

MRS Agar (Lactobacillus Agar acc. to DE MAN, ROGOSA and SHARPE)

Media introduced by DE MAN, ROGOSA and SHARPE (1960) for the enrichment, cultivation and isolation of Lactobacillus species from all types of materials.

Mode of Action

The MRS culture media contain polysorbate, acetate, magnesium and manganese, which are known to act as special growth factors for lactobacilli, as well as a rich nutrient base. As these media exhibit a very low degree of selectivity, *Pediococcus* and *Leuconostoc* species and other secondary bacteria may grow on them.

Typical Composition (g/litre)

Peptone from casein 10.0; meat extract 10.0; yeast extract 4.0; D(+)-glucose 20.0; dipotassium hydrogen phosphate 2.0; Tween® 80 1.0; di-ammonium hydrogen citrate 2.0; sodium acetate 5.0; magnesium sulfate 0.2; manganese sulfate 0.04; agar-agar 14.0.

Preparation

Suspend 68.2 g in 1 litre of demin. water; autoclave 15 min at 121 °C or use 118 °C to achieve growth of Bifido bacterium spp. pH: 5.7 ± 0.2 at 25 °C.

The plates are clear and brown.

Experimental Procedure and Evaluation

If necessary, homogenize the sample material. Inoculate the MRS Agar with this material or with the original sample; it is best to use the pour-plate method.

Incubation: up to 3 days at 35 °C or up to 5 days at 30 °C, if possible incubate the plates in a CO₂ enriched atmosphere in an anaerobic jar (e.g. with Merck Anaerocult® C or C mini).

Do not allow the surface of the plates to dry as this causes the acetate concentration to increase at the surface, which inhibits the growth of lactobacilli.

Determine the bacterial count. Identify the lactobacilli by the methods proposed by SHARPE (1962) and SHARPE et al. (1966). For further methods of differentiation and identification see ROGOSA et al. (1953), ROGOSA and SHARPE (1959) and DAVIS (1960).

Literature

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- ROGOSA, M., a. SHARPE, M.E.: An approach to the classification of the lactobacilli. – J. Appl. Bact., 22; 329-340 (1959).
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- SHARPE, M.E., FRYER, T.F., a. SMITH, D.C.: Identification of the Lactic Acid Bacteria. – in GIBBS, B.M., a. SKINNER, P.A.: Identification Methods for Microbiologists, Part A; 65-79 (1966).

Ordering Information

Product	Merck Cat. No.	Pack size
MRS Agar (Lactobacillus Agar acc. to DE MAN, ROGOSA and SHARPE)	1.10660.0500	500 g
Anaerobic jar	1.16387.0001	1 jar
Anaeroclip®	1.14226.0001	1 x 25
Anaerocult® C	1.16275.0001	1 x 10
Anaerocult® C mini	1.13682.0001	1 x 25
Plate basket	1.07040.0001	1 ea



Bifidobacterium bifidum
ATCC 11863



Lactobacillus casei
ATCC 393

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Quality control (spiral plating method)

Test strains	Inoculum (dfu/ml)	Recovery rate %
Lactobacillus acidophilus ATCC 4356	10^3 - 10^5	≥ 50
Lactobacillus sake ATCC 15521	10^3 - 10^5	≥ 50
Lactobacillus lactis ATCC 19435	10^3 - 10^5	≥ 50
Pediococcus damnosus ATCC 29358	10^3 - 10^5	≥ 50
Bifidobacterium bifidum ATCC 11863	10^3 - 10^5	≥ 50 (anaerobic incubation)
Escherichia coli ATCC 25922	$> 10^5$	no growth
Bacillus cereus ATCC 11778	$> 10^5$	no growth