MRS/Agar

356-4244

DEFINITION
A medium used for the detection and enumeration of lactic bacteria using the technique of colony count in the analysis of yoghurt, meats and meat products.

STANDARDS
FOOD MICROBIOLOGY
- **NF ISO 15214 (September 1998):** Food microbiology - Horizontal method for the enumeration of mesophilic lactic bacteria - Technique of colony count at 30℃ (IC : V 08-030).

- **ISO 7889 (February 2003)/IDF 117:** Yoghurt - Enumeration of characteristic microorganisms - Technique of colony count at 37℃.

PRINCIPLE
The nutrient substances provided by bacteriological peptone, meat extract and the glucose used as an energy source favor the growth of micro-organisms typical of yoghurt. Due to the presence of ammonium citrate and sodium acetate, the medium inhibits other bacteria.

PRESENTATION
Dehydrated
500 g **code 356-4244**

STORAGE
- Dehydrated: +15℃ - 25℃, in carefully-sealed bottles in a cool, dry place
- Expiration date and batch number are shown on the package.

THEORETICAL FORMULA

Bacteriological peptone	10 g
Meat extract	10 g
Yeast extract	4 g
Sodium acetate	5 g
Dipotassium phosphate	2 g
Ammonium citrate	2 g
Magnesium sulfate	200 mg
Manganese sulfate	50 mg
Glucose	20 g
Tween 80	1.08 ml
Agar	12 à 18 g
Distilled water	1,000 ml

Final pH (25℃) = To be adjusted regarding the standard

OTHER PRODUCTS REQUIRED (NOT SUPPLIED)
- Distilled water

EQUIPMENT REQUIRED (NOT SUPPLIED)
(non-exhaustive)
- Scales
- Sterile weighing bags
- Grinder
- Hotplate
- Mixer-homogenizer
- 125 ml Pyrex bottles with autoclave-proof stoppers
- Sterile Petri dishes (Ø = 90 mm)
- Sterile pipettes (1 ml, etc)
- Water-bath precise to ± 1℃
- Thermostatically-controlled incubator or incubation room, precise to ± 1℃
- Autoclave
- All usual laboratory equipment

PREPARATION OF DEHYDRATED MEDIUM
Always shake well before use
Dissolve 62 g of powder in 1 liter of distilled water, mix until a homogenous suspension is obtained.
Heat gently, swirling frequently, then bring to the boil until completely dissolved.
Dispense 100 ml per tube and sterilize in autoclave at 121℃ ± 1℃ for 15 minutes.

Reconstitution ratio : 62 g/l
500 g of powder makes 8 liters of medium.

PROTOCOL
• Preparation of samples
According to the standards applicable to the product concerned.

• Inoculation and incubation
Transfer 1 ml of sample to be analyzed, or of each of its decimal solutions, to 2 sterile Petri dishes.
Pour 15 ml of medium, melted and then cooled to 44℃ - 47℃, in each dish. Homogenize and leave to solidify. Then cover with about 5 ml of the same medium (double-layer technique).
Incubate at 30℃ or 37℃ (± 1℃) for 72 hours (depending on standards).

READING AND INTERPRETATION
Enumerate the colonies on dishes containing between 15 and 300 colonies.

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PRECAUTIONS

- The time lapse between the end of preparation of the stock solution (or the 10^{-1} dilution in the case of a solid product) and the moment when the dilutions come into contact with the culture medium must not exceed 15 minutes.
- Comply with Good Laboratory Practice.

PERFORMANCES / QUALITY CONTROL OF THE TEST

The growth performances of the media are verified with the following strains:

STRAINS	Results after 72h anaerobiotic culture at 30°C
L. sake ATCC 15521	PR ≥ 0.5
Ped. pentosaceus ATCC 29358	PR ≥ 0.5
Lc. lactis ATCC 19435	PR ≥ 0.5
Escherichia coli ATCC 25922	Inhibition
Bacillus cereus ATCC 11778	Inhibition or weak growth

QUALITY CONTROL OF MANUFACTURER

Every product manufactured and marketed by Bio-Rad is subject to a quality-assurance procedure at all stages, from the reception of raw materials to the marketing of the end-product. Each batch of finished product undergoes quality control and is marketed only if it satisfies the acceptability criteria.

Documentation relative to the production and control of each batch is kept on file.

KEY WORDS

MRS / Lactic bacteria / *Lactobacillus* / Meat / Yoghurt / Detection / Enumeration / Medium.

BIBLIOGRAPHY

DE MAN J.C., ROGOSA M. and SHARPE M.E. (1960) : A medium for the cultivation of *lactobacilli*. Journal of Applied Bacteriology 23 (1) : 130.

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