

Technical Information

Thayer Martin Medium Base

Product Code: DM 1413

Application: Thayer Martin Medium Base used for selective isolation of Gonococci from pathological specimens.

Composition**

| Ingredients | Gms / Litre |
|--------------------|-------------|
| Peptone, special | 23.000 |
| Starch | 1.000 |
| Sodium chloride | 5.000 |
| Agar | 13.000 |
| Final pH (at 25°C) | 7.0±0.2 |

**Formula adjusted, standardized to suit performance parameters

Principle & Interpretation

Carpenter and Morton reported an improved medium to isolate Gonococci in 24 hours ⁽¹⁾. Subsequently the efficiency of GC medium supplemented with haemoglobin and yeast concentrate was demonstrated for isolating gonococci ⁽²⁾. In the mean time, Thayer and Martin Medium was developed for the primary isolation of *Neisseria gonorrhoeae* and *Neisseria meningitidis* from specimens containing mixed flora collected from throat, vagina, rectum and urethra ^(3, 4). Thayer and Martin ⁽⁴⁾ used Vancomycin, Colistin and Nystatin. Martin and Lester ⁽⁵⁾ used an additional antibiotic Trimethoprim to make the medium more selective.

Special peptone provides nutrients to the organisms while starch neutralizes the toxic fatty acids if present in the agar. Haemoglobin provides the X factor whereas the V factor (N.A.D.) is provided by the added supplement. Supplement (MS2025) also supplies vitamins, amino acids, coenzymes etc. which enhances the growth of pathogenic *Neisseria*. Vancomycin and colistin inhibits gram-positive and gram-negative bacteria respectively ⁽⁶⁾. Nystatin inhibits fungi. This medium may inhibit *Haemophilus* species. Some strains of *Capnocytophaga* species may grow on this medium when inoculated with oropharyngeal specimens

Methodology

Suspend 21.0 grams of powder media in 450 ml distilled water. Shake well & heat to dissolve the medium completely. Sterilize by autoclaving at 15 lbs pressure (121°C) for 15 minutes. Cool to 45°C. Aseptically add 50 ml of sterile lysed blood and rehydrated contents of one vial of Vitamino Growth Supplement (MS2025) and V.C.N Supplement (MS2023) or V.C.N.T Supplement (MS2024). If desired GC Supplement with Antibiotics (MS2021) can be used as a single supplement. Mix well before pouring into sterile Petri plates. If Hemoglobin (MS2022) is used suspend 21.0 grams of Thayer Martin Medium Base in 250 ml distilled water. Heat to boiling to dissolve the medium completely. Prepare 250 ml of 2% hemoglobin solution. Sterilize separately by autoclaving at 15 lbs pressure (121°C) for 15 minutes. Cool to 45°C. Mix both and add the supplements as above.

Quality Control

Physical Appearance

Cream to yellow homogeneous free flowing powder

Gelling

Firm, comparable with 1.3% Agar gel.

Colour and Clarity of prepared medium

Basal Medium: Yellow coloured clear to slightly opalescent gel. After addition of haemoglobin or sterile lysed blood and supplements: chocolate coloured opaque gel forms in Petri plates.

Reaction

Reaction of 4.2% w/v aqueous solution at 25°C. pH : 7.0±0.2

pH range 6.80-7.20**Cultural Response/Characteristics**

DM 1413: Cultural characteristics observed with added sterile lysed blood/Haemoglobin solution (MS2022), Vitamino Growth Supplement (MS2025) and V.C.N. Supplement (MS2023)/V.C.N.T. Supplement (MS2024) after an incubation at 35-37°C for 18-48 hours.

| Organism | Inoculum (CFU) | Growth | Recovery | Colour of colony |
|--|-------------------|----------------|----------|---|
| <i>Escherichia coli</i> ATCC 25922 | >=10 ³ | inhibited | 0% | |
| <i>Neisseria gonorrhoeae</i> ATCC 19424 | 50-100 | good-luxuriant | >=50% | small, grayish white to colourless mucoid |
| <i>Neisseria meningitidis</i> ATCC 13090 | 50-100 | good-luxuriant | >=50% | medium to large, blue gray, mucoid |
| <i>Proteus mirabilis</i> ATCC 25933 | >=10 ³ | inhibited | 0% | |

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:** 2-8⁰ in sealable plastic bags for 2-5 days.**Further Reading**

1. Carpenter and Morton, 1947, Proc. N.Y. State Assoc. Public Hlth. Labs., 27:58.
2. Carpenter et al, 1949, Am. J. Syphil. Gonorrh. Vener. Dis., 33:164.
3. Martin, Billings, Hackney and Thayer, 1967, Public Hlth. Rep., 82:361.
4. Thayer J. and Martin J.E. Jr., 1966, Public Health Rep., 8 1:559.
5. Martin J.E. Jr. and Lester A., 1971, HSMHA Hlth. Service Rep., 86(1):30.
6. MacFaddin J., 1985, Media for Isolation-Cultivation-Identification-Maintenance of Medical Bacteria, Vol. I, Williams and Wilkins, Baltimore.

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- User must ensure suitability of the product(s) in their application prior to use.
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