microgen
Dehydrated Culture Media
Bases / Media Supplements

Technical Information

Listeria Identification MiVeg Agar Base (PALCAM)

Product Code : VM2064

Application:- Listeria Identification MiVeg Agar Base (PALCAM) with added supplement is recommended for selective isolation and identification of *Listeria* species.

Composition

Ingredients	Gms / Litre
MiVeg peptone	23.0
Starch	1.0
Sodium chloride	5.0
Mannitol	10.0
Ammonium ferric citrate	0.5
Esculin	0.8
Dextrose	0.5
Lithium chloride	15.0
Phenol red	0.08
Agar	13.0
Final pH (at 25°C)	7.0 ± 0.2

** Formula adjusted, standardized to suit performance parameters.

Principle & Interpretation

Listeria Identification MiVeg Agar Base (PALCAM) is prepared by using vegetables peptones in place of animal based peptones thus making the medium free from BSE/TSE risks. This medium is the modification of Listeria Identification Agar Base, also known as Polymyxin Acriflavin Lithium-chloride Ceftazidime Aesculin Mannitol (PALCAM) Agar Base which was formulated by Van Netten et al (1) and recommended for the selective isolation of *Listeria monocytogenes* from foods. PALCAM medium is highly selective due to the presence of lithium chloride, Ceftazidime, Polymyxin B and Acriflavin hydrochloride. PALCAM medium is a differential diagnostic medium utilizing two indicator systems, as esculin ferric citrate and mannitol and phenol red.

Listeria monocytogenes hydrolyzes esculin to form esculetin and dextrose. Esculetin reacts with ferric citrate and forms a brown-black complex seen as a black halo around colonies. *Listeria* does not ferment mannitol but the contaminants such as *Enterococci* and *Staphylococci* ferment mannitol and is indicated by colour change from red to yellow. Strict aerobes such as *Bacillus* species and *Pseudomonas* species inhibits under microaerophilic conditions. The addition of egg yolk (2.5% v/v) to PALCAM Agar aid in repair of damaged cells (2). Medium containing blood when overlaid on PALCAM Agar enables to differentiate and enumerate haemolytic *Listeria* species (3).

Depending upon the type of sample used, selective enrichment broth should be used prior to inoculation onto PALCAM Agar. Generally Listeria Selective Enrichment MiVeg Medium is used for Dairy products.

Methodology

Suspend 69 grams of powder media in 1000 ml distilled water. Mix thoroughly and heat to boiling to dissolve the medium completely. Sterilize by autoclaving at 15 lbs pressure (121°C) for 15 minutes. Cool to 50°C and aseptically add 2 vials of rehydrated contents of Listeria Selective Supplement (PALCAM) (MS2061). Mix well and pour into sterile petri plates.

Warning : Lithium chloride is harmful. Avoid bodily contact with body of vapours inhalation. On contact with skin, wash immediately with plenty of water.

Quality Control

Physical Appearance

Beige to light pink coloured, may have slightly greenish tinge, homogeneous, free flowing powder.

Gelling

Firm, comparable with 1.3% Agar gel.

Colour and Clarity of prepared medium

Red coloured, clear to slightly opalescent gel forms in petri plates.

Reaction

Reaction of 6.9% w/v aqueous solution is pH 7.0 ± 0.2 at 25°C.

pH Range

6.8 - 7.2

Cultural Response/Characteristics

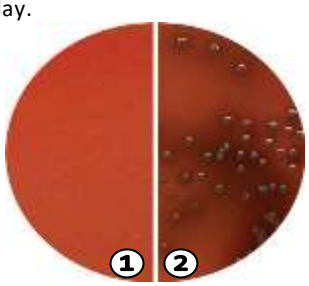
Cultural characteristics observed after an incubation at 35-37°C for 48 hours, under microaerophilic condition with added Listeria Selective Supplement. (PALCAM, MS2061)

Organisms (ATCC)	Inoculum (CFU)	Growth	Recovery	Colony characteristics
Enterococcus faecalis (29212)	10^2-10^3	none - poor	<10%	grey colonies #
Listeria monocytogenes (19112)	10^2-10^3	luxuriant	>50%	grey-green*
Staphylococcus aureus (25923)	10^2-10^3	none - poor	<10%	yellow colonies**

Key : * = with black centre and a black halo
** = with yellow halo
# = with a brown-green halo

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: 2-8^0 in sealable plastic bags for 2-5 day.



VM2064 Listeria Identification MiVeg Agar Base (PALCAM)

1. Control
2. *Listeria monocytogenes*

Further Reading

1. van Netten P. et al, 1989, Int. J. Food. Microbiol., 8(4):299.
2. in't Veld P.H. and de Boer E., 1991, Int. J. Food Microbiol., 13:295.
3. van Netten P., van Gaal B. and Mossel D.A.A., 1991, Lett.Appl. Microbiol, 12:20.

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- User must ensure suitability of the product(s) in their application prior to use.
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