

Technical Information

MRS Agar, Modified (Lactobacilli Heteroferm Screen Agar) (Twin Pack)

Product Code: DM 2163

Application: - Modified MRS Agar is recommended for the isolation and cultivation of *Lactobacillus* species from salad dressings.

Composition*

Ingredients	Gms / Litre
Part A	
Dextrose	20.000
Proteose peptone	10.000
Yeast extract	5.000
Sodium acetate	5.000
Ammonium citrate	2.000
Dipotassium phosphate	2.000
Magnesium sulphate	0.100
Manganese sulphate	0.050
Bromocresol green	0.040
Cycloheximide	0.004
Agar	15.000
Part B	
2-Phenylethyl alcohol	3.00
Final pH (at 25°C)	5.5±0.2

**Formula adjusted, standardized to suit performance parameters

Principle & Interpretation

Mayonnise, cooked starch-based dressings resembling mayonnise and pourable dressings are the types of salad dressings available. Microorganisms in salad dressings come from the ingredients manufacturing equipments and air. The microflora causing spoilage of salad dressing consists of few species of *Lactobacillus*, *Saccharomyces* and *Zygosaccharomyces*. MRS Agar, Modified (Lactobacillus Heteroferm Screen Agar) recommended by APHA ⁽¹⁾, is used for the isolation and cultivation of *Lactobacillus* species from salad dressings ⁽²⁾.

MRS Agar, Modified is the modification of MRS medium of deMan et al ⁽³⁾. Proteose peptone and dextrose supply nitrogen, carbon and other elements essential for the growth of Lactobacilli. Polysorbate 80 a mixture of oleic esters, provide fatty acids required by Lactobacilli. Ammonium citrate, sodium acetate, 2-phenylethyl alcohol and cycloheximide inhibit growth of gram-negative organisms, moulds and certain gram-positive bacteria. Certain yeasts are also suppressed because of presence of cycloheximide. Bromocresol green is the pH indicator, which under acidic conditions, changes colour from green to yellow.

Inoculate 1 ml of 1:10 dilutions of the dressing sample into three MRS Broth, Modified (DM 2164) tubes. Incubate at 32°C for 72 hours ± 2 hours. Positive tubes have trapped CO₂ in the Durhams tubes or bubbles of CO₂ clinging to the inside of the tube and a colour change from green to yellow indicating acid production. These presumptive cultures can be confirmed by streaking on MRS Agar, Modified plates.

Methodology

Suspend 62.19 grams of powder media in 1000 ml distilled water containing 1 ml polysorbate 80 and 3g of 2-Phenylethyl alcohol. Sterilize by autoclaving at 15 lbs pressure (121°C) for 15 minutes. If necessary, adjust the pH with glacial acetic acid after sterilization. Mix well and pour into sterile Petri plates.

Quality Control

Physical Appearance

Light yellow to bluish grey homogeneous free flowing powder

Gelling

Firm, comparable with 1.5% Agar gel

Colour and Clarity of prepared medium

Green coloured clear to slightly opalescent gel forms in Petri plates

Reaction

Reaction of 6.22% w/v aqueous solution at 25°C. pH : 5.5±0.2

pH range

5.30-5.70

Cultural Response/Characteristics

DM2163: Cultural characteristics observed in presence of 5-10% Carbon dioxide(CO₂) after an incubation at 35-37°C for upto 3 days.

Organism	Inoculum (CFU)	Growth	Recovery
<i>Lactobacillus casei</i> ATCC 9595	50-100	Luxuriant	>=50%
<i>Lactobacillus acidophilus</i> ATCC 4356	50-100	luxuriant	>=50%
<i>Lactobacillus fermentum</i> ATCC 9338	50-100	Luxuriant	>=50%
<i>Lactobacillus plantarum</i> ATCC 8014	50-100	Luxuriant	>=50%

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: 2-8⁰ in sealable plastic bags for 2-5 days.

Further Reading

1. Vanderzant C. and Splittstoesser D. F., (Eds.), 1992, Compendium of Methods for the Microbiological Examination of Foods, 3rd Ed., APHA, Washington, D.C.
2. Smittle R. B. and Flowers R. M., 1982, J. Food Protection, 45:977.
3. DeMan J. D., Rogosa M. and Sharpe M. E., 1960, J. Appl. Bacteriol., 23:130.

Disclaimer :



Dehydrated Culture Media
Bases / Media Supplements

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