LAB093
MRS Agar
de Man, Rogosa & Sharpe Agar

Description
MRS Agar is a medium for the cultivation and enumeration of *Lactobacillus* spp.

Originally developed in 1960 by de Man, Rogosa & Sharpe, the medium is suitable for most lactic acid bacteria and is intended as a substitute for Tomato Juice Agar.

When acidified to pH 5.4 M.R.S. Agar can be used to enumerate *Lactobacillus bulgaricus* in yoghurts.

Nutrition is provided by a mixture of carefully selected peptones, glucose, beef & yeast extracts whilst Tween® 80, magnesium and manganese sulphates act as growth stimulants. Selectivity against streptococci & moulds is provided by ammonium citrate and sodium acetate. Used at low pH, ammonium citrate allows growth of lactobacilli whilst inhibiting a number of other organism groups.

Occasionally, sterilisation of this medium at 121°C for 15 minutes, in some autoclaves, may cause the pH to fall outside of the specified pH limits 6.4 +/- 0.2. In these rare cases, adjustment of the medium using acetic acid or sodium hydroxide is recommended.

Typical Formulation

<table>
<thead>
<tr>
<th>Component</th>
<th>g/litre</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mixed peptones</td>
<td>10.0</td>
</tr>
<tr>
<td>Yeast extract</td>
<td>5.0</td>
</tr>
<tr>
<td>Beef extract</td>
<td>10.0</td>
</tr>
<tr>
<td>Glucose</td>
<td>20.0</td>
</tr>
<tr>
<td>Dipotassium phosphate</td>
<td>2.0</td>
</tr>
<tr>
<td>Sodium acetate</td>
<td>5.0</td>
</tr>
<tr>
<td>Triammonium citrate</td>
<td>2.0</td>
</tr>
<tr>
<td>Magnesium sulphate</td>
<td>0.2</td>
</tr>
<tr>
<td>Manganese sulphate</td>
<td>0.05</td>
</tr>
<tr>
<td>Tween® 80</td>
<td>1.08</td>
</tr>
<tr>
<td>Agar</td>
<td>15.0</td>
</tr>
</tbody>
</table>

Grams per litre: **70.0**

Appearance
Powder: fine, slightly cohesive, light tan powder with some lumps
Finished medium: Light amber, clear gel

**pH:** 6.4 ± 0.2

Hazard classification
NR – Not regulated

Method for reconstitution
Weigh 70 grams of powder and add 1 litre of deionised water. Allow to soak for 10 minutes, swirl to mix then sterilise by autoclaving at 121°C for 15 minutes. Cool to 47°C and pour into sterile Petri dishes. If acidified medium is required, adjust pH prior to pouring. Dry the agar surface before use.

Storage
Dehydrated culture media: 10-25°C.
Final medium: Plates - 7 days at 2-8°C Capped containers – up to 1 month at 15-20°C in the dark.
Inoculation
Surface, spread to cover surface, or use pour plate technique.

Incubation
25°C microaerobically for 2-5 days.

Minimum Q.C. organisms
Lactobacillus casei subsp. rhamnosus WDCM 00101
Lactobacillus plantarum ATCC 8014
Lactobacillus delbrueckii subsp. lactis ATCC 4797

References