MRS Agar (NCM0190)

Intended Use

MRS Agar is a medium for the enumeration of mesophilic lactic acid bacteria according to ISO 15214:1998, and is not intended for use in the diagnosis of disease or other conditions in humans.

Description

MRS Agar was originally developed in 1960 by de Man, Rogosa & Sharpe for the cultivation and enumeration of Lactobacillus spp. from various sources and is intended as a substitute for Tomato Juice Agar. This original formulation has been adapted and adjusted to pH 5.7 according to ISO 15214:1998.

Nutrition is provided by enzymatic digest of casein, glucose, meat & yeast extracts whilst polyoxyethylenesorbitan monooleate, magnesium and manganese sulphates act as growth stimulants. Selectivity against streptococci & molds is provided by ammonium citrate and sodium acetate. Used at low pH, ammonium citrate allows growth of lactobacilli whilst inhibiting a number of other organism groups.

Occasionally, sterilization of this medium at 121°C can cause the pH to fall outside of the specified pH limits 5.7 +/- 0.1. In these rare cases adjustment of the medium using acetic acid or sodium hydroxide is recommended

Typical Formulation

Enzymatic Digest of Casein	10.0 g/L
Meat Extract	10.0 g/L
Yeast Extract	4.0 g/L
Triammonium Citrate	2.0 g/L
Sodium Acetate	5.0 g/L
Magnesium Sulphate Heptahydrate	0.2 g/L
Manganese Sulphate Tetrahydrate	0.05 g/L
Dipotassium Hydrogen Phosphate	2.0 g/L
Glucose	20.0 g/L
Polyoxyethylenesorbitan Monooleate	1.08 g/L
Agar	15.5 g/L

Final pH: 5.7 ± 0.1 at 25°C
Formula may be adjusted and/or supplemented as required to meet performance specifications.

Precaution

Refer to SDS

Preparation

1. Suspend 70 grams of the medium in one liter of purified water.
2. Heat with frequent agitation and boil for one minute to completely dissolve the medium.
3. Autoclave at 121°C for 15 minutes.
4. Cool to 45-50°C.

Test Procedure

Using the pour plate method, inoculate 1ml of the test sample (serial dilutions should be used) in to the Petri dish, before pouring over the molten agar. Mix carefully and allow to solidify. Overlays may be used if required. Surface inoculations may also be used. Incubate microaerobically at 30°C for 72 hours + 3 hours.

Effective Date: 5/13/2019

Revision: 1

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Quality Control Specifications
Dehydrated Appearance: Powder is fine, slightly cohesive, light beige powder with some lumps

Prepared Appearance: Prepared medium is a clear, beige gel.

Minimum QC:
Lactobacillus sakei subsp. sakei WDCM 00015
Lactococcus lactis subsp. lactis WDCM 00016
Escherichia coli WDCM 00013 (inhibited)

Results
Refer to appropriate references for results.

Expiration
Refer to expiration date stamped on the container. The dehydrated medium should be discarded if not free flowing or appearance has changed from the original color. Expiry applies to medium in its intact container when stored as directed.

Limitations of the Procedures
- Due to nutritional variation, some strains may be encountered that grow poorly or fail to grow on this medium.
- Although MRS Agar is optimized to be selective for Lactobacilli, some growth of *Leuconostoc spp*. and *Pediococci* may also occur.
- Occasionally, sterilization of this medium at 121°C for 15 minutes, in some autoclaves, may cause the pH to fall outside of the specified pH limits 5.7 +/- 0.1. In these rare cases, adjustment of the medium using acetic acid or sodium hydroxide is recommended.

Storage
Store dehydrated culture media at 2-30°C away from direct sunlight. Once opened and recapped, place container in a low humidity environment at the same storage temperature. Protect from moisture and light by keeping container tightly closed.

Reference
1. de Man, J.C., Rogosa, M and Sharpe, M.E. (1960). A medium for the cultivation of lactobacilli. J. Appl. Bacteriol. 23, 130-135.
2. ISO 15214:1998 Microbiology of food and animal feeding stuffs – Horizontal method for the enumeration of mesophilic lactic acid bacteria – Colony count technique at 30°C.

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