Listeria Selective Enrichment Supplement

PRODUCT INFORMATION

N001-5g - Nalidixic Acid, Powder, 5g

N001-25g - Nalidixic Acid, Powder, 25g

N001-100g - Nalidixic Acid, Powder, 100g

A007-100mg - Amphotericin B, Powder, 100mg

A007-250mg - Amphotericin B, Powder, 250mg

A007-1g - Amphotericin B, Powder, 1g

A007-5g - Amphotericin B, Powder, 5g

DESCRIPTION

Buffered Listeria Enrichment Broth withModified Listeria Selective Enrichment Supplement is a selective enrichment medium for the detection of *Listeria monocytogenes.*

BACKGROUND

Nalidixic acid is the first of the synthetic quinolone antibiotics. Nalidixic acid is effective against both gram-positive and gram-negative bacteria. In lower concentrations, it acts in a bacteriostatic manner; that is, it inhibits growth and reproduction. In higher concentrations, it is bactericidal, meaning that it kills bacteria instead of merely inhibiting their growth.

Amphotericin B is a polyene antifungal drug, often used intravenously for systemic fungal infections. It was originally extracted from *Streptomyces nodosus*. Its name originates from the chemical's amphoteric properties. Two amphotericins, amphotericin A and amphotericin B are known, but only B is used clinically, because it is significantly more active in vivo.

Mechanism of action

As with other polyene antifungals, amphotericin B associates with ergosterol, the main component of fungal cell membranes, forming a transmembrane channel that leads to monovalent ion (K+, Na+, H+ and Cl−) leakage, which is the primary effect leading to fungal cell death.

APPLICATION IN BUFFERED LISTERIA ENRICHMENT BROTH

Listeria Selective Enrichment Broth is based on the formulation described by Lovett et al. and is recommended for the enrichment of Listeria species in food. Subsequent work has concluded *that* the enrichment properties can be improved by increasing the buffering capacity of the medium by the addition of potassium di-hydrogen orthophosphate and disodium hydrogen orthophosphate. Buffered Listeria Enrichment Broth is therefore a modification of the original medium.

Content concentrations

Typical Formula*	**mg/litre**
Buffered Listeria Enrichment Broth	
Tryptone soya broth	30
Yeast extract	6
Potassium di-hydrogen orthophosphate	1.35
Disodium hydrogen orthophosphate	9.6
Final pH 7.3 ± 0.2 @ 25°C	
Modified Listeria Selective Enrichment Supplement	
Nalidixic acid	40
Amphotericin B	10
Acriflavine hydrochloride	15
* Adjusted as required to meet performance standards	

Table 1 - Typical Formula for Buffered Listeria Enrichment Broth and Modified Listeria Selective Enrichment Supplement

METHOD

Preparation

Add appreciate amount of Buffered Listeria Enrichment Broth to distilled water and mix well to dissolve. Add the contents of Modified Listeria Selective Enrichment Supplement reconstitued as directed. Sterilize by autoclaving at 121°C for 15 minutes. Cool to 50°C, mix well and aseptically distribute into sterile containers in volumes as required.

Protocol

1. Add 25 g or 25 ml samples to 225 ml of Buffered Listeria Enrichment Broth. Homogenise if required.

2. Incubate at 30°C for 48 hours.

3. Subculture from the Buffered Listeria Emrichment

Broth onto Listeria Selective Agar plates (See Note) after 24 and 48 hours by:

(i) Direct plating onto Listeria Selective Agar plates.

(ii) Adding 1ml of the Buffered Listeria Enrichment Broth to 9 ml of 0.5% KOH, vortex mixing, and plating onto Listeria Selective Agar plates.

Note

Suitable Listeria Selective Media are:

1. Listeria Selective Medium.

2. PALCAM Medium

Listeria Selective Enrichment Supplement SR0141 as supplied should be stored at 2-8°C. When stored as directed the reagents are stable until the expiry date printed on the label.

Note:

Suitable Listeria Selective Media are:

1. Listeria Selective Medium.

2. PALCAM Medium

Quality control

Positive control:

Listeria monocytogenes ATCC® 19117: Turbid growth

Negative control:

Enterococcus faecalis ATCC® 29212: Inhibited

REFERENCES

1. Lovett J., Francis D.W. and Hunt J.M. (1987) J. Food Prot. 50. 188-192.

2. Curtis G.D.W., Nichols W.W. and Falla T.J. (1989) Lett. Appl. Micro. 8. 169-172.