

# M 17 Agar acc. to TERZAGHI

Media proposed by TERZAGHI and SANDINE (1975) for the cultivation and enumeration of lactic streptococci in milk and dairy products and for the differentiation of bacteriophages infecting lactic streptococci.

The M 17 media are superior to other comparable culture media for the cultivation of the fastidious species *Strept. cremoris*, *Strept. diacetylactis* and *Strept. lactis*. Mutants which are incapable of metabolizing lactose can also be isolated on these media.

## Mode of Action

Addition of sodium  $\beta$ -glycerophosphate increases the buffering capacity of the medium; this promotes the growth of lactic streptococci and the development of large bacteriophage plaques.

## Typical Composition (g/litre)

Peptone from soymeal 5.0; peptone from meat 2.5; peptone from casein 2.5; yeast extract 2.5, meat extract 5.0; lactose monohydrate 5.0; ascorbic acid 0.5; sodium  $\beta$ -glycerophosphate 19.0; magnesium sulfate 0.25; agar-agar 12.75.

## Preparation

Suspend 55 g M 17 agar/litre, autoclave (15 min at 121 °C).

pH: 7.2  $\pm$  0.2 at 25 °C.

The prepared media are clear and brown.

- Prepared plates can be stored in the refrigerator (approx. 6-8 °C) for up to 10 days.

## Experimental Procedure and Evaluation

Inoculate the plates.

Incubation: 24-48 hours at 28 °C aerobically.

Colonies of lactose-positive streptococci are clearly visible after 15 hours. Colonies of lactose-positive lactic streptococci have a diameter of 3-4 mm after 5 days while those of lactose-negative mutants have a diameter of less than 1 mm.

Phage infection can be recognized by the presence of large, distinct plaques in the opaque growth of the host bacteria grown on M 17 agar. The phage detection technique is described by TERZAGHI and SANDINE (1975), TERZAGHI (1976), KEOGH (1980), BRINCHMANN et al. (1983) and other authors.

## Literature

BRINCHMANN, E., NAMORK, E., JOHANSEN, B.V., a. LANGSRUD, T.: A morphological study of lactic streptococcal bacteriophages isolated from Norwegian cultured milk. - *Milchwirtschaft.*, **38**: 1-4 (1983).

KEOGH, B.P.: Appraisal of media and methods for assay of bacteriophages of lactic streptococci. - *Appl. Environ. Microbiol.*, **40**: 798-802 (1980).

TERZAGHI, B.E.: Morphologies and host sensitivities of lactic streptococcal phages from cheese factories. - *N.Z.J. Dairy Sci. Technol.*, **11**: 155-163 (1976).

TERZAGHI, B.E., a. SANDINE, W.E.: Improved medium for lactic streptococci and their bacteriophages. - *Appl. Microbiol.*, **29**: 807-813 (1975).

## Ordering Information

Product	Merck Cat. No.	Pack size
M 17 Agar acc. to TERZAGHI	1.15108.0500	500 g

## Quality control

Test strains	Growth
<i>Streptococcus agalactiae</i> ATCC 13813	good / very good
<i>Lactococcus lactis</i> spp. <i>cremoris</i> ATCC 19257	good / very good
<i>Lactococcus lactis</i> spp. <i>lactis</i> ATCC 19435	good / very good
<i>Enterococcus faecalis</i> ATCC 11700	good / very good
<i>Escherichia coli</i> ATCC 25922	good / very good
<i>Staphylococcus aureus</i> ATCC 25923	good / very good
<i>Lactobacillus acidophilus</i> ATCC 4356	fair / good
<i>Lactobacillus casei</i> ATCC 393	fair / good
<i>Lactobacillus fermentum</i> ATCC 9338	fair / good