

MRS BROTH

Medium to facilitate the growth of *Lactobacilli* in general

FORMULA IN GRAMS PER LITER

Dextrose	20.00	Bacteriological Peptone.	10.00
Beef Extract	8.00	Sodium Acetate.....	5.00
Yeast Extract.....	4.00	Dipotassium Phosphate.	2.00
Ammonium Citrate..	2.00	Tween 80.....	1.00
Magnesium Sulfate.	0.20	Manganese Sulfate.....	0.05

Final pH 6.2 ± 0.2 at 25°C

Preparation

Suspend 52 grams of the medium in one liter of distilled water. Mix well and heat agitating frequently until complete dissolution of the medium. Dispense in adequate containers and sterilize at 121°C for 12 minutes.

Uses

MRS BROTH has the same formulation as MRS Agar (Cat. MRSABA500) without the agar as a solidifying agent. It is used when a fluid medium is preferred. It was developed by de Man, Rogossa and Sharpe to provide a medium that would support the good growth of *Lactobacilli* in general, but in particular for those strains which showed poor growth in existing media such as *L. brevis* and *L. fermenti*, replacing a variable product (tomato juice).

The medium is apt for the growth of lactic acid bacteria, including *Lactobacillus*, *Streptococcus*, *Pediococcus* and *Leuconostoc*. Ammonium citrate at a low pH inhibits most microorganisms, including other *Streptococci* and molds and limits swarming, but allows for the growth of *Lactobacilli*. Dipotassium phosphate and Sodium acetate are buffer agents to maintain a low pH; Tween 80 is an emulsifier; Manganese and Magnesium sulfates are sources of ions and sulfate; Peptone, Beef and Yeast extracts are nutrient sources for growth: nitrogen, vitamins, minerals and amino acids. Dextrose is the fermentable carbohydrate for carbon and energy source. The times and temperatures of incubation are the same as in MRS Agar (35 ± 2°C for 3 days or better, 30°C for 5 days). Tubes showing growth are subcultured to MRS Agar to confirm the presence of *Lactobacilli*. MRS Broth may be used for other tests in the identification of *Lactobacilli*, such as temperature dependence, growth in 4% NaCl, growth in 0.4% Teepol, etc. as recommended by Sharpe, Fryer and Smith.

Bibliography

Sharpe M. Elisabeth, Fryer T.F. and Smith D.G. (1966) "Identification of the Lactic Acid Bacteria in Identification Method for Microbiologist Part A" (Gibbs B.M. and Skinner F.A. eds.) London and New York, Academic Press.
 Briggs M. (1953) J. dairy Res., 20: 36-40
 Reuter G. (1985) Intern. J. Food Microbiol 2: 55-68.

Microbiological Test

The following results were obtained in the performance of the medium from type cultures after incubation at a temperature of 35 ± 2°C and observed after 24 - 72 hours.

Microorganisms	Growth
<i>Lactobacillus acidophilus</i> ATCC 4356	Good
<i>Lactobacillus casei</i> ATCC 393	Good
<i>Lactobacillus fermentum</i> ATCC 9338	Moderate-Good
<i>Escherichia coli</i> ATCC 25922	Moderate-Good
<i>Pseudomonas aeruginosa</i> ATCC 27853	Inhibited

Ordering Information

Catalog N°
MRSBBA500

Size
500g

BioAmerica, Inc.
 13230 SW 132nd Ave suite 33
 Miami FL 33186 USA
 Phone/Fax: (305) 395.7674 / 395.5215
 support@bioamerica-inc.com
 www.bioamerica-inc.com