

Feeley Gorman HiVeg™ Broth (F.G. HiVeg™ Broth)

MV812

Intended Use:

Recommended for the isolation and presumptive identification of *Legionella* species.

Composition**

Ingredients	g / L
HiVeg™ acid hydrolysate	17.500
HiVeg™ extract	3.000
Starch	1.500
L-Cysteine hydrochloride	0.400
Ferric pyrophosphate, soluble	0.250
Final pH (at 25°C)	6.9±0.2

**Formula adjusted, standardized to suit performance parameters

Directions

Suspend 22.65 grams in 1000 ml purified/distilled water. Heat if necessary to dissolve the medium completely. Mix well and dispense into tubes or flasks as desired. Sterilize by autoclaving at 15 lbs pressure (121°C) for 15 minutes

Principle And Interpretation

Feeley et al formulated (1,2) this medium, 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. pneumophila* (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. Common sources include cooling towers, domestic hot-water systems, fountains, and similar disseminators that tap into a public water supply. Natural sources of *Legionella* include freshwater ponds and creeks. 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. F.G. HiVeg™ Broth is prepared by using vegetable peptones in place of animal based peptones which make the media free of BSE/TSE risks. HiVeg™ acid hydrolysate, HiVeg™ 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. *Legionella* species can be identified by their characteristic fluorescence in presence of UV light (5,6). Since Legionella disease is primarily a pulmonary infection, prevention and containment of aerosols is essential (7).

Type of specimen

Water samples

Specimen Collection and Handling:

For water samples, follow appropriate techniques for sample collection, processing as per guidelines and local standards (8). After use, contaminated materials must be sterilized by autoclaving before discarding. After handling with *Legionella* species sample decontaminate work surface with either 5% hypochlorite or 5% phenil (carbolic acid).

Warning and Precautions :

Read the label before opening the container. Wear protective gloves/protective clothing/eye protection/face protection. Follow good microbiological lab practices while handling specimens and culture. Standard precautions as per established guidelines should be followed while handling clinical specimens. Safety guidelines may be referred in individual safety data sheets.

Limitations :

1. 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.

Performance and Evaluation

Performance of the medium is expected when used as per the direction on the label within the expiry period when stored at recommended temperature.

Quality Control

Appearance

Cream to yellow homogeneous free flowing powder

Colour and Clarity of prepared medium

Yellow coloured, clear to slightly opalescent solution in tubes

Reaction

Reaction of 2.3% w/v aqueous solution at 25°C. pH : 6.9±0.2

pH

6.70-7.10

Cultural Response

Cultural characteristics observed in presence of 2.5% Carbon dioxide (CO₂) after an incubation at 35-37°C for 4 days .

Organism	Growth	Fluorescence under 366 nm
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<i>Legionella bozemannii</i> ATCC 33217	good-luxuriant	blue-white
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<i>Legionella micdadei</i> ATCC 33218	good-luxuriant	none
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<i>Legionella pneumophila</i> ATCC 33153	good - luxuriant	bright yellow
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Storage and Shelf Life

Store between 10-30°C in a tightly closed container and the prepared medium at 15-25°C. Use before expiry date on the label. On opening, product should be properly stored dry, after tightly capping the bottle in order to prevent lump formation due to the hygroscopic nature of the product. Improper storage of the product may lead to lump formation. Store in dry ventilated area protected from extremes of temperature and sources of ignition. Seal the container tightly after use. Product performance is best if used within stated expiry period.

Disposal

User must ensure safe disposal by autoclaving and/or incineration of used or unusable preparations of this product. Follow established laboratory procedures in disposing of infectious materials and material that comes into contact with sample must be decontaminated and disposed of in accordance with current laboratory techniques (9,10).

Reference

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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.
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Revision : 03/2024

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