Serratia Differential Medium (SD Medium) (Twin Pack)

M1288

Serratia Differential Medium is recommended for the cultivation and differentiation of *Serratia* species on the basis of arabinose fermentation and ornithine decarboxylation.

Composition**

Ingredients	Gms / Litre
Part A	-
L-Ornithine	10.000
Yeast extract	10.000
Sodium chloride	5.000
Triclosan (Irgasan)*	0.010
Bromothymol blue	0.020
Phenol red	0.010
Agar	4.000
Part B	-
L-Arabinose	10.000
Final pH (at 25°C)	6.7±0.2

**Formula adjusted, standardized to suit performance parameters

Directions

Suspend 2.9 grams of Part A in 92 ml distilled water. Heat to boiling to dissolve the medium completely. Sterilize by autoclaving at 15 lbs pressure (121°C) for 15 minutes. Suspend 1.0 gm of Part B in 10 ml distilled water. Mix well to dissolve the medium completely. Sterilize by autoclaving at 15 lbs pressure (121°C) for 15 minutes. Add sterile solution of Part B aseptically to to previously sterile and cooled (45-50°C) Part A. Mix thoroughly and distribute into tubes. Allow the tubes to cool in an upright position.

Principle And Interpretation

Serratia are opportunistic gram-negative bacteria classified in the tribe *Klebsiellae* and the large family *Enterobacteriaceae* . *Serratia marcescens* strains are resistant to several antibiotics and are involved in nosocomial infections, particularly urinary tract infections and wound infections. *S. marcescens* does not ferment L-arabinose which easily differentiates it from other species except *S. entomophila* (1), which does not occur in human clinical specimens (2).

Serratia Differential Medium is formulated as described by Gibson and Friedman (3) for the differential isolation of *Serratia* species from clinical samples, based on its ability to ferment arabinose and decarboxylate ornithine (4). *S. marcescens* , *Serratia rubidaea* and *Serratia liquefaciens* species can be differentiated based on their ability to ferment L- arabinose and decarboxylate ornithine.

Yeast extract provides essential growth nutrients. L-arabinose is the fermentable carbohydrate. Sodium chloride maintains osmotic equilibrium while bromothymol blue and phenol red act as pH indicators of decarboxylation and fermentation respectively. Triclosan inhibits gram-negative enteric bacteria other than *Serratia* species.

Stab inoculate the suspected pure colony of *Serratia* species from enteric isolation plate and incubate at 35°C for 18-24 hours. *S. marcescens* changes the greenish yellow medium to purple throughout while *S. rubidaea* changes it to yellow throughout the tube. *S. liquefaciens* forms a purple band at the top of the tube.

Quality Control

Appearance

Part A : Light yellow to pink homogeneous free flowing powder Part B : White to cream homogeneous free flowing powder

Gelling

Semisolid, comparable with 0.4% Agar gel

Colour and Clarity of prepared medium
Greenish yellow coloured clear to slightly opalescent semisolid gel forms in tubes

Reaction
Reaction of medium 3.9 gms (2.9 grams of Part A + 1.0 gm of Part B) in 102 ml aqueous solution at 25°C. pH : 6.7±0.2

pH
6.50-6.90

Cultural Response
M1288: Cultural characteristics observed after an incubation at 35-37°C for 18-24 hours.

Organism	Inoculum (CFU)	Growth	Fermentation (L-Arabinose)	Ornithine decarboxylation	Colour
Cultural Response					
Serratia liquifaciens ATCC 27592	50-100	good-luxuriant	positive reaction, acid production, yellow colour	positive reaction, purple colour	purple band at the top of greenish yellow butt
Serratia marcescens ATCC 8100	50-100	good-luxuriant	negative reaction, no colour change	positive reaction, purple colour	purple throughout the medium
Serratia rubidaea ATCC 27593	50-100	good-luxuriant	positive reaction, acid production, yellow colour	negative reaction , yellow colour	yellow throughout the medium

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. Grimont P. A. D., Jackson T. A., Ageron E. and Noonan M. J., 1988, Int. J. Syst. Bacteriol., 38:1-6
2. Murray P. R., Baron J. H., Pfaller M. A., Jorgensen J. H. and Yolken R. H., (Ed.), 2003, Manual of Clinical Microbiology, 8th Ed., American Society for Microbiology, Washington, D.C.
3. Gibson S. and Friedman H., 1978, J. Clin. Microbiol., 7(3):279.
4. MacFaddin J. F., 1985, Media for Isolation-Cultivation-Identification-Maintenance of Medical Bacteria, Vol. I, Williams and Wilkins, Baltimore

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