



MRS Agar w/ pH 5.5

M1923

MRS Agar w/pH 5.5 is recommended for enrichment, isolation and cultivation of all *Lactobacillus* species from all samples.

Composition**

Ingredients	Gms / Litre
Casein peptone	10.000
Meat extract	10.000
Yeast extract	4.000
D(+) Glucose	20.000
Dipotassium hydrogen phosphate	2.000
Tween 80	1.000
Diammonium hydrogen citrate	2.000
Sodium acetate	5.000
Magnesium sulfate	0.200
Manganese sulphate	0.040
Agar	14.000
Final pH (at 25°C)	5.5±0.2

**Formula adjusted, standardized to suit performance parameters

Directions

Suspend 68.24 grams in 1000 ml distilled water. Heat to boiling to dissolve the medium completely. Sterilize by autoclaving at 15 lbs pressure (121°C) for 15 minutes. Mix well and pour into sterile Petri plates.

Principle And Interpretation

MRS Agar w/pH 5.5 is based on the formulation of deMan, Rogosa and Sharpe (1) with slight modification. It supports growth of all Lactobacilli from all types of materials for eg Brewery industry.

Lactobacilli can cause spoilage in foods due to improper storage conditions, temperature, improper hygiene, cleaning. *Lactobacillus* is acidophilic and mostly grows on acidic foods. The pH of foods can be effective against activity of pathogens. Lactobacilli commonly cause spoilage of meats and fermented foods.

Casein peptone and meat extract supply nitrogenous and carbonaceous compounds. Yeast extract provides vitamin B complex and D(+) glucose is the fermentable carbohydrate and energy source. Tween 80 supplies fatty acids required for the metabolism of Lactobacilli. Sodium acetate and Diammonium hydrogen 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 (2). Lactobacilli isolated on MRS Agar w/pH 5.5 should be further confirmed biochemically.

Quality Control

Appearance

Cream to light yellow homogeneous free flowing powder

Gelling

Firm, comparable with 1.4% 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 6.71% w/v aqueous solution at 25°C. pH : 5.5±0.2

pH

5.30-5.70

Cultural ResponseCultural characteristics observed after an incubation at 35-37°C for 18-24 hours or longer.(with 5% CO₂)**Cultural Response**

Organism	Growth	Inoculum (CFU)	Recovery
Cultural Response <i>Lactobacillus fermentum</i> ATCC 9338	luxuriant	50-100	>=50%
<i>Lactobacillus leichmannii</i> ATCC 7830	luxuriant	50-100	>=50%
<i>Lactobacillus plantarum</i> ATCC 8014	luxuriant	50-100	>=50%
<i>Lactobacillus casei</i> ATCC 9595	luxuriant	50-100	>=50%

Storage and Shelf Life

Store between 10-30°C in tightly closed container and the prepared medium at 2 - 8°C. Use before expiry date on the label.

Reference

- 1.deMan J., Rogosa M. and Sharpe M., 1960, J. Appl. Bacteriol., 23:130.
- 2.MacFaddin J.,1985, Media for Isolation-Cultivation-Identification-Maintenance of Medical Bacteria, Vol.1, Williams and Wilkins, Baltimore.

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