MANNITOL SELENITE BROTH

- For in vitro use only - Catalogue No. TM28

Our Mannitol Selenite Broth is used for the selective enrichment of *Salmonella* species from a variety of samples.

Leifson devised the original selenite formulation and demonstrated the efficacy of the medium for isolating *Salmonella* from clinical specimens. Mannitol Selenite Broth is a modification of Leifson's recipe where mannitol is added to the broth to improve the recovery of *Salmonella* as reported by Hobbs and Allison. Comparisons showed that mannitol selenite broth was superior to three other liquid mediums in its selective value for *S. typhi* while demonstrating equivalent results for the isolation for *S. paratyphi* B when compared to tetrathionate broth.

Bacteriological peptone provides the bacteria with amino acids, vitamins and other essential nutrients necessary for replication and growth. Sodium phosphate is added to help maintain a stable pH, since the reduction of the sodium biselenite results in an alkaline shift in the pH of the broth. The presence of mannitol also helps to maintain a neutral pH since acid end products are released during mannitol fermentation. Sodium selenite is a selective agent that inhibits gram-positive organisms as well as most *Enterobacteriaceae*. The retarding effects of sodium selenite are temporary and therefore sub-culturing before 24 hours of incubation is essential for good recovery of *Salmonella*.

Formula per Litre of Medium

Bacteriological peptone	5.0 g
Mannitol	4.0 g
Sodium phosphate	10.0 g
Sodium Biselenite	4.0 g

pH 7.1 ± 0.2

Recommended Procedure

1. Allow medium to reach room temperature prior to inoculation.
2. Inoculate the Mannitol Selenite Broth with the test sample.
3. Incubate the tubes with loose caps for 18 to 24 hours at 35°C.
4. Subculture the broth onto a selective and differential media (ie. SS or XLD agar).
5. Incubate plates at 35°C and examine plates for growth after 24 hours. A longer incubation period may be required depending on the type of media used.

Interpretation of Results

Mannitol Selenite Broth is intended only for use as an enrichment step for isolating *Salmonella*. Growth is observed as a turbid, orange solution. The inhibitory effects of sodium biselenite is markedly reduced after 24 hours of incubation, therefore sub-culturing onto a selective, differential medium is essential prior to 24 hours.

For more information of typical *Salmonella* colonies refer to an appropriate technical source depending on the type of selective, differential medium used. Additional biochemical and/or serological tests should be performed on isolated colonies from pure culture in order to complete identification.

- *Do not use if excess red precipitate (reduced selenite) is observed at the bottom of the tube as these tubes will be drastically less selective*

- *Sodium biselenite is highly toxic therefore tubes should be handled with care and attention*

Quality Control

After checking the medium for correct pH, colour, depth, and sterility, the following organisms are used to determine the performance of the completed medium. The tubes are incubated at 35°C and sub-cultured onto MacConkey Agar after 18 hours. MacConkey plates are incubated at 35°C for 24 hours.

Organism	Expected Results
Salmonella typhimurium ATCC 14028	Growth
Escherichia coli ATCC 25922	Inhibition (partial)

Storage and Shelf Life

Our Mannitol Selenite Broth should be stored in an upright position at 4 to 8°C and protected from light. Under these conditions the medium has a shelf life of 6 weeks from the date of manufacture.

Ordering Information

Cat#	Description	Format
TM28-10L	Mannitol Selenite Broth 10-mL [20x150-mm screw cap tube]	10/pkg
TM28-10M	Mannitol Selenite Broth 10-mL [16x125-mm screw cap tube]	10/pkg
TM28-15L	Mannitol Selenite Broth 15-mL [20x150-mm screw cap tube]	10/pkg

References

1. Leifson E. New selenite selective enrichment medium for the isolation of typhoid and paratyphoid bacilli. Am J Hyg 1935; 24:423-32.
2. Hobbs BC, Allison VD. Studies on the isolation of *Bact. typhosum* and *Bact. paratyphosum* B. Monthly Bull Minist Health Lab Serv 1945; 4:12-9.
3. Raj H. Enrichment medium for selection of *Salmonella* from fish homogenate. Appl Microbiol 1966; 14:12-20.
4. Murray, P.R., E. Baron, M. Pfaller, F. Tenover, R. Yolken. Manual of Clinical Microbiology. 7th ed. Washington: ASM, 1999.

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