Reference: 400587ZA **Technical Data Sheet**

Product: **MRS Agar (ISO) - 200 ml**

Specification

Solid medium for the culture of lactic acid bacteria according to de Man, Rogosa and Sharpe, modified according to ISO standards and IFU methods.

Presentation

	Packaging Details	Shelf Life	Storage
10 Prepared bottles Bottles 250 ml with: 200 ± 5 ml	1 box with 10 bottles 250 ml. Plastic screw inner cap.	12 months	8-25 ºC

Composition

Composición (g/l):

Enzymatic digest of casein	10.00
Meat extract	10.00
Yeast extract	4.00
D(+)-Glucose	20.00
Sodium acetate	5.00
Triammonium citrate	2.00
Magnesium sulfate	0.20
Manganese sulfate	0.05
Dipotassium phosphate	2.00
Polysorbate 80	1.08
Agar	14.00

Description /Technique

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 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.

Technique:
Collect, dilute and prepare samples and volumes as required according to specifications, directives, official standard regulations and/or expected results.
Spread the plate by streaking methodology or by spiral method. Incubate the plates right side up in a CO_2 atmosphere at 30 ±1ºC for 72 ±3h.
(Incubation times longer than those mentioned above or different incubation temperatures may be required depending on the sample , on the specifications,...
This medium can be inoculated directly or after enrichment broth like MRS broth) Incubated under microaerophilic conditions to promote lactobacilli enrichment.
After incubation, enumerate all the colonies that have appeared onto the surface of the agar.
Each laboratory must evaluate the results according to their specifications.
Calculate total microbial count per ml of sample by multiplying the average number of colonies per plate by inverse dilution factor if streaked a diluted sample. Report results as Colony Forming Unit (CFU's) per ml or g along with incubation time and temperature.

Note: The solid mediums can be melted in different ways: autoclave, bath and, if the customer considers appropriate, also the microwave. Whenever the microwave option is chosen, it is necessary to take certain safety measures to avoid breaking of the containers, such as loosening the screw cap and putting the bottle or tube in a water bath in the microwave. The fusion temperature and time will depend on the shape of the container, the volume of medium and the heat source. Avoid overheating as both the heating periods.

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Quality control

Physical/Chemical control

Color : Yellowish-brown pH: 5.7 ± 0.1 at 25ºC

Microbiological control

Melting - pour plates - inoculation Practical range 100 ± 20 CFU. min. 50 CFU (productivity) / 10^3-10^4 CFU (qualitative selectivity).

Microbiological control according to ISO 11133:2014/A1:2018.

Analytical methodology according to ISO 11133:2014/A1:2018; A2:2020.

Microaerofilic incubation at 30 ±1 ºC for 72 ±3 h

Microorganism	Growth
Escherichia coli ATCC® 25922, WDCM 00013	Inhibited
Lactobacillus sakei ATCC® 15521, WDCM 00015	Good (≥70%)
Lactococcus lactis ATCC® 19435, WDCM 00016	Good (≥70%)
Pediococcus pentosaceus ATCC® 33316, WDCM 00158	Good (≥70%)
Bacillus cereus ATCC® 11778, WDCM 00001	Inhibited

Sterility Control

Incubation 48 h at 30-35 ºC and 48 h at 20-25 ºC: NO GROWTH.
Check at 7 days after incubation in same conditions.

Bibliography

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