



PRODUCT SPECIFICATION SHEET

Todd Hewitt Broth (DM436)

Intended Use

Todd Hewitt Broth (DM436) is recommended for cultivation of group A *haemolytic Streptococci* used for serological studies.

Product Summary and Explanation

Humans are the natural reservoir for group A, beta-haemolytic streptococci. The organisms are transmitted from person to person by the respiratory route and it causes pharyngitis, tonsillitis, sinusitis, otitis media, cervical adenitis, pyoderma, lymphadenitis, bacteremia, osteomyelitis, arthritis and endocarditis. Most common infection caused by group A streptococci is Pharyngitis. In 1985, outbreaks of rheumatic fever have been reported in the Salt Lake City area, California, in which some persons did not recall having had a streptococcal infection. In such cases, and in the diagnosis of non-suppurative squal, serologic studies are helpful for respective documentation of previous group A streptococcal infection.

Todd Hewitt broth originally was developed for use in the production of antigenic streptococcal hemolysin.⁽¹⁾ The modification of Updyke and Nickle⁽²⁾ is used for the growth of beta-hemolytic streptococci for use in fluorescent antibody test procedures⁽³⁾ and for serological typing based on the production of type-specific M protein.⁽⁴⁾ Since its emergence in the 1970s, neonatal group B streptococcal disease has become the major infectious cause of illness and death among newborns. The disease is spread to newborns through vertical transmission from a mother who carries group B streptococci in her anorectum or genital tract. The Centers for Disease Control and Prevention (CDC) has published guidelines for screening and use of intrapartum chemoprophylaxis for prevention of neonatal group B streptococcal disease.⁽⁵⁾ The use of Todd Hewitt Broth with Gentamicin and Nalidixic Acid (or Lim Broth) is recommended to maximize the likelihood of recovering group B streptococci upon plating on sheep blood agar. Group B streptococci have also been found in cases of sepsis in non-parturient women and in men and in joint infection, osteomyelitis, urinary tract infection and wound infection. They are associated with endocarditis, pneumonia and pyelonephritis in immunosuppressed patients.⁽⁶⁾ This medium has been recommended as alternative types in epidemiologic studies of group A streptococci as well as pathogenic microorganisms. With the addition of 15 g/l agar, the medium can be solidified and used as an excellent substrate for the production of capsules in streptococci.

Principles of the Procedure

Todd Hewitt Broth medium is very highly due to the presence of peptic digest of animal tissue and beef heart infusion. Dextrose stimulates haemolysin production. Sodium phosphate and sodium carbonate provide buffering action to counteract the acidity produced during fermentation of dextrose, this restricts destruction of antigenic streptococcal haemolysin.⁽⁴⁾ It is also found that sodium phosphate have a stimulating effect on the pneumococcal growth. Todd Hewitt Broth can be employed as an alternative to serum broth or horse flesh digest broth for the cultivation of streptococci prior to serological typing.⁽⁶⁾

Formula / Liter

Ingredients	Gms / Liter
Beef heart, infusion from	500.00
Peptic digest of animal tissue	20.00
Dextrose	2.00
Sodium chloride	2.00
Disodium phosphate	0.40
Sodium carbonate	2.50
Final pH: 7.8 ± 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 37 grams of the medium in one liter of distilled water.
2. Mix well and dispense as desired.
3. Autoclave at 121°C, 15 psi pressure, for 15 minutes / validated cycle.

Quality Control Specifications

Dehydrated Appearance	Cream to yellow homogeneous free flowing powder
Prepared Medium	Medium amber coloured clear solution without ant precipitate
Reaction of 3.7% Solution	pH : 7.8 ± 0.2 at 25°C
Gel Strength	Not Applicable

Expected Cultural Response: Cultural characteristics observed after an incubation at 35-37°C for 18-48 hours.

Sr. No.	Organisms	Results to be achieved	
		Inoculum (CFU)	Growth
1.	<i>Neisseria meningitidis ATCC 13090</i>	50-100	good-luxuriant
2.	<i>Streptococcus mitis ATCC 9811</i>	50-100	good-luxuriant
3.	<i>Streptococcus pneumoniae ATCC 6303</i>	50-100	good-luxuriant
4.	<i>Streptococcus pyogenes ATCC 19615</i>	50-100	good-luxuriant

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

Test Procedure

1. Incubate throat swabs in loosely-capped tubes of Todd Hewitt Broth at 35 ± 2°C in an aerobic atmosphere with or without added carbon dioxide for 2-5 hours prior to use in fluorescent antibody procedures for the identification of group A streptococci.
2. Incubation may be continued for approximately 24 hours prior to streaking for isolation on blood agar plates. Pure cultures of streptococci may be cultured in Todd Hewitt Broth prior to the preparation of extracts for serological typing.
3. Refer appropriate references for standard test procedures.

Results

Growth in broth medium is indicated by the presence of turbidity compared to an uninoculated control. Refer appropriate references and procedures for interpretation of results.

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.





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Limitations of the Procedure

1. For identification, organisms must be in pure culture. Morphological, biochemical and/or serological tests should be performed for final identification.
2. Consult appropriate texts for detailed information and recommended procedures.

Packaging

Product Name : Todd Hewitt Broth

Product Code : DM436

Available Pack sizes : 100gm / 500gm

References

1. Todd and Hewitt. 1932. J. Pathol. Bacteriol. 35:973.
2. Updyke and Nickle. 1954. Appl. Microbiol. 2:117.
3. Jones, Hebert and Cherry. 1978. Fluorescent antibody techniques and bacterial applications, HEW Publication (CDC) No. 78-8364. Center for Disease Control, Atlanta, Ga.
4. MacFaddin. 1985. Media for isolation-cultivation-identification-maintenance of medical bacteria, vol. 1. Williams & Wilkins, Baltimore, Md.
5. Centers for Disease Control and Prevention. 2002. Morbid. Mortal. Weekly Rep. 51(No. RR-11): 1.
6. Forbes, Sahm and Weissfeld. 2007. Bailey & Scott's diagnostic microbiology, 12th ed. Mosby, Inc., St. Louis, Mo.

Further Information

For further information please contact your local MICROMASTER Representative.

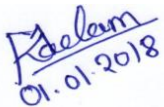




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