Also known as

Lactobacilli MRS Agar

Specification

Solid culture medium for detection, isolation and cultivation of lactobacilli and other lactic acid bacteria from food and beverages according to de Man, Rogosa and Sharpe.

Formula * in g/L

Peptone proteose	10.00	Manganese sulfate.4 H_2O	0.05
Meat extract	8.00	Dipotassium phosphate	2.00
Yeast extract	4.00	Polysorbate 80	1.00
D(+)-Glucose	20.00	Agar	14.00
Sodium acetate.3 H_2O	5.00		
Triammonium citrate	2.00	Final pH 6,2 ± 0,2 at 25 ºC	
Magnesium sulfate.7 H_2O	0.20		

* Adjusted and /or supplemented as required to meet performance criteria

Directions

Suspend 66 g of powder in 1 L of distilled water. Bring to the boil slowly with gentle stirring until complete dissolution. Dispense into suitable containers and sterilize by autoclaving at 121°C for 15 minutes. The final pH can be adjusted by the addition of a little volume of Acetic acid solution or 1M NaOH solution as required.

Description

MRS Agar is a medium used for the cultivation of lactobacilli. It is a modification of a medium based on the highly nutritious properties of tomato juice. The addition of magnesium, manganese and acetate, together with polysorbate, provides an improved medium for the growth of lactobacilli, including very fastidious species such as *Lactobacillus brevis* and *Lactobacillus fermentum*.

The quality of the peptones in addition to the meat and yeast extracts, combine all the necessary growth factors that make MRS medium one of the best media for the cultivation of lactobacilli.

As the selectivity of this medium is low and contaminants tend to grow subculturing in a (double layer) solid medium, and then in broth is recommended to increase selectivity. In many cases, growth is encouraged by incubation in a CO_2 enriched atmosphere.

MRS medium is particularly recommended for the enumeration and maintenance of lactobacilli either by the MPN technique in MRS broth, or by inoculation on a plate, overlaying it with a second layer of molten medium. This technique overcomes the need for a CO_2 enriched atmosphere. It may be made selective for lactic acid bacteria by lowering the pH to 5,7 and addition of 0,14% sorcic acid.

This medium with the addition of 5 g/L of maltose and the final pH adjusted to 4.7 is used in brewing to detect acid lactic bacteria that spoil the beer.

NOTE: *After a long static storage this product tends to cake and compacted without affecting their quality. Its powder fluidity can be recovered with a strong and vigorous shaking the capped container.*

Quality control

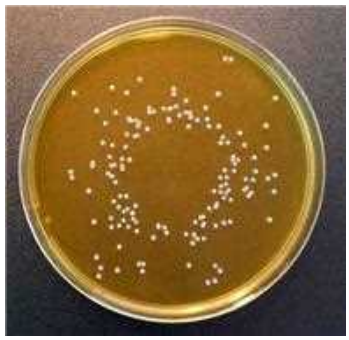
Incubation temperature: 30 ±1ºC **Incubation time:** 72 ± 3h

Inoculum: Practical range 100 ± 20 CFU. Min. 50 CFU (Productivity) / 10^{4} CFU (Selectivity) according to ISO 11133:2014/Amd 1:2018

Microorganism	Growth	Remarks
Escherichia coli ATCC® 25922	Poor to good	-
Lactobacillus sakei ATCC® 15521	Productivity > 0.70	Incubate in a 5% CO2 atmosphere
Lactococcus lactis ATCC® 19435	Productivity > 0.70	Incubate in a 5% CO2 atmosphere
Pediococcus pentosaceus ATCC® 33316	Productivity > 0.70	Incubate in a 5% CO2 atmosphere

Lactococcus lactis ATCC® 19435

Uninoculated plate (Control)



Lactobacillus sakei ATCC® 15521

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Storage

For laboratory use only. Keep tightly closed, away from bright light, in a cool dry place (+4 ºC to 30 ºC).