

## **CM 21231 - MRS AGAR W/ pH 5.5**

### **INTENDED USE**

Forenrichment, isolation and cultivation of all *Lactobacillus* species.

### **PRODUCT SUMMARY AND EXPLANATION**

MRS Agarw/pH 5.5 is based on the formulation of deMan, Rogosa and Sharpe with slight modification. It supports growth of all *Lactobacilli* from all types of materials for eg Brewery industry.

*Lactobacilli* can cause spoilage in foods due to improper storage conditions, temperature, improper hygiene, cleaning.

*Lactobacillus* is acidophilic and mostly grows on acidic foods. The pH of foods can be effective against activity of pathogens. *Lactobacilli* commonly cause spoilage of meats and fermented foods.

*Lactobacilli* are microaerophilic 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. *Lactobacilli* isolated on MRS Agar w/pH 5.5 should be further confirmed biochemically.

### **COMPOSITION**

| Ingredients                    | Gms / Ltr |
|--------------------------------|-----------|
| Casein peptone                 | 10.000    |
| Meat extract                   | 10.000    |
| Yeast extract                  | 4.000     |
| Dextrose (Glucose)             | 20.000    |
| Dipotassium hydrogen phosphate | 2.000     |
| Polysorbate 80 (Tween 80)      | 1.000     |
| Diammonium hydrogen citrate    | 2.000     |
| Sodium acetate                 | 5.000     |
| Magnesium sulfate              | 0.200     |
| Manganese sulphate             | 0.040     |
| Agar                           | 14.000    |

### **PRINCIPLE**

Casein peptone and Meat extract supply nitrogenous and carbonaceous compounds. Yeast extract provides vitamin B complex and glucose is the fermentable carbohydrate and energy source. Tween 80 supplies fatty acids required for the metabolism of *Lactobacilli*. Sodium acetate and Diammonium hydrogen 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.

### **INSTRUCTION FOR USE**

Dissolve 68.24 grams in 1000 ml purified/distilled water.

Heat to boiling to dissolve the medium completely.

Sterilize by autoclaving at 15 psi pressure (121°C) for 15 minutes.

Mix well and pour into sterile Petri plates.

### **QUALITY CONTROL SPECIFICATIONS**



|                                                   |                                                                                                   |
|---------------------------------------------------|---------------------------------------------------------------------------------------------------|
| <b>Appearance of Powder</b>                       | : Cream to light yellow homogeneous free flowing powder                                           |
| <b>Appearance of prepared medium pH (at 25°C)</b> | : Medium to dark amber coloured, clear to slightly opalescent gel forms in Petri plates : 5.5±0.2 |

## INTERPRETATION

Cultural characteristics observed after an incubation or longer (with 5% CO<sub>2</sub>).

| Microorganism                    | ATCC | Inoculum (CFU/ml) | Growth    | Recovery | Incubation Temperature | Incubation Period |
|----------------------------------|------|-------------------|-----------|----------|------------------------|-------------------|
| <i>Lactobacillus fermentum</i>   | 9338 | 50-100            | luxuriant | ≥70%     | 35-37°C                | 18-24 Hours       |
| <i>Lactobacillus leichmannii</i> | 7830 | 50-100            | luxuriant | ≥70%     | 35-37°C                | 18-24 Hours       |
| <i>Lactobacillus plantarum</i>   | 8014 | 50-100            | luxuriant | ≥70%     | 35-37°C                | 18-24 Hours       |
| <i>Lactobacillus casei</i>       | 9595 | 50-100            | luxuriant | ≥70%     | 35-37°C                | 18-24 Hours       |

## PACKAGING:

In pack size of 100 gm and 500 gm bottles.

## STORAGE

Dehydrated powder, hygroscopic in nature, store in a dry place, in tightly-sealed containers between 2-8°C and protect from direct sunlight. Under optimal conditions, the medium has a shelf life of 4 years. When the container is opened for the first time, note the time and date on the label space provided on the container. After the desired amount of medium has been taken out replace the cap tightly to protect from hydration.

**Product Deterioration:** Do not use if they show evidence of microbial contamination, discoloration, drying or any other signs of deterioration.

## DISPOSAL

After use, prepared plates, specimen/sample containers and other contaminated materials must be sterilized before discarding.

## REFERENCES

1. American Public Health Association, Standard Methods for the Examination of Dairy Products, 1978, 14th Ed., Washington D.C.
2. deMan J., Rogosa M. and Sharpe M., 1960, J. Appl. Bacteriol., 23:130.
3. Isenberg, H.D. Clinical Microbiology Procedures Handbook 2nd Edition.
4. Jorgensen, J.H., Pfaller, M.A., Carroll, K.C., Funke, G., Landry, M.L., Richter, S.S and Warnock, D.W. (2015) Manual of Clinical Microbiology, 11th Edition. Vol. 1.
5. MacFaddin J., 1985, Media for Isolation-Cultivation-Identification-Maintenance of Medical Bacteria, Vol.1, Williams and Wilkins, Baltimore.
6. Salfinger Y., and Tortorello M.L. Fifth (Ed.), 2015, Compendium of Methods for the Microbiological Examination of Foods, 5th Ed., American Public Health Association, Washington, D.C.
7. Wehr H. M. and Frank J. H., 2004, Standard Methods for the Microbiological Examination of Dairy Products, 17th Ed., APHA Inc., Washington, D.C.

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|-------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------|
| <br>Good Manufacturing Practices Certified | <br>Best Before        | <br>Quantity                       | <br>Catalogue Number | <br>Manufacturer |
| <br>Temperature Unit                       | <br>Lot / Batch Number | <br>Consults Instructions for Use | <br>QR Code          |                                                                                                       |

