

**MRS broth****Code 84613.0500****Also known as**

De Man, Rogosa, Sharpe broth

**Intended use**For the enrichment and cultivation of *Lactobacillus* spp. from all types of materials.**Formula \* - Composition in g/L**

Enzymatic digest of casein.....	10.00
Meat extract.....	10.00
Yeast extract.....	5.00
Glucose.....	20.00
Dipotassium hydrogen phosphate..	2.00
Sodium acetate.....	5.00
Di ammonium citrate.....	2.00
Magnesium sulphate.....	0.20
Manganese sulphate.....	0.05
Polyoxyethylenesorbitan monooleate (Tween 80).....	1.08

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

Final pH 6.4 ± 0.2 at 25 °C.

**Instructions for preparation**

Dissolve 55.2 g in 1 litre of purified water by heating if necessary. Dispense the medium into flasks or tubes of suitable capacity. Sterilise in the autoclave at 121 °C for 15 minutes.

**Principle of the method and general information**

MRS prepared according to the formula of De Man, Rogosa and Sharpe, is designed for the cultivation, enrichment and isolation of *Lactobacillus* spp. from all types of materials. Peptone and dextrose provide the carbon, nitrogen and other elements necessary for growth. Tween® 80, sodium acetate and diammonium citrate intensify the growth of Lactobacilli. Manganese and magnesium are inorganic ions necessary for growth in the presence of citrate.

**Instruction for use**

For laboratory use only.

Inoculate the sample directly into MRS Broth tube.

Incubate the tubes at 30 °C for 72 h ± 3 h, in an aerobic atmosphere.

Growth of Lactobacilli will produce turbidity in MRS Broth. Growth may be subcultured onto the appropriate media for isolation and identification procedures.

If lactic acid bacteria other than mesophilic are to be cultivated, incubate the plates at 42 °C for 48 hours (thermophilic lactobacilli) or at 25 °C for 5 days (psicrofilic lactobacilli).

**Limitations**

- As this medium exhibit a poor degree of selectivity, *Pediococcus* and *Leuconostoc* spp. and other secondary bacteria may grow well and compete for nutrients. However, most of these accompanying microorganisms can be inhibited by the addition of various concentrations of selective agents.
- Due to the possible development of microorganisms other than lactic acid bacteria on MRS broth, it may be necessary in some cases and for some products to confirm the growth obtained in by simple techniques (such as catalase test and Gram staining).

## Quality Control

### Physical characteristics:

Appearance of powder

Yellow, fine, homogeneous hygroscopic powder

Appearance of prepared medium

Brown, limpid

pH (25°C)

6.4 ± 0.2

### Microbiological characteristics:

Test Strains	Incubation T° / t / At.	Inoculation method	Growth Characteristics	PO
<i>L. acidophilus</i> CB 1620	37 °C / 48 h / AE	DE	Good growth	DDI ≤ 1
<i>L. bulgaricus</i> CB 1610	37 °C / 48 h / AE	DE	Good growth	DDI ≤ 1
<i>L. sake</i> ATCC 15521	37 °C / 48 h / AE	DE	Good growth	DDI ≤ 1
<i>L. fermentum</i> ATCC 9338	37 °C / 48 h / AE	DE	Good growth	DDI ≤ 1
<i>S. lactis</i> ATCC 11454	37 °C / 48 h / AE	DE	Good growth	DDI ≤ 1

### Notes

DE : dilution to extinction

DDI : Highest dilution showing growth on reference culture medium (RB) - highest dilution showing growth on culture medium under test (TB)  
(considering the index as a positive value, e.g. 10<sup>-9</sup>: 9)

°Target organisms: DDIs 1: the growth on TB shall be not more than 1 dilution lower than RB

Incubation atmosphere AE: aerobic incubation

Microbiological characteristics tested in accordance to ISO/TS 11133-2

ATCC is a registered trade mark of American Type Culture Collection; CB: strain obtained from Laboratory culture collection

## Reference

- De Man, Rogosa and Sharpe. 1960. Journal of Applied Bacteriology; 23(1) 130-135.

## Storage conditions

For laboratory use only. Keep tightly closed, away from bright light, at +2°C to 8°C and <60% RH.

## Ordering information

84613.0500

MRS broth (ISO)

Bottle of 500 g