



PRODUCT SPECIFICATION SHEET

Listeria Enrichment Broth, Modified (DM405)

Intended Use

Listeria Enrichment Broth, Modified (DM405) is recommended for selective enrichment of *Listeria* species.

Product Summary and Explanation

Listeria species are microaerophilic, gram-positive, asporogenous, non-encapsulated, non-branching, regular, short, motile rods. Motility is most pronounced at 20°C. The most common contaminating bacteria found in food sources potentially containing *Listeria* are: streptococci, especially the enterococci, micrococci, *Bacillus* species, *Escherichia coli*, *Pseudomonas aeruginosa* and *Proteus vulgaris*.⁽¹⁾ *Listeria* species grow over a pH range of 4.4-9.6, and survive in food products with pH levels outside these parameters.⁽²⁾ Identification of *Listeria* is based on successful isolation of the organism, biochemical characterization and serological confirmation.

Among the *Listeria* species only *Listeria monocytogenes* is reported to cause infection in humans. In 1926 Murray, Webb and Swann,⁽³⁾ first described that *Listeria monocytogenes* is a widespread problem in public health and the food industries. This organism can cause human illness such as meningitis, encephalitis or septicemia and the tropism of *L. monocytogenes* for the central nervous system leads to severe disease, often with high mortality or with neurologic disorders among survivors,⁽⁴⁾ particularly in immunocompromised individuals and pregnant women.⁽⁵⁾ The first food-borne outbreak of listeriosis was reported in 1985.⁽⁶⁾ Since then, microbiological and epidemiological evidence from both sporadic and epidemic cases of listeriosis has shown that the principal route of transmission is via the consumption of foodstuffs contaminated with *Listeria monocytogenes*.⁽⁷⁾ Concerned vehicles of transmission include Mexican-style cheese, coleslaw, turkey frankfurters, pasteurized milk and pickled pork tongue.⁽⁸⁾ The organism has been isolated from commercial dairy and other food processing plants, and is ubiquitous in nature, being present in a wide range of unprocessed foods and in soil, sewage, silage and river water.⁽⁹⁾

Listeria Enrichment Broth, Modified is a modification of the original formulation of Donnelly and Baigent, is used for the selective enrichment of *Listeria* species.⁽¹⁰⁾ In this medium, the nalidixic acid concentration has been reduced from 40 mg/l in the original composition, to 20 mg/l. Listeria Enrichment Broth, Modified is used for selective enrichment of *Listeria* species from milk, milk products and other foods.

Principles of the Procedure

Listeria Enrichment Broth, Modified contains tryptose, yeast extract and beef extract which provide essential nutrients like carbon and nitrogenous compounds including vitamins, amino acids and trace ingredients required for growth of microorganisms. Phosphates provide buffering action to the medium. Sodium chloride maintains osmotic equilibrium in the medium. Nalidixic acid and acriflavin inhibit the growth of gram-negative and gram-positive organisms respectively except *Listeria* species.

Formula / Liter

Ingredients	Gms / Liter
Tryptose	10.00
Yeast extract	5.00
Beef extract	5.00
Sodium chloride	20.00
Disodium hydrogen phosphate	9.60
Monopotassium hydrogen phosphate	1.35
Esculin	1.00
Nalidixic acid	0.02
Acriflavin hydrochloride (Trypaflavin)	0.012





PRODUCT SPECIFICATION SHEET

Final pH: 7.2 ± 0.2 at 25°C
Formula may be adjusted and/or supplemented as required to meet performance specifications

Precautions

1. For Laboratory Use only.
2. IRRITANT. Irritating to eyes, respiratory system, and skin.

Directions

1. Suspend 51.98 grams of the medium in one liter of distilled water.
2. Heat if necessary, to dissolve the medium completely.
3. Mix well and dispense into test tubes.
4. Autoclave at 121°C, 15 psi pressure, for 15 minutes / validated cycle.

Quality Control Specifications

Dehydrated Appearance	Cream to yellow homogeneous free flowing powder
Prepared Medium	Yellow coloured, clear to slightly opalescent solution having a bluish tinge
Reaction of 5.2% Solution	pH : 7.2 ± 0.2 at 25°C
Gel Strength	Not Applicable

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

Sr. No.	Organisms	Results to be achieved	
		Inoculum (CFU)	Growth
1.	<i>Escherichia coli</i> ATCC 25922	>=10 ³	inhibited
2.	<i>Listeria monocytogenes</i> ATCC 19111	50 - 100	good-luxuriant
3.	<i>Listeria monocytogenes</i> ATCC 19112	50 - 100	good-luxuriant
4.	<i>Listeria monocytogenes</i> ATCC 19117	50 - 100	good-luxuriant
5.	<i>Listeria monocytogenes</i> ATCC 19118	50 - 100	good-luxuriant
6.	<i>Staphylococcus aureus</i> ATCC 25923	>=10 ³	inhibited

The organisms listed are the minimum that should be used for quality control testing.

Test Procedure

1. For enrichment, 25 gram or 25 ml sample is added to 225 ml medium in a stomacher bag.
2. If required, homogenize the material.
3. Incubation is carried out at 30°C for upto 7 days and the sample is subcultured on Listeria Selective Agar (DM931) after 1, 2 and 7 days.

Results

Refer appropriate references and procedures for interpretation of results.

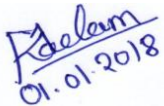


Storage

Store the sealed bottle containing the dehydrated medium at 10 - 30°C. Once opened and recapped, place container in a low humidity environment at the same storage temperature. Protect from moisture and light.





PRODUCT SPECIFICATION SHEET

Prepared By	Checked By	Approved By
 01.01.2018	 01.01.2018	 01.01.2018
Microbiologist	Head Quality Control	Head Quality Assurance

Disclaimer :

All Products conform exclusively to the information contained in this and other related Micromaster Publications. Users must ensure that the product(s) is appropriate for their application, prior to use. The information published in this publication is based on research and development work carried out in our laboratory and is to the best of our knowledge true and accurate. Micromaster Laboratories Pvt Ltd reserves the right to make changes to specifications and information related to the products at any time. Products are intended for laboratory, diagnostic, research or further manufacturing use only and not for human or animal or therapeutic use, unless otherwise specified. Statements included herein should not be considered as a warranty of any kind, expressed or implied, and no liability is accepted for infringement of any patents.

