

BacterLab Division



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ENRICHMENT MEDIUM

BacterTube™ Half-Fraiser Broth

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The medium used for selective enrichment and differentiation (primary enrichment broth) of *Listeria monocytogenes* and *Listeria* spp..

Code: 08045



1. INTENDED USE

BacterTube™ Half-Fraiser Broth The Half Fraser broth is used for selective primary enrichment and detection of *Listeria* sp. in food and environmental samples.

2. PRINCIPLES

BacterTube™ Half-Fraiser Broth is a recovery medium for *Listeria monocytogenes*, ensured by the difference in the concentrations of nalidixic acid and acriflavine between Half-Fraiser and Fraser, as well as the two-step enrichment process for *Listeria monocytogenes*. Half Fraser serves as the primary enrichment step, while Fraser Broth is used as the secondary enrichment step.

Polypeptone, yeast extract, and meat extract provide the essential nutrients for the growth of *Listeria*. The high concentration of sodium chloride increases the selectivity of the medium. Phosphates act as a buffer to maintain the pH of the medium. Esculin is hydrolyzed by *Listeria* into glucose and esculetin, and the latter forms a black complex with ferric ions from ferric citrate, which is added just before use to support the growth of *Listeria*. Lithium chloride inhibits the growth of most *enterococci* that hydrolyze esculin. Nalidixic acid prevents DNA replication in bacteria sensitive to this antimicrobial agent. Additionally, Gram-positive bacteria are inhibited by acriflavine.

3. TYPICAL COMPOSITION

For 1 liter of medium

Peptones	20,0 g
Yeast extract	5,0 g
Glucose	20,0 g
Tween 80	1,08 g
Dipotassium phosphate	2,0 g
Sodium	5,0 g
Ammonium citrate	2,0 g
Magnesium sulfate	0,2 g
Manganese sulfate	0,05g

pH of the ready-to-use medium at 25°C: $6,0 \pm 0,2$

4. PREPARATION

The environmental tubes are ready-to-use, no preparation required.

5. INSTRUCTIONS FOR USE

- Prior to inoculation, allow medium to equilibrate to room temperature
- Use a sterile inoculation loop to transfer a sample from an isolated colony on the agar plate into the test tube containing the medium.
- Incubate the tube at $30 \pm 1^\circ\text{C}$.
- Examine the tube after 24 – 26 hours of incubation.
- Observe and record the results

6. RESULTS

- After incubating for the required time, typically 24 – 26 hours, observe the colony growth within the medium.
- To identify the isolated bacteria, further appropriate tests must be performed

7. QUALITY CONTROL

BacterLab ensures the quality of each product batch by testing with ATCC reference strains.

Reference strains	Incubation conditions	Expected results
<i>Listeria monocytogenes</i> 4b ATCC 13932 <ul style="list-style-type: none"> • <i>Enterococcus faecalis</i> ATCC 19433 • <i>Escherichia coli</i> ATCC 25922 	18 – 24 hours, 35 – 37°C	Good growth
<i>Listeria monocytogenes</i> 1/2a ATCC 35152 <ul style="list-style-type: none"> • <i>Enterococcus faecalis</i> ATCC 19433 • <i>Escherichia coli</i> ATCC 29522 		Good growth
<i>Enterococcus faecalis</i> ATCC 19433 <i>Escherichia coli</i> ATCC 25922		Inhibition

8. STORAGE AND TRANSPORT CONDITIONS

- Storage: 2 – 8°C.
- Transportation: Ambient temperature.

9. PACKAGING

- Packaging: 50 tubes/ box or as per customer request.

10. SHELF LIFE

- Expiration Date: 6 months from the manufacturing date.

11. BIBLIOGRAPHY

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