PRODUCT CODE: 413784

MRS Agar (Dehydrated Culture Media) (ISO15214) for microbiology

Preparation

Suspend 62 grams of the medium in one litre of distilled water. Mix well and dissolve by heating with frequent agitation. Boil for one minute until complete dissolution. Sterilize in autoclave at 121ºC for 12 minutes. Cool to 45-50ºC, mix well and dispense into plates. The prepared medium should be stored at 2-8°C.

The colour is amber, slightly opalescent. The dehydrated medium should be homogeneous, free-flowing and beige in colour. If there are any physical changes, discard the medium.

Uses

MRS AGAR is a selective medium, based on the formulation developed by de Man, Rogosa and Sharpe to provide a medium that would support the good growth of *lactobacilli* in general, but in particular of 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*, *Pediococcus* and *Leuconostoc*. Ammonium citrate, at a low pH, inhibits most microorganisms, but allows 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.

Bacteriological peptone and Beef extract provide nitrogen, vitamins, minerals and amino acids essential for growth. Yeast extract is a source of vitamins, particularly the B-group. Dextrose is the fermentable carbohydrate. Bacteriological agar is the solidifying agent.

The pour plate method requires 1 ml of the previously diluted sample to be poured into a sterile Petri dish and the cooled (45 - 50°C) medium is then added. After solidification, a second layer is poured. The plates are incubated in 5% CO2 at 35°C for 3 days or at 30°C for 5 days. It is important to maintain a humid atmosphere because the plates should not dry out during incubation.

Lactobacilli are microaerophilic and generally require layered plates for aerobic cultivation on solid media. Submerged or surface colonies may be compact or feathery, and are small, opaque and white. The growth of some *Lactobacillus* strains is inhibited at a higher pH of 6.0 and it is necessary to acidify the media to promote the growth. To acidify the media some drops of acetic acid can be added.

Composition

See in Data Sheet (TDS).

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Microbiological Test

The following results were obtained in the performance of the medium from type cultures after incubation at a temperature of 35ºC for 3 days, or at 30ºC for 5 days, in a CO2 enriched atmosphere.

Microorganism	Growth
Lactobacillus acidophilus ATCC 4356	Good
Lactobacillus casei ATCC 393	Good
Escherichia coli ATCC 25922	Moderate-Good
Pseudomonas aeruginosa ATCC 27853	Inhibited

NOTE: The growth of some *Lactobacillus* strains is inhibited at a higher pH of 6.0 and it is necessary to acidify the media to promote the growth. To acidify the media some drops of acetic acid can be added.

According ISO 11133 72h / 30ºC (Productivity and Selectivity)

Microorganism	Inoculum (CFU/ml)	Productivity Quantitative	Seletivity Qualitative
Lactobacillus acidophilus ATCC 4356	10^2	Pr ≥ 0.5	-
Lactobacillus casei ATCC 393	10^2	Pr ≥ 0.5	-
Escherichia coli ATCC 25922	10^4 /10^6	-	Inhibited

Storage

Once opened keep powdered medium closed to avoid hydration.

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