

## MRS Broth (De Man, Rogosa and Sharpe Broth)

### Intended Use

A medium used for the isolation and cultivation of *Lactobacillus* species from clinical specimens, foods and dairy products.

### Summary

The MRS formulation was developed by De Man, Rogosa and Sharpe to replace a variable product (tomato juice) and, at the same time, provide a medium which would support good growth of Lactobacilli. MRS broth are commonly employed for culturing and identifying of Lactic acid bacteria especially the *Lactobacillus* species. Lactic acid bacteria include species of the following genera: *Lactobacillus*, *Streptococcus*, *Pediococcus* and *Leuconostoc*. All these species can produce lactic acid in considerable amounts. The MRS broth contains sources of carbon, nitrogen, and vitamins to support the growth of lactobacilli.

### Principle

Pancreatic digest of gelatin, Cara Beef extract, and Yeast extract are the carbon, nitrogen, and vitamin sources used to satisfy general growth requirements in Lactobacilli MRS Broth. Glucose is the fermentable carbohydrate. Sodium Acetate and Ammonium Citrate act as selective agents as well as energy sources. Potassium hydrogen phosphate is the buffering agent. Polysorbate 80 acts as surfactant, facilitating uptake of nutrients by lactobacilli. Magnesium sulphate heptahydrate and manganese sulphate tetrahydrate are sources of ions and sulphates.

### Formula\*

| Ingredients                            | g/L       |
|--|-----------|
| Glucose                                | 18.5      |
| Pancreatic Digest of Gelatin           | 10.0      |
| Cara Beef Extract#                     | 8.0       |
| Yeast Extract                          | 4.0       |
| Sodium Acetate                         | 3.0       |
| Potassium Hydrogen Phosphate           | 2.0       |
| Ammonium Citrate                       | 2.0       |
| Polysorbate 80                         | 1.0       |
| Magnesium Sulphate. 7 H <sub>2</sub> O | 0.2       |
| Manganese Sulphate. 4 H <sub>2</sub> O | 0.05      |
| Final pH (at 25°C)                     | 6.2 ± 0.2 |

\*Adjusted to suit performance parameters.

# Equivalent to Beef Extract

### Storage and Stability

Store dehydrated medium below 30°C in tightly closed container and the prepared medium at 2°C-8°C. Avoid freezing and overheating. Use before expiry date on the label. Once opened keep powdered medium closed to avoid hydration.

### Type of specimen

Soil samples, Clinical samples, Food and dairy samples.

### Specimen Collection and Handling

Ensure that all samples are properly labelled.

Follow appropriate techniques for handling samples as per established guidelines.

Some samples may require special handling, such as immediate refrigeration or protection from light, follow the standard procedure. The samples must be stored and tested within the permissible time duration.

After use, contaminated materials must be sterilized by autoclaving before discarding.

## Directions

1. Suspend 48.75 g of the powder in 1000 mL purified / distilled water.
2. Mix thoroughly.
3. Distribute into tubes.
4. Sterilize by autoclaving at 121°C (15 psi) for 15 minutes as per validated cycle.

## Quality Control

**Dehydrated Appearance:** Yellow coloured, homogeneous powder with soft lumps.

**Prepared Appearance:** Medium to dark amber coloured, clear to slightly opalescent solution in tubes.

**Cultural Response:** Cultural characteristics observed after an incubation of 3 days at 35 - 37°C.

### Organisms (ATCC)

|   |                 |
|---|-----------------|
| <i>Lactobacillus acidophilus</i> (4356)                   | Growth          |
| <i>Bifidobacterium bifidum</i> (11863)                    | Good(anaerobes) |
| <i>Lactobacillus fermentum</i> (9338)                     | Good            |
| <i>Escherichia coli</i> (25922)                           | Poor            |
| <i>Pseudomonas aeruginosa</i> Strain Boston 41501 (27853) | Poor            |

## Performance and Evaluation

Performance of the product is dependent on following parameters as per product label claim:

1. Directions
2. Storage
3. Expiry

## Warranty

This product is designed to perform as described on the label and package insert. The manufacturer disclaims any implied warranty of use and sale for any other purpose.

## Reference

1. deMan J., Rogosa M. and Sharpe M., 1960, *J. Appl. Bacteriol.*, 23:130.
2. Isenberg, H.D. *Clinical Microbiology Procedures Handbook*. 2nd Edition
3. Data on file: Microxpress®, A Division of Tulip Diagnostics (P) Ltd.

## Product Presentation:

| Cat No.      | Product description      | Pack Size |
|--------------|--------------------------|-----------|
| 201131560500 | Dehydrated Culture Media | 500 g     |

|   |  |   |   |   |  |   |
|---|--|---|---|---|--|---|
|  Temperature Limit |  Manufacturer                 |  <b>LOT</b>  |  Batch Code                                |  Date of Manufacture |  This way up |  Received on |
| <b>REF</b> Catalogue Number   |  Consult Instructions for use |  Use-by Date |  Hygroscopic keep container tightly closed | <b>OO</b> Opened on   |  |   |

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## Disclaimer

Information provided is based on our inhouse technical data on file, it is recommended that user should validate at his end for suitable use of the product.