



## Todd Hewitt Broth

M313

Todd Hewitt Broth is recommended for the cultivation of group A haemolytic streptococci used for serological studies.

### Composition\*\*

Ingredients	Gms / Litre
Beef heart, infusion from	500.000
Peptic digest of animal tissue	20.000
Dextrose	2.000
Sodium chloride	2.000
Disodium phosphate	0.400
Sodium carbonate	2.500
Final pH ( at 25°C)	7.8±0.2

\*\*Formula adjusted, standardized to suit performance parameters

### Directions

Suspend 37 grams in 1000 ml distilled water. Mix well and dispense as desired. Sterilize by autoclaving at 15 lbs pressure (121°C) for 15 minutes.

### Principle And Interpretation

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. Pharyngitis is the most common infection caused by group A streptococci. In 1985, outbreaks of rheumatic fever have been reported in the Salt Lake City area, California. In these outbreaks, some persons did not recall having had a streptococcal infection. In such cases, and in the diagnosis of non-suppurative sequelae, serologic studies are helpful for respective documentation of previous group A streptococcal infection.

Todd Hewitt Broth, which was initially developed to produce streptococcal haemolysin was further modified by Updyke and Nickle for cultivation of beta-haemolytic streptococci (1, 2) for different serological tests. This medium is also recommended for selective isolation of group B streptococci with added gentamicin and nalidixic acid. This medium has been recommended as an alternative type 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.

Todd Hewitt Broth medium is very nutritious due to the presence of peptic digest of animal tissue and beef heart infusion. Dextrose stimulates haemolysin production. The medium is well buffered by sodium phosphate and sodium carbonate to neutralize the acid produced during dextrose fermentation. This restricts destruction of antigenic streptococcal haemolysin. It is also found that sodium phosphate has 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 (3).

### Quality Control

#### Appearance

Cream to yellow homogeneous free flowing powder

#### Colour and Clarity of prepared medium

Medium amber coloured clear solution without any precipitate

#### Reaction

Reaction of 3.7% w/v aqueous solution at 25°C. pH : 7.8±0.2

#### pH

7.60-8.00

#### Cultural Response

M313: Cultural characteristics observed after an incubation at 35-37°C for 18-48 hours

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Organism	Inoculum (CFU)	Growth
<i>Neisseria meningitidis</i> ATCC 50-100 13090		good-luxuriant
<i>Streptococcus mitis</i> ATCC 9811	50-100	good-luxuriant
<i>Streptococcus pneumoniae</i> ATCC 6303	50-100	good-luxuriant
<i>Streptococcus pyogenes</i> ATCC 19615	50-100	good-luxuriant

### Storage and Shelf Life

Store below 30°C in tightly closed container and the prepared medium at 2 - 8°C. Use before expiry date on the label.

### Reference

1. Todd E. W. and Hewitt L. F., 1932, J. Pathol. Bacteriol., 35:973.
2. Updyke E. L. and Nickle M. I., 1954, Appl. Microbiol., 2:117.
3. Forbes B. A., Sahm D. F. and Weissfeld A. S., 1998, Bailey & Scotts Diagnostic Microbiology, 10th Ed., Mosby, Inc., St. Louis, Mo.

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