Technical Information

Lactobacillus MRS Agar

Product Code: DM 1641I

Application: - Lactobacillus MRS Agar is recommended for the isolation and enumeration of lactic acid bacteria from meat and meat products.

Composition**

Ingredients	Gms / Litre
Ingredients Beef extract	8.000
Peptic digest of animal tissue	10.000
Yeast extract	5.000
Ammonium citrate	2.000
Sodium acetate	5.000
Magnesium sulphate, heptahydrate	0.200
Manganese sulphate, tetrahydrate	0.050
Dipotassium phosphate	2.000
Glucose, anhydrous	20.000
Polysorbate 80	1.000
Agar	12.000
Final pH (at 25°C)	5.7±0.2

**Formula adjusted, standardized to suit performance parameters

Principle & Interpretation

Lactobacilli MRS medium with slight modification is based on the formulation of deMan, Rogosa and Sharpe [1]. It supports luxuriant growth of all Lactobacilli from source such as oral cavity [1], dairy products [2], foods [3], faeces [4] and other sources [5]. Lactobacillus MRS Agar is recommended by ISO Committee [6].

Peptic digest of animal tissue and beef extract supply nitrogenous and carbonaceous compounds. Yeast extract provides vitamin B complex and glucose 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. Phosphates provide good buffering action in the media.

Lactobacilli are microaerophillic 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 [5]. Lactobacilli isolated on MRS Agar should be further confirmed biochemically

Methodology

Suspend 65.13 grams of dehydrated medium 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 6.51% w/v aqueous solution at 25°C. pH : 5.7±0.2

pH range: 5.5-5.9

Cultural Response/Characteristics
DM1641I: Cultural characteristics observed after an incubation at 35-37°C for 18-24 hours (longer if neceesary).(with 5% CO2)

Organism	Inoculum (CFU)	Growth	Recovery
Lactobacillus acidophilus ATCC 19992	50-100	Luxuriant	>=50%
Lactobacillus casei ATCC 9595	50-100	Luxuriant	>=50%
Lactobacillus fermentum ATCC 9338	50-100	Luxuriant	>=50%
Lactobacillus plantarum ATCC 8014	50-100	luxuriant	>=50%
Lactococcus lactis ATCC 19435	50-100	None-poor	<=10%

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 days.

Further Reading

1. eMan 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.
6.International Organization for Standardization (ISO), 1995, Draft ISO/DIS, 13721

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