, R. Y. Kwajaras, S., Jap. J. Bact. 18 387 291. 1963.

STORAGE

Once opened keep powdered medium closed to avoid hydration.

