Feeley Gorman Agar (F.G.Agar)

M811

Feeley Gorman Agar is recommended for the isolation and presumptive identification of *Legionella* species.

Composition**

Ingredients	Gms / Litre
Casein acid hydrolysate	17.500
Beef extract	3.000
Starch	1.500
L-Cysteine hydrochloride	0.400
Ferric pyrophosphate, soluble	0.250
Agar	17.000
Final pH (at 25°C)	6.9±0.2

**Formula adjusted, standardized to suit performance parameters

Directions

Suspend 39.65 grams in 1000 ml distilled water. Heat to boiling to dissolve the medium completely. Sterilize by autoclaving at 15 lbs pressure(121°C) for 15 minutes. Cool to 45 - 50°C. Mix well and pour into sterile Petri plates.

Principle And Interpretation

Feeley et al formulated (1,2) Feeley Gorman Agar, which is used as nonselective enrichment medium for isolation of *Legionella* species. *Legionella* is a gram-negative bacterium, including species that cause legionellosis or Legionnaires' disease, most notably *L. pneumophilia* (3). *Legionella* species are the causative agent of the human Legionnaires' disease and the lesser form, Pontiac fever. *Legionella* transmission occurs via aerosols- inhalation of mist droplets containing the bacteria. Person-to-person transmission of *Legionella* has not been demonstrated (4).

Legionella are nutritionally fastidious and require L-cysteine and iron salts for their growth, which are provided in the medium. *Legionella* species are highly pathogenic microorganisms. Certain safety precautions must be taken when handling *Legionella* cultures.

Casein acid hydrolysate, beef extract, L-cysteine hydrochloride and ferric pyrophosphate act as sources of nutrients. Incubation should be carried out in the presence of 2.5% carbon dioxide but if it exceeds the limit, *Legionella* growth is inhibited due to formation of acidic condition. It is recommended to inoculate F.G. Agar and Legionella Agar (M809) with supplements simultaneously, as *Legionella* usually do not grow initially on F.G. agar. *Legionella* species can be identified by their characteristic fluorescence in presence of UV light (5, 6).

Safety Precautions for handling specimens and cultures.

Use bacteriological safety hood (Biosafety cabinet).

Wear gown, mask and gloves.

Decontaminate work surface with either 5% hypochlorite or 5% phenol.

Autoclave all materials before discarding or cleaning.

Since Legionella disease is primarily a pulmonary infection, prevention and containment of aerosols is essential (7).

Quality Control

Appearance

Cream to yellow homogeneous free flowing powder

Gelling

Firm, comparable with 1.7% agar gel.

Colour and Clarity of prepared medium

Yellow coloured, clear to slightly opalescent gel forms in Petri plates

Reaction
Reaction of 4.0% w/v aqueous solution at 25°C. pH : 6.9±0.2

pH
6.70-7.10

Cultural Response
M811: Cultural characteristics observed in presence of 2.5% Carbon dioxide (CO_2) after an incubation at 35-37°C for 4 days .

Organism	Growth	Fluorescence under 366 nm
Legionella bozemanni ATCC 33217	good-luxuriant	blue-white
Legionella micdadei ATCC 33218	good-luxuriant	none
Legionella pneumophila ATCC 33153	good-luxuriant	bright yellow

Storage and Shelf Life
Store below 30°C in tightly closed container and the prepared medium at 2 - 8°C away from light. Use before expiry date on the label.

Reference
1. Feeley J. C. et al, 1978, J. Clin. Microbiol., 8(3): 320.
2. Feeley J. C. et al, 1979, J. Clin. Microbiol., 10(4):437.
3. Ryan K. J., Ray C. G. (Eds.), 2004, Sherris Medical Microbiology, 4th Edition, McGraw Hill.
4. Winn, W. C. Jr. ,1996, Legionella (In: Baron's Medical Microbiology, Barron, S. et al, (Eds.), 4th Edition, University of Texas Medical Branch
5. Herbert G. A. et al, 1959, Ann. Intern, Med., 92(1):45.
6. Herbert G. A. et al, 1980, Ann. Intern. Med., 92(1):53.
7. MacFaddin J. F., Vol. I, 1985, Media for Isolation Cultivation-Identification-Maintenance of Medical Bacteria, Williams and Wilkins, Baltimore/ London, pg.307-308.

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