MIDDLEBROOK 7H 11 MEDIUM

Ready to use tubes

INTENDED USE

Ready to use medium for the cultivation of mycobacteria

TYPICAL FORMULA (g/l)

Tryptone	1.00
Ammonium Sulphate	0.50
L-Glutamic Acid	0.50
Sodium Citrate	0.40
Disodium Hydrogen Phosphate Bibasic	1.50
Potassium Phosphate Monobasic	1.50
Agar	13.50
Magnesium Sulphate	50.00 mg
Fe-Ammonium Citrate	40.00 mg
Pyridoxine HCl	1.00 mg
Biotin	0.50 mg
Malachite Green	1.00
Glycerol	5.00 ml
Bovine Albumin Fr. V	5.00 g
Catalase	4.00 mg
Glucose	2.00 g
Oleic Acid	50.00 ml
Sodium Chloride	0.85 g

Final pH 6.6 ± 0.1

DESCRIPTION

Middlebrook 7H 11 Agar, supplemented with OADC enrichment is recommended for the primary and secondary cultivation of mycobacteria and to detect their sensitivity to antimicrobial agents. The use of clear agar media in place of egg containing versions allows a more accurate evaluation of the morphological characteristics of the colonies and their possible microscopic observation.

In 1947 Dubos and Middlebrook formulated a medium (7H9) containing albumin and oleic acid which enhanced the growth of tubercle bacilli and protect the organisms against a variety of toxic agents. In 1958, Middlebrook and Cohn improved this formulation and developed a solid medium (7H10), which allowed a more luxurious and faster growth of *Mycobacterium* species. Cohn, 1968, incorporated an enzymatic digest of casein into 7H10 medium and, obtained a medium that stimulated the growth of the resistant mycobacteria isolated from patients undergoing drug treatment. This formulation was designed 7H11 Agar.

Oleic acid can be utilised by mycobacteria and plays an important role in their metabolism, sodium chloride maintains osmotic equibtrium., bovine albumin which acts as protective agent binds free fatty acids that may be toxic to *Mycobacterium* spp., glucose serves as an energy source, catalase destroys toxic peroxides that may be present in the medium.

TECHNIQUE

For the isolation of mycobacteria from clinical specimens proceed as following:

Inoculate 7H11 with the specimen after decontamination and neutralisation, according to test procedures recommended by CDC

Incubate in a CO_2 atmosphere at 35-37°C. Protect from light. Tubed media should be incubated for one week with loosened caps to allow the circulation of CO_2 for the initiation of growth. Caps should be tightened after one week to prevent dehydration of media.

Examine the media within five to seven days and weekly thereafter for up to eight weeks. Record and describe colony morphology on the first day growth is observed

LIMITATIONS
7H11 Medium requires incubation in a 5-10% CO_2 atmosphere; mycobacteria are not recovered from candle extinction jar. *M.bovis* will not growth on 7H11 Medium because of the presence of glycerol.

STORAGE
Store at 2-8° away from direct light - When stored as directed the tubed media remain stable until the expiry date shown on the label. Do not use beyond stated expiry date. Media should not be used if there are any signs of deterioration, discoloration or contamination.

PRECAUTIONS
For *in vitro* diagnostic use only. Observe approved biohazard precautions and aseptic techniques. To be used only by adequately trained and qualified laboratory personnel. Sterilize all biohazard waste before disposal.

REFERENCES
• Middlebrook, G. and M.L. Cohn (1958) Am. Rev. Tuberc. **48**, 844.
• Middlebrook, Cohn, Dye, Russel and Levy (1960) Acta Tuberc. Scand. **38**, 66.
• Murray et al. Manual of Clinical Microbiology. 6th , ASM.Ed., Washington D.C. 1995

PACKAGING

551708	**Middlebrook 7H11 Agar,**	**20 ready to use tubes**