

## Technical Information

### Lactobacillus MRS Agar

#### Product Code: DM 1641

**Application:** - Lactobacillus MRS Agar is recommended for cultivation of all *Lactobacillus* species.

#### Composition\*\*

Ingredients	Gms / Litre
Proteose peptone	10.000
Beef extract	10.000
Yeast extract	5.000
Dextrose	20.000
Polysorbate 80	1.000
Ammonium citrate	2.000
Sodium acetate	5.000
Magnesium sulphate	0.100
Manganese sulphate	0.050
Dipotassium phosphate	2.000
Agar	12.000
Final pH ( at 25°C)	6.5±0.2

\*\*Formula adjusted, standardized to suit performance parameters

#### Principle & Interpretation

Lactobacilli MRS medium is based on the formulation of deMan, Rogosa and Sharpe <sup>(1)</sup> with slight modification. It supports luxuriant growth of all Lactobacilli from oral cavity <sup>(1)</sup>, dairy products <sup>(2)</sup>, foods <sup>(3)</sup>, faeces <sup>(4)</sup> and other sources <sup>(5)</sup>.

Proteose peptone and beef extract supply nitrogenous and carbonaceous compounds. Yeast extract provides vitamin B complex and dextrose is the fermentable carbohydrate and energy source. Polysorbate 80 supplies fatty acids required for the metabolism of Lactobacilli. Sodium acetate and ammonium citrate inhibit Streptococci, moulds and many other microorganisms. Magnesium sulphate and manganese sulphate provide essential ions for multiplication of lactobacilli. Phosphates provide good buffering action in the media.

Lactobacilli are microaerophilic and generally require layer plates for aerobic cultivation on solid media. When the medium is set, another layer of un-inoculated MRS Agar is poured over the surface to produce a layer plate <sup>(5)</sup>. Lactobacilli isolated on MRS Agar should be further confirmed biochemically.

#### Methodology

Suspend 67.15 grams of powder media in 1000 ml distilled water. Shake well & heat to dissolve the medium completely. Distribute in tubes, bottles or flasks as desired. Sterilize by autoclaving at 15 lbs pressure (121°C) for 15 minutes.

#### Quality Control

##### Physical Appearance

Cream to light yellow homogeneous free flowing powder

##### Gelling

Firm, comparable with 1.2% Agar gel.

**Colour and Clarity of prepared medium**

Medium to dark amber coloured, clear to slightly opalescent gel forms in Petri plates

**Reaction**

Reaction of 6.7 1% w/v aqueous solution at 25°C. pH : 6.5±0.2

**pH Range:** 6.30-6.70

**Cultural Response/Characteristics**

DM 1641: Cultural characteristics observed after an incubation at 35-37°C for 18-24 hours or longer.(with 5% CO<sub>2</sub>)

Organism	Inoculum (CFU)	Growth	Recovery
<i>Lactobacillus casei</i> ATCC 9595	50-100	Luxuriant	>=50%
<i>Lactobacillus fermentum</i> ATCC 9338	50-100	Luxuriant	>=50%
<i>Lactobacillus leichmannii</i> ATCC 7830	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:** 2-8<sup>o</sup> in sealable plastic bags for 2-5 days.

**Further Reading**

1. deMan J., Rogosa M. and Sharpe M., 1960, J. Appl. Bacteriol., 23:130.
2. Marshall R.T. (Ed.), 1992, Standard Methods for the Examination of Dairy Products, 16th ed., APHA, Washington, D.C.
3. Downes F. P. and Ito K., (Eds.), 2001, Compendium of Methods For the Microbiological Examination of Foods, 4th Ed., APHA, Washington, D.C.
4. Sabine and Vaselekos, 1965, Nature, 206:960.
5. MacFaddin J., 1985, Media for Isolation-Cultivation-Identification-Maintenance of Medical Bacteria, Vol.1, Williams and Wilkins, Baltimore.

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