Technical Information

FNA Medium (Fluorescein Denitrification Agar)

Product Code: DM 1565

Application: - FNA Agar is used for differentiation of *Pseudomonas* from other bacilli by their ability to reduce nitrates or nitrites to nitrogen gas (denitrification) and detection of fluorescein pigment.

Composition**

Ingredients	Gms / Litre
Peptic digest of animal tissue	5.000
Casein enzymic hydrolysate	5.000
Magnesium sulphate	1.500
Dipotassium phosphate	1.500
Potassium nitrate	2.000
Sodium nitrite	0.500
Agar	15.000

**Formula adjusted, standardized to suit performance parameters

Principle & Interpretation

FNA Agar is based on the formula documented by Pickett and Pedersen [1]. Fluorescence-Denitrification (FN) Media is used to detect fluorescein pigment [2] and complete reduction of nitrate to nitrogen gas. These two characteristics are important in the identification of the pseudomonads and other non-fermentative bacilli. At the beginning of shelf life *Pseudomonas* species may represent a minority of the total microflora. However under certain conditions, their capacity for rapid growth may decide their dominance. A problem associated due to the considerable interference from non-pseudomonads [3] the use of media for isolation of *Pseudomonas* species from food may be problematic one.

The medium contains potassium nitrate and sodium nitrite as the source of nitrate and nitrite respectively for the denitrification by *Pseudomonas.* Peptic digest of animal tissue and casein enzymic hydrolysate supply the necessary nutrients. Dipotassium phosphate maintains buffering conditions. Magnesium sulphate is the cationic salt and is an activator, which intensifies luminescence.

Using a sterile inoculating needle, streak the slant medium. Incubate the tubes with caps loosened, at 35°C for 18- 24 hours. If the isolate fails to grow, re-incubate at 25-30°C for upto 1 week. Examine daily for growth and pigment production. If pigmentation fails to develop, re-incubate the cultures at 22°C for 1 or more days. Examine under UV light for fluorescein, a greenish yellow fluorescent pigment by the colonies and surrounding the medium. Formation of gas bubbles in the butt indicates denitritication.

Methodology

Suspend 30.5 grams of powder media in 1000 ml distilled water. Shake well & heat to dissolve the medium completely. Dispense in tubes. Sterilize by autoclaving at 15 lbs pressure (121°C) for 15 minutes. Cool the tubed medium in a slanted position.

Quality Control

Physical Appearance
Cream to yellow homogeneous free flowing powder

Gelling
Firm, comparable with 1.5% Agar gel

Colour and Clarity of prepared medium
Medium amber coloured, clear to slightly opalescent gel forms in tubes as slants

Cultural Response/ characteristices

DM 1565: Cultural characteristics observed after an incubation at 35-37°C for 24-48 hours.

Organism	Inoculum (CFU)	Growth	Fluorescence (under uv)	Nitrate Reduction
Acinetobacter calcoaceticus ATCC 43498	50-100	good-luxuriant	Negative	Negative reaction, no colour development
Pseudomonas aeruginosa ATCC 27853	50-100	good-luxuriant	Positive	Positive reaction,red colour Developed with in minute

Storage and Shelf Life

Dried Media: Store below 30°C in tightly closed container and use before expiry date as mentioned on the label.
Prepared Media: 2-8° in sealable plastic bags for 2-5 days.

Further Reading

1. Pickett M. J. and Pedersen M. M., 1968, Appl. Microbiol., 16:163 1.
2. MacFaddin J. F., 1985, Media for Isolation-Cultivation-Identification-Maintenance of Medical Bacteria, Vol. I, Williams and Wilkins, Baltimore.
3. Corry J. E. L., Curtis G. D. W. and Baird R. M., Culture Media for Food Microbiology, Vol. 34, Progress in Industrial Microbiology, 1995, Elsevier, Amsterdam.

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