



Monsur Medium Base

M474

Monsur Medium is used for selective isolation and differentiation of *Vibrio cholerae* and other *Vibrio* species from pathological samples.

Composition**

Ingredients	Gms / Litre
Casein enzymic hydrolysate	10.000
Sodium chloride	10.000
Sodium taurocholate	5.000
Sodium carbonate	1.000
Gelatin	30.000
Agar	15.000
Final pH (at 25°C)	8.5±0.2

**Formula adjusted, standardized to suit performance parameters

Directions

Suspend 7.1 grams in 100 ml warm distilled water. Heat to boiling to dissolve the medium completely. Sterilize by autoclaving at 115°C(10 lbs pressure) for 20 minutes. Cool to 50°C. Aseptically add 0.5 ml sterile 1% Potassium Tellurite Solution (FD052). Mix well and pour into sterile Petri plates.

Principle And Interpretation

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 (2). 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 (1). Monsur Medium was formulated by Monsur (3) and recommended by WHO (4) 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.

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.

Quality Control

Appearance

Cream to greenish yellow coarse free flowing powder

Gelling

Firm, comparable with 1.5% Agar gel and 3.0% Gelatin gel

Colour and Clarity of prepared medium

Yellow coloured clear to slightly opalescent gel forms in Petri plates

Reaction

Reaction of 7.1% w/v aqueous solution at 25°C. pH : 8.5±0.2

pH

8.30-8.70

Cultural Response

M474: Cultural characteristics observed after an incubation at 35-37°C for 18-48 hours with added 1% Potassium Tellurite Solution (FD052) .

Organism	Inoculum (CFU)	Growth	Recovery	Colour of colony
Cultural Response				
<i>Proteus mirabilis</i> ATCC 25933	50-100	none-poor	<=10%	black
<i>Vibrio cholerae</i> ATCC 15748	50-100	good-luxuriant	>=50%	grey
<i>Vibrio parahaemolyticus</i> ATCC 17802	50-100	good-luxuriant	>=50%	light grey

Storage and Shelf Life

Store below 30°C in tightly closed container and the prepared medium at 2 - 8°C. Use before expiry date on the label.

Reference

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

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