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TECHNICAL PRODUCT INFORMATION

UVM MODIFIED LISTERIA ENRICHMENT BROTH

Catalog No.
T2105 UVM Primary - 9 mL
T2106 UVM Secondary – 9 mL
B2600 UVM Primary - 225 mL

INTENDED USE:

UVM Modified Listeria Enrichment Broth is used as a selective enrichment for the isolation of *Listeria species*.

HISTORY/SUMMARY:

Listeria monocytogenes first described in 1926 by Murray, Webb and Swann. This organism can cause human illness and death, especially in immunocompromised individuals and pregnant women. The principle route of transmission is consumption of food contaminated with *Listeria monocytogenes*. The organism may also be present in a varied range of unprocessed foods, soil, sewage, silage and river water. This medium is a modification of the formulation developed by Donnelly and Baigent of the University of Vermont¹ where the concentration of nalidixic acid has been reduced from 40 to 20 mg/L. The formula is used for the selective enrichment of *Listeria* species from food and clinical specimens.

Listeria species grows over a wide pH range (5.0-9.6) and survive in food products outside this range. The organism is microaerophilic, gram positive, asporogenous, non-encapsulated, non-branching, short motile rods. Motility is most pronounced at 20°C. Identification is based on isolation of the organism, biochemical characterization and serological confirmation.

PRINCIPLE:

The Pancreatic Digest of Casein, Peptic Digest of Animal Tissue, Beef Extract and Yeast Extract provide nitrogen, vitamins and minerals needed for the growth of *Listeria monocytogenes*. Sodium chloride maintains osmotic balance. The phosphate compounds provide buffering capacity. Esculin is a glycoside which is hydrolyzed by *Listeria* species. A blackening of the medium by cultures containing Esculin-hydrolyzing bacteria is the result of the formation of 6,7-dihydroxycoumarin which reacts with ferric ions. Nalidixic acid inhibits the growth of gram negative organisms and gram positive bacteria are suppressed by the Acriflavine. UVM Secondary differs from the Primary formula with double the amount of Acriflavine per liter. The high salt tolerance of *Listeria* is used as a means to inhibit enterococci growth.

PRECAUTIONS:

This medium is NOT FOR IN VITRO DIAGNOSTIC USE. It supports the growth of pathogens and should be handled with caution by adequately trained personnel under the supervision of a microbiologist. Media showing signs of deterioration or contamination must not be used. Media must be brought to room temperature before use.

FORMULA: UVM Primary

COMPONENTS PER LITER OF PURIFIED WATER	
Pancreatic Digest of Casein	5.0 gm
Peptic Digest of Animal Tissue	5.0 gm
Beef Extract	5.0 gm
Yeast Extract	5.0 gm
Sodium Chloride	20.0 gm
Disodium Phosphate	9.6 gm
Monopotassium Phosphate	1.35 gm
Esculin	1.0 gm
Nalidixic Acid	20.0 mg
Acriflavine Hydrochloride	12.0 mg (Secondary: 25 mg)

Final pH: 7.2 ± 0.2 at 25°C

PROCEDURE:

Refer to recommended standard references for processing food or dairy samples.

1. The USDA/FSIS method states to add 25 mL liquid or 25 gram sample plus 225 mL UVM Modified Listeria Enrichment Broth.
2. For environmental sponges, add 225 mL of UVM Broth to each bagged sponge sample.
3. Incubate 48 hours at 30°C.
4. After incubation, streak the enrichment broth to an agar plate such as Oxford Medium or PALCAM Medium.
5. Incubate the agar plates at 37°C for 48 hours.
6. Examine for typical *Listeria* colonies.
7. Verify identification with biochemical and serological testing.

STORAGE:

This media should be stored at 2-8°C, do not use beyond the expiration date.

PERFORMANCE CHARACTERISTICS:

Expected cultural responses after 24-48 hours at 35 ± 2°C:

ORGANISMS	RESULTS
ATCC 19112 <i>Listeria monocytogenes</i>	Growth
ATCC 25922 <i>Escherichia coli</i>	Inhibition (partial to complete)
ATCC 25923 <i>Staphylococcus aureus</i>	Inhibition (partial to complete)

QUALITY CONTROL:

It is recommended the user confirm the performance characteristics of this medium. Careful selection of test organisms must be so maximum information is obtained. Proper environmental conditions must be chosen to further warrant effective results.

LIMITATIONS:

Modified Listeria Enrichment Broth, is a partially selective medium, growth of contaminating organism strains will be markedly, but not totally inhibited.

REFERENCES:

1. Donnelly and Baigent. 1986. Applied Environmental Microbiology 52:689
2. Manual of BBL Products and Procedures, 2003, pages 307-309
3. Acumedia 7409 Product Information, UVM Modified Listeria Enrichment Broth (PI 7409 Rev04, NOV2010)

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