MRS agar (i23114)

For the enrichment, cultivation and isolation of *Lactobacillus* species from all types of materials.
Industry: Dairy products / Food / Alcoholic beverages

Principles & Uses

MRS Agar, originally formulated by de Man, Rogosa, and Sharpe, has been slightly modified to facilitate the growth of various *Lactobacilli* from diverse sources, such as the brewery industry. *Lactobacilli*, which are acid-loving microorganisms, can lead to food spoilage when storage conditions, temperatures, and hygiene is not optimal. They are particularly known for causing spoilage in acidic foods, like meats and fermented products.

This medium's components play specific roles. Casein peptone and meat extract provide essential nitrogen and carbon compounds. Glucose serves as the fermentable carbohydrate and energy source, while yeast extract contributes the vital B vitamin complex. Tween 80 supplies necessary fatty acids for *Lactobacilli*'s metabolism. Sodium acetate and Diammonium hydrogen citrate help inhibit *Streptococci*, *molds*, and various other microorganisms. Magnesium sulfate and manganese sulfate offer essential ions to support *Lactobacilli* growth, and phosphates act as effective buffering agents.

Lactobacilli are typically microaerophilic, often requiring layer plates for aerobic cultivation on solid media. Once the medium is set, another layer of uninoculated MRS Agar is poured over the surface to create a layer plate. However, to ensure accuracy, *Lactobacilli* isolated on MRS Agar with pH 5.5 should undergo further biochemical confirmation.

Composition (gr/L)

Peptone from Casein 10, Meat Extract 10, Yeast extract 4, D-Glucose 20, Dipotassium Hydrogen Phosphate 2, Tween® 80 1, Di-Ammonium Hydrogen Citrate 2, Sodium Acetate 5, Magnesium Sulphate 0.2, Manganese Sulphate 0.04, Agar 14.
Final pH at 25°C 5.7 ± 0.2

Preparation from dehydrated Powder

Suspend 68.2 g in 1 Liter of distilled water. Autoclave for 15 min at 15psi pressure 121°C, or use 118°C to achieve growth of *Bifidobacterium* spp.

Quality Control

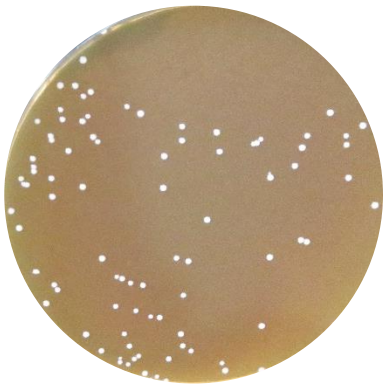
Dehydrated Appearance: Light Tan, free-flowing, homogeneous.
Prepared Appearance: Amber, very slightly to slightly opalescent.
Reaction of 6.8% Solution at 25°C: pH 5.7 ± 0.2

Cultural Response

Cultural response was observed up to 3 days at 35 °C or up to 5 days at 30 °C.

Organism (ATCC*)	Recovery
Lactobacillus acidophilus (4356)	≥ 50
Lactobacillus lactis (19435)	≥ 50
Bifidobacterium bifidum (11863)	≥ 50 (anaerobic incubation)
Bacillus cereus (11778)	No Growth
Escherichia coli (25922)	No Growth

*ATCC is a registered trade mark of the American Type Culture Collection.



Lactobacillus lactis

Storage

Keep dehydrated and prepared medium at 2-8°C.