

CM 21218 - MONSUR MEDIUM BASE

INTENDED USE

For selective isolation and differentiation of *Vibrio cholerae* and other *Vibrio* from pathological samples.

PRODUCT SUMMARY AND EXPLANATION

Vibrios are fairly easy to isolate from both clinical and environmental material, though some species may require growth factors and/or vitamins. *Vibrio parahaemolyticus* is the leading cause of bacterial diarrhoea associated with the consumption of contaminated food products. *Vibrio cholerae* is a non-halophilic *Vibrio* which cannot grow in media with a concentration of sodium chloride greater than 5-6% and is able to grow in media lacking NaCl. Human disease is associated with ingestion of contaminated water or food. *V. cholerae* is the etiological agent of a secretory diarrhea spread by the faecal-oral route. The most critical virulence factor of *V. cholerae* is CT (cytotoxin), which is responsible for the main symptom of the cholera disease. Monsur Medium was formulated by Monsur and recommended by WHO for the isolation of *V. cholerae* and other *Vibrio* species from pathological samples like faeces or rectal swabs. This medium is also known as Taurocholate Tellurite Gelatin Agar. On this medium, the colonies are often surrounded by a gelatin liquefaction halo, which becomes definite and clearly visible after 48 hours' incubation.

COMPOSITION

Ingredients	Gms / Ltr
Casein enzymic hydrolysate	10.000
Sodium chloride	10.000
Sodium taurocholate	5.000
Sodium carbonate	1.000
Gelatin	30.000
Agar	15.000

PRINCIPLE

Casein enzymic hydrolysate in the medium supplies essential nutrients. Sodium taurocholate inhibits the contaminating gram-positive bacteria. Potassium tellurite is a selective and differential agent. It inhibits many gram-positive bacteria and due to the reduction reaction the colonies form a grey to black colour. Sodium chloride maintains the osmotic equilibrium while sodium carbonate helps in maintaining the elevated pH of the medium. Gelatin acts as an additional carbon and energy source. The high pH and potassium tellurite are inhibitory to most Enterobacteriaceae and gram-positive bacteria, though *Proteus* may form grey centered colonies without a halo. After 24 hours *Vibrios* show small translucent colonies with a grey-black center and a turbid halo, at 48 hours and longer, colonies become black centered with a well-defined halo.

INSTRUCTION FOR USE

- Dissolve 7.1 grams in 100 ml warm distilled water.
- Heat to boiling to dissolve the medium completely.
- Sterilize by autoclaving at 115°C (10 psi pressure) for 20 minutes.
- Cool to 50°C. Aseptically add 0.5 ml sterile 1% Potassium Tellurite Solution.
- Mix well and pour into sterile Petri plates.

QUALITY CONTROL SPECIFICATIONS



Appearance of Powder : Cream to greenish yellow coarse free flowing powder.
 Appearance of prepared medium : Yellow coloured clear to slightly opalescent gel forms in Petri plates.
 pH (at 25°C) : 8.5±0.2

INTERPRETATION

Cultural characteristics observed after an incubation with added 1% Potassium Tellurite Solution.

Microorganism	ATCC	Inoculum (CFU/ml)	Growth	Recovery	Colour of colony	Incubation Temperature	Incubation Period
Proteus mirabilis	25933	50-100	None-poor	0-10%	Black	35-37°C	18-48 Hours
Vibrio cholerae	15748	50-100	Good-luxuriant	≥50 %	Grey	35-37°C	18-48 Hours
Vibrio parahaemolyticus	17802	50-100	Good-luxuriant	≥50 %	Light grey	35-37°C	18-48 Hours

PACKAGING:

In pack size of 100 gm and 500 gm bottles.

STORAGE

Dehydrated powder, hygroscopic in nature, store in a dry place, in tightly-sealed containers between 25-30°C and protect from direct sunlight. Under optimal conditions, the medium has a shelf life of 4 years. When the container is opened for the first time, note the time and date on the label space provided on the container. After the desired amount of medium has been taken out replace the cap tightly to protect from hydration.

Product Deterioration: Do not use if they show evidence of microbial contamination, discoloration, drying or any other signs of deterioration.

DISPOSAL

After use, prepared plates, specimen/sample containers and other contaminated materials must be sterilized before discarding.

REFERENCES

- Collee J.G., Fraser A. G., Marmion B. P., Simmons A. (Eds.) 1996, Mackie and McCartney, Practical Medical Microbiology, 14th Edition, Churchill Livingstone
- Bruno and Ana, Isolation, Enumeration and Preservation of the Vibrionaceae. Thompson F. L., Austin B. and Swings J., The Biology of Vibrios. ASM press.
- Monsur K. A., 1961, Trans R. Soc. Trop. Med. Hyg., 55:440.
- World Health Organization, 1974, WHO, Geneva.

