

VIBRIO CHROMOGENIC AGAR

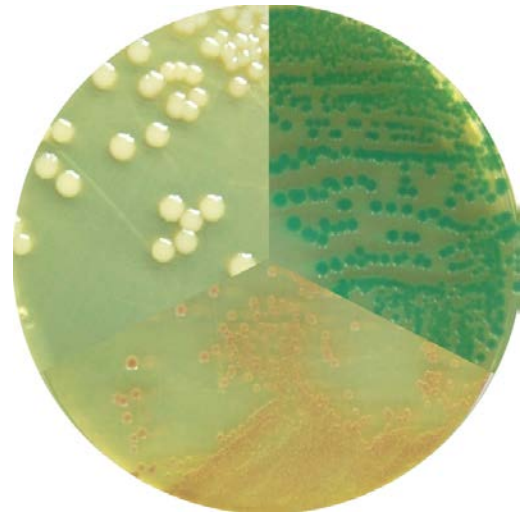
CAT N°: 2054

For isolation and detection of
V.cholerae *Vibrio parahaemolyticus* and *Vibrio alginolyticus*

FORMULA IN g/l

| | | | |
|---------------|-------|----------------------|-------|
| Peptone | 10.00 | Sodium Thiosulphate | 10.00 |
| Special Bilis | 5.00 | Sodium Citrate | 10.00 |
| Yeast extract | 3.00 | Sodium Cholate | 3.00 |
| Sucrose | 20.00 | Sodium Chloride | 10.00 |
| Glucose | 1.00 | Chromogenic Mix | 2.49 |
| Lactose | 0.10 | Bacteriological Agar | 15.00 |

Final pH 8.6 ± 0.2 at 25°C



PREPARATION

Suspend 90 grams of the medium in one liter of distilled water. Mix well and dissolve by heating with frequent agitation. Boil for one minute until complete dissolution AVOID OVERHEATING. DO NOT AUTOCLAVE. Dispense into appropriate containers. The color of the prepared medium is amber. The prepared medium should be stored at 8-15°C.

The dehydrated medium should be homogeneous, free-flowing and beige in color. If there are any physical changes, discard the medium.

USES

VIBRIO CHROMOGENIC AGAR is recommended for isolation and selective differentiation of *Vibrio* species based on color development depending on their β -galactosidase and β -glucosidase enzyme activities.

The medium contains Yeast extract and Peptones which are the source of nitrogen, vitamins (particularly the B-group essential for bacterial growth), minerals and amino acids. Special Bilis are inhibitors of Gram-positive organisms. Sucrose, glucose and Lactose are the fermentable carbohydrates providing carbon and energy. Sodium chloride supplies essential electrolytes for transport and osmotic balance. Sodium citrate, Sodium thiosulfate and Sodium cholate are the selective agents, inhibiting the Gram positive bacteria. Chromogenic substrate is added to detect *Vibrio* species by means of a color change. The released chromophore in *Vibrio* Chromogenic Agar is colored and target colonies are easily identified. It is designed for the development and differentiation of 3 types of *Vibrio* depending on enzyme of each activity. β -glucosidase activity will appear as blue-green colonies representing *V. parahaemolyticus*; β galactosidase activity will show pink – red colonies representing *V. cholerae*. Finally yellowish-white colonies will represent *V. alginolyticus* which has β -galactosidase but does not use it due to the high concentration of sugars. The alkaline pH of the medium enhances the recovery of *V. cholerae*.

The genus *Vibrio* consists of micro-organisms whose natural habitat is marine and fluvial ecosystems. They are frequently isolated from marine water, especially in warmer months and when the water temperature is higher than 17°C. *Vibrio* species are mainly responsible for causing cholera and food poisoning in humans. *Vibrio cholerae* causes secretory diarrhea (cholera) due to the intake of contaminated food such as raw oysters. *Vibrio parahaemolyticus* is a

major cause of food borne infections, causing food poisoning. In addition, other species as for example, *V. alginolyticus*, extra intestinal infections such as otitis, and infections of injury, septicemia and meningitis.

ISO 21872-1:2007 recommend a preenrichment of *Vibrio* species in Alkaline Peptone Water (Cat. 1407) in order to increase the recovery. Inoculate the medium and incubate at 35°C±2°C for 24-48 hours.

MICROBIOLOGICAL TEST

The following results were obtained from standard strains, after incubation at a temperature of 35°C±2°C and observed after 24-48 hours.

| Microorganisms | Growth | Colony colour |
|---|--------------|---------------|
| <i>Vibrio cholerae</i> ATCC 14034 | Satisfactory | Pink-Rose |
| <i>Vibrio alginolyticus</i> ATCC 17749 | Satisfactory | Colorless |
| <i>Vibrio parahaemolyticus</i> ATCC 17802 | Satisfactory | Green-Blue |
| <i>Pseudomonas aeruginosa</i> ATCC 27853 | Inhibited | |

BIBLIOGRAPHY

Isabel M^a García Bermejo. Diagnóstico de las infecciones humanas causadas por especies halófilas del género *Vibrio*. Servicio de Microbiología, Hospital de Getafe Koneman. Diagnostico Microbiológico/ Microbiological diagnosis: Texto Y Atlas En Color. Stephen Allen Ed. Médica Panamericana, 30/06/2008 Romero Cabello, Raúl.

Rodríguez, E; Gamboa, M; Hernández, F; García, J. 2005. Microbiología y Parasitología Humana. Bases etiológicas de las enfermedades infecciosas y parasitarias. 3^a Edición. Médica Panamericana.

H.Y. Kudo et. al, Improved Method for Detection of *Vibrio parahaemolyticus* in Seafood. ASM. Vol 67, No. 12, pg 5819-5823 (2001)

PTechnical Specification ISO/TS 21872-1:2007(E) Microbiology of food and animal feeding stuffs-Horizontal method for the detection of potentially enteropathogenic *Vibrio* spp. Part 1: Detection of *Vibrio parahaemolyticus* and *Vibrio cholerae*. Technical Specification ISO/TS 21872-2:2007(E) Microbiology of food and animal feeding stuffs-Horizontal method for the detection of potentially enteropathogenic *Vibrio* spp. Part 2: Detection of species other than *Vibrio parahaemolyticus* and *Vibrio cholerae*.

STORAGE

Once opened keep powdered medium closed to avoid hydration.



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