



PRODUCT SPECIFICATION SHEET

Tergitol-7 Agar (Hind) (DM258)

Intended Use

Tergitol-7 Agar (Hind) (DM258) is recommended for selective isolation and differentiation of enteric bacteria from urine specimen.

Product Summary and Explanation

Tergitol-7 Agar is a selective and differential medium for the detection and enumeration of coliforms in food and water samples. Tergitol-7 Agar is based on the formulation described by Chapman⁽¹⁾ and is recommended for the selective isolation and differentiation of the coliform group. Chapman reported that the addition of Tergitol-7 to a medium consisting of polypeptone and yeast extract permitted unrestricted development of all coliform bacteria, and inhibited gram-negative spore-formers and Gram-positive organisms. Coliform counts on Tergitol-7 Agar were 30% higher than on other selective media. Chapman modified his original Tergitol-7 Agar by adding triphenyl tetrazolium chloride (TTC) to the original formula.⁽²⁾ The addition of tri-phenyltetrazolium chloride (TTC) allows earlier recognition and identification of *Escherichia coli* and *Enterobacter aerogenes*. Confirmation of the presence of *E. coli* was possible after only 10 hours incubation at 35°C. Chapman also reported that Tergitol-7 Agar with added TTC gave a selective medium suitable for the isolation of *Candida* spp. and other fungi. Tergitol-7 inhibits Gram positive organisms and minimises the swarming of *Proteus* allowing superior recovery of coliforms. TTC is rapidly reduced to insoluble red formazan by most coliform organisms except *E. coli* and *Enterobacter aerogenes*, thus allowing easy differentiation. Pollard⁽³⁾ has reported the selective bactericidal property of sodium heptadecyl sulphate (Tergitol-7). Kulp et. al⁽⁴⁾ corroborated the use of Tergitol-7 Agar with TTC in routine analysis of water and Mossel⁽⁵⁾ used this medium for the examination of food materials. Tergitol-7 Agar H, is a modification of Chapman formulation⁽¹⁾ used for selective isolation and differentiation of enteric bacilli from urine samples.

Principles of the Procedure

Tergitol-7 Agar H contains proteose peptone serves as sources of carbon, nitrogen and other essential growth nutrients. Yeast extract provides vitamin B complex required for growth. Lactose is the fermentable carbohydrate. Lactose fermentation is indicated by a color change of the pH indicator, Bromthymol Blue. Sodium heptadecyl sulphate (Tergitol-7) inhibits gram-positive bacteria and *Proteus* swarming and yields better recovery of coliforms. It contains sodium thiosulphate as an indicator of H₂S production.

Formula / Liter

Ingredients	Gms / Liter
Proteose peptone	5.00
Yeast extract	3.00
Lactose	10.00
Ferric ammonium citrate	0.50
Sodium thiosulphate	0.50
Bromo thymol blue	0.025
Sodium heptadecyl sulphate(Tergitol-7)	0.10
Agar	15.00
Final pH: 7.2 ± 0.2 at 25°C	
Formula may be adjusted and/or supplemented as required to meet performance specifications	





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Precautions

1. For Laboratory Use only.
2. IRRITANT. Irritating to eyes, respiratory system, and skin.

Directions

1. Suspend 34.13 grams of the medium in one liter of distilled water.
2. Heat to boiling, to dissolve the medium completely, with frequent agitation.
3. Autoclave at 121°C, 15 psi pressure, for 15 minutes / validated cycle.
4. Cool to 45-50°C.
5. Aseptically add 3 ml of Triphenyl Tetrazolium Chloride (TTC) Solution (MS029), if desired.
6. Mix well and pour into sterile Petri plates.

Quality Control Specifications

Dehydrated Appearance	Cream to light green homogeneous free flowing powder
Prepared Medium	Green coloured clear to slightly opalescent gel forms in Petri plates
Reaction of 3.41% solution	pH 7.2 ± 0.2 at 25°C
Gel Strength	Firm, comparable with 1.5% Agar gel

Expected Cultural Response: Cultural characteristics observed after an incubation at 35-37°C for 18-48 hours, with added TTC solution 1% (MS029).

Sr. No.	Organisms	Results to be achieved				
		Inoculum (CFU)	Growth	Recovery	Colour of colony	H ₂ S
1.	<i>Escherichia coli</i> ATCC 25922	50-100	good-luxuriant	≥50%	yellow	negative
2.	<i>Proteus mirabilis</i> ATCC 25933	50-100	good-luxuriant	≥50%	blue	positive
3.	<i>Klebsiella pneumonia</i> ATCC 13883	50-100	fair-good	30-40%	greenish yellow	negative
4.	<i>Salmonella Enteritidis</i> ATCC 13076	50-100	good-luxuriant	≥50%	blue	positive
5.	<i>Enterococcus faecalis</i> ATCC 29212	≥10 ³	inhibited	0%		

The organisms listed are the minimum that should be used for quality control testing.

Test Procedure

Refer to appropriate references for standard test procedures.

Results

1. In the absence of TTC, Lactose fermenting organisms form yellow colonies with yellow zones while *Klebsiella* and *Enterobacter* form greenish yellow colonies. Non-fermenters produce blue colonies.
2. With added TTC, *E. coli* produces yellow colonies; other coliforms produce yellow-green colonies, while non-fermenters produce red colonies.
3. TTC is reduced in the bacterial cell to form formazan, a red coloured insoluble complex, thereby producing red coloured colonies.
4. H₂S producing bacteria form black colonies or colonies with black centres.
5. Refer to appropriate references and standard test procedures for interpretation of results.





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Storage

Store the sealed bottle containing the dehydrated medium at 10- 30°C. Once opened and recapped, place container in a low humidity environment at the same storage temperature. Protect from moisture and light.

Expiration

Refer to the expiration date stamped on the container. The dehydrated medium should be discarded if not free flowing, or if the appearance has changed from the original color. Expiry applies to medium in its intact container when stored as directed.

Limitations of the Procedure

1. Pour plates do not give satisfactory results.
2. Allow plates to dry with lids slightly ajar for 1 - 2 hours.
3. Reduction of TTC is an irreversible reaction that produces an insoluble formazan compound.
4. Consult appropriate texts for detailed information and recommended procedures.

Packaging

Product Name : Tergitol-7 Agar (Hind)

Product Code : DM258

Available Pack sizes : 500gm

References

1. Chapman, G. H. 1947. A superior culture medium for the enumeration and differentiation of coliforms. J. Bacteriol. 53:504.
2. Chapman, G. H. 1951. A culture medium for detecting and confirming *Escherichia coli* in ten hours. Am. J. Public Health. 41:1381.
3. Pollard A.L., 1946, Science, 103:758.
4. Kulp W., Mascoli C., Tavshanjian O. (1953) Am. J. Pub. Hlth 43. 1111-1113.
5. Mossel D. A. A. (1962) J. Appl. Bact. 25. 20-29.

Further Information

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