



Nitrofurantoin Broth Base

M857

Intended Use:

Recommended for enrichment and isolation of *Pseudomonas* species.

Composition**

Ingredients	Gms / Litre
Peptone	7.500
Tryptone	7.500
Sodium chloride	5.000
Final pH (at 25°C)	7.2±0.2

**Formula adjusted, standardized to suit performance parameters

Directions

Suspend 20 grams in 1000 ml purified / distilled water. Heat if necessary to dissolve the medium completely. Sterilize by autoclaving at 15 lbs pressure (121°C) for 15 minutes. Cool to room temperature and aseptically add 50 ml sterile 0.2% nitrofurantoin solution. Mix well and dispense in tubes or flasks as desired. Sterile nitrofurantoin solution (0.2%) is prepared by dissolving 1 gm Nitrofurantoin in 500 ml polyethylene glycol 300.

Note: Autosterilization takes place in 3 months. This solution can be stored for 6 months or longer.

Principle And Interpretation

Selective and differentiating media consisting of simple chemical components have been developed, both in solid and in liquid form, for culturing *Pseudomonas aeruginosa*. Nitrofurantoin, in the form of Macrochantin, has been shown to be active against most strains of *Escherichia coli*, *Staphylococcus aureus* and *Enterococcus faecalis* both in vitro and in clinical infections. Nitrofurantoin is not active against most strains of *Proteus* species or *Serratia* species. It has no activity against *Pseudomonas* species (1). Therefore nitrofurantoin incorporated in medium can be used as a selective medium for culturing of *Pseudomonas* species.

Peptone and tryptone provide the essential nutrients especially nitrogenous sources. Nitrofurantoin, 1-[(5-nitrofurfurylidene) amino] hydantoin, is a synthetic antibacterial agent which is effective against most common gram-negative and gram-positive urinary tract pathogenic bacteria (2).

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Quality Control

Appearance

Cream to yellow homogeneous free flowing powder

Colour and Clarity of Prepared medium

With added nitrofurantoin : Fluorescent yellow coloured clear solution without any precipitate

Reaction

Reaction of 2.0% w/v aqueous solution at 25°C. pH : 7.2±0.2

pH

7.00-7.40

Cultural Response

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

Organism	Inoculum (CFU)	Growth
<i>Escherichia coli</i> ATCC 25922	≥10 ⁴	inhibited
<i>Pseudomonas aeruginosa</i> ATCC 27853	50-100	good-luxuriant
<i>Staphylococcus aureus</i> ATCC 25923	≥10 ⁴	inhibited

Reference

1. Clinical and Laboratory Standards Institute, 2006, Performance standards for antimicrobial susceptibility testing. Approved standard M100-S15, Vol. 25, CLSI, Villanova, Pa.
2. Chamberlain R. E., 1976, Chemotherapeutic properties of prominent nitrofurans, J. Antimicrob. Chemother. 2:325336

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