MRS Agar w/low pH

Recommended for cultivation of all *Lactobacillus* species from all types of materials.

**Composition**

<table>
<thead>
<tr>
<th>Ingredients</th>
<th>Gms / Litre</th>
</tr>
</thead>
<tbody>
<tr>
<td>Meat peptone</td>
<td>10.000</td>
</tr>
<tr>
<td>Meat extract</td>
<td>10.000</td>
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<tr>
<td>Yeast extract</td>
<td>5.000</td>
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<tr>
<td>Diammonium citrate</td>
<td>2.000</td>
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<tr>
<td>Dipotassium hydrogen phosphate</td>
<td>2.000</td>
</tr>
<tr>
<td>Glucose</td>
<td>20.000</td>
</tr>
<tr>
<td>Magnesium sulphate,heptahydrate</td>
<td>0.200</td>
</tr>
<tr>
<td>Manganese sulphate,tetrahydrate</td>
<td>0.050</td>
</tr>
<tr>
<td>Sodium acetate trihydrate</td>
<td>5.000</td>
</tr>
<tr>
<td>Agar</td>
<td>12.000</td>
</tr>
<tr>
<td>Final pH ( at 25°C)</td>
<td>5.4±0.2</td>
</tr>
</tbody>
</table>

**Formula adjusted, standardized to suit performance parameters**

**Directions**

Suspend 64.15 (the equivalent weight of dehydrated medium per litre) grams in 1000 ml distilled water. Heat to boiling to dissolve the medium completely. Sterilize by autoclaving at 15lbs pressure (121°C) for 15 minutes. Cool to 45-50°C Mix well and pour into sterile Petri plates.

**Principle And Interpretation**

*Lactobacilli* MRS medium is based on the formulation of deMan, Rogosa and Sharpe (1) with slight modification. It supports luxuriant growth of all Lactobacilli from oral cavity (1), dairy products (2), foods (3), faeces (4) and other sources (5).

Proteose peptone and beef extract supply nitrogenous and carbonaceous compounds. Yeast extract provides vitamin B complex and dextrase is the fermentable carbohydrate and energy source. Polysorbate 80 supplies fatty acids required for the metabolism of Lactobacilli. Sodium acetate and ammonium citrate inhibit Streptococci, moulds and many other microorganisms. Magnesium sulphate and manganese sulphate provide essential ions for multiplication of lactobacilli. Phosphates provide good buffering action in the media.

*Lactobacilli* are microaerophillic and generally require layer plates for aerobic cultivation on solid media. When the medium is set, another layer of un-inoculated MRS Agar is poured over the surface to produce a layer plate (5). Lactobacilli isolated on MRS Agar should be further confirmed biochemically.

**Quality Control**

**Appearance**
Cream to light yellow homogeneous free flowing powder

**Gelling**
Firm, comparable with 1.2% Agar gel.

**Colour and Clarity of prepared medium**
Medium to dark amber coloured, clear to slightly opalescent gel forms in Petri plates

**Reaction**
Reaction of 6.42% w/v aqueous solution at 25°C. pH : 5.4±0.2

**pH**
5.20-5.60

**Cultural Response**
Cultural characteristics observed after an incubation at 35-37°C for 18-24 hours or longer.(with 5% CO2)
Organism | Inoculum (CFU) | Growth | Recovery
--- | --- | --- | ---
*Lactobacillus casei* ATCC 9595 | 50-100 | luxuriant | >=50%
*Lactobacillus fermentum* ATCC 9338 | 50-100 | luxuriant | >=50%
*Lactobacillus leichmannii* ATCC 7830 | 50-100 | luxuriant | >=50%
*Lactobacillus plantarum* ATCC 8014 | 50-100 | luxuriant | >=50%

**Storage and Shelf Life**
Store dehydrated and the prepared medium at 2-8°C in tightly closed container. Use before expiry date on the label.

**Reference**

Revision: 0 / 2014

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