Technical Information

Middlebrook 7H11 Agar Base

Product Code: DM 1511

Application: Middlebrook 7H1 1 Agar Base with the addition of supplement is recommended for isolation, cultivation and sensitivity testing of *Mycobacteria*.

Composition**

Ingredients	Gms / Litre
Casein enzymic hydrolysate	1.000
Ammonium sulphate	0.500
Monopotassium phosphate	1.500
Disodium phosphate	1.500
Sodium citrate	0.400
Magnesium sulphate	0.050
L-Glutamic acid	0.500
Ferric ammonium citrate	0.040
Pyridoxine	0.001
Biotin	0.0005
Malachite green	0.001
Agar	15.000
Final pH (at 25°C)	6.6±0.2

**Formula adjusted, standardized to suit performance parameters

Principle & Interpretation

Solid media for Mycobacterial cultivation may be egg-based (Lowenstein Jensen Media) or agar-based (Middlebrook Media) [1]. Dubos and Middlebrook [2] deviced various formulations containing oleic acid and albumin, which protected *Mycobacterium* from toxic agents, there by helping the growth of tubercle bacilli. Middlebrook 7H1 1 Agar a modification of Middlebrook 7H10 Agar [3] is used for the isolation, cultivation and sensitivity testing of *M. tuberculosis.* Cohn et al [4] found that the addition of casein enzymic hydrolysate enhanced the growth of more fastidious *M. tuberculosis* strains, which was helpful in doing drug susceptibility testing [5]. The media is further enriched by the addition of Middlebrook OADC Growth Supplement (MS2018) and glycerol.

Middlebrook media consists of many inorganic salts, which help, in growth of Mycobacteria. Citric acid formed from sodium citrate helps in retaining inorganic cations in solution. Glycerol supplies carbon and energy. Middlebrook OADC Growth Supplement (MS2018) contains oleic acid, bovine albumin, sodium chloride, dextrose and catalase. Oleic acid and other long chain fatty acids are essential for metabolism of Mycobacteria. Some free fatty acids are toxic to Mycobacteria but albumin binds to those fatty acids and prevents toxic action on Mycobacteria. Dextrose serves as an energy source. Catalase neutralizes toxic peroxides. Malachite green partially inhibits other bacteria [1, 6].

Care should be taken while decontamination of the specimen. Also proper specimen collection (sputum and not saliva) should be ensured. Samples should be carefully handled to avoid contamination.

Methodology

Suspend 10.25 grams of powder media in 450 ml distilled water containing 2.5 ml glycerol. Shake well & heat to boiling to dissolve the medium completely. Sterilize by autoclaving at 15 lbs pressure (121°C) for 15 minutes. Cool to 50°C. Aseptically add contents of 1 vial of Middlebrook OADC Growth Supplement (MS2018). Mix thoroughly before dispensing.

Quality Control

Physical Appearance
Light yellow to light green homogeneous free flowing powder
Gelling
Firm, comparable with 1.5% Agar gel
Colour and Clarity of prepared medium
Light amber coloured clear to slightly opalescent gel with greenish tinge forms in Petri plates
Reaction
Reaction of 2.05% w/v aqueous solution containing 0.5% glycerol at 25°C. pH : 6.6±0.2
pH Range:-
6.40-6.80
Cultural Response/Characteristics
DM1511: Cultural characteristics observed on addition of Middlebrook OADC Growth Supplement (MS2018) and glycerol after an incubation at 35-37°C for 2-4 weeks.

Organism	Growth
Mycobacterium fortuitum *ATCC 6841*	Good-luxuriant
Mycobacterium smegmatis *ATCC 14468*	Good-luxuriant
M. tuberculosis H37RV *(25618)*	Good-luxuriant

Storage and Shelf Life

Dried Media: Store below 30°C in tightly closed container and use before expiry date as mentioned on the label.
Prepared Media: 2-8^0 in sealable plastic bags for 2-5 days.

Further Reading

1. Murray P. R., Baron J. H., Pfaller M. A., Jorgensen J. H. and Yolken R. H., (Ed.), 2003, Manual of Clinical Microbiology, 8th Ed., American Society for Microbiology, Washington, D.C. ,,
2. Dubos R. J. and Middlebrook G., 1947, Am. Rev. Tuberc., 56:334.
3. Middlebrook G. and Cohn M. L., 1958, Am. J. Public Health, 48:844.
4. Cohn M. L., Waggoner R. F.,, McClatchy J. K., 1968, Am. Rev. Resp. Dis., 98:295.
5. MacFaddin J. F., 1985, Media for Isolation-Cultivation-Identification-Maintenance of Medical Bacteria, Vol. I, Williams and Wilkins, Baltimore.
6. Finegold S. M., and Baron E. J., 1990, Bailey and Scotts Diagnostic Microbiology, 8th Ed., The C.V. Mosby Co., St. Louis.

Disclaimer :

- User must ensure suitability of the product(s) in their application prior to use.
- The product conform solely to the technical information provided in this booklet and to the best of knowledge research and development work carried at **CDH** is true and accurate
- **Central Drug House Pvt. Ltd.** reserves the right to make changes to specifications and information related to the products at any time.
- Products are not intended for human or animal diagnostic or therapeutic use but for laboratory, research or further manufacturing of diagnostic reagents extra.
- Statements contained herein should not be considered as a warranty of any kind, expressed or implied, and no liability is accepted for infringement of any patents.Donot use the products if it fails to meet specificatons for identity and performens parameters.