



Hi-Sensitivity Test Broth

M486

Hi-Sensitivity Test Broth is used for antimicrobial susceptibility tests.

Composition**

| Ingredients | Gms / Litre |
|--------------------------------|-------------|
| Casein enzymic hydrolysate | 11.000 |
| Peptic digest of animal tissue | 3.000 |
| Dextrose | 2.000 |
| Sodium chloride | 3.000 |
| Starch, soluble | 1.000 |
| Disodium phosphate | 2.000 |
| Sodium acetate | 1.000 |
| Magnesium glycerophosphate | 0.200 |
| Calcium gluconate | 0.100 |
| Cobaltous sulphate | 0.001 |
| Cupric sulphate | 0.001 |
| Ferrous sulphate | 0.001 |
| Zinc sulphate | 0.001 |
| Manganous chloride | 0.002 |
| Menadione | 0.001 |
| Cyanocobalamin | 0.001 |
| L-Cysteine hydrochloride | 0.020 |
| L-Tryptophan | 0.020 |
| Pyridoxine hydrochloride | 0.003 |
| Calcium pantothenate | 0.003 |
| Nicotinamide | 0.003 |
| Biotin | 0.0003 |
| Thiamine hydrochloride | 0.00004 |
| Adenine | 0.010 |
| Guanine | 0.010 |
| Xanthine | 0.010 |
| Uracil | 0.010 |
| Final pH (at 25°C) | 7.4±0.2 |

**Formula adjusted, standardized to suit performance parameters

Directions

Suspend 23.4 grams in 1000 ml distilled water. Heat to boiling to dissolve the medium completely. Sterilize by autoclaving at 15 lbs pressure (121°C) for 15 minutes. Mix well and dispense as desired.

Principle And Interpretation

The goal of an antimicrobial susceptibility test is to predict through an in vitro assessment the likelihood of successfully treating an infection with a particular antimicrobial agent. There are several continual or novel methods for performing antibacterial susceptibility testing. These include the disk diffusion test, broth microdilution, agar gradient and rapid automated instrument methods (1). Hi-Sensitivity Test Broth, which is used for antimicrobial susceptibility tests, is a semi-defined medium in which the mineral contents have been stabilized to give reproducible results. The thiamine and thymidine content is very low thus making it most suitable for testing antimicrobial activity of sulphonamides. However some mutant strains which are totally dependent on thiamine and thymidine for their growth, will not grow in Hi-Sensitivity Test Broth, due to very low levels of these compounds in the media as they are the naturally occurring antagonist of trimethoprim. These strains should be carefully recognized (2,3,4).

Hi-Sensitivity Test Broth has been so designed to overcome the problems occurring in Mueller-Hinton Media that are as follows (5-11).

1. Mueller Hinton Agar and Mueller Hinton Broth give different MIC values.
2. Mueller Hinton Agar shows antagonistic effect towards tetracycline.
3. High levels of sulphonamide and trimethoprim antagonists.
4. Media prepared using peptone of different manufacturers give poor reproducibility.
5. Poor growth supporting ability for Streptococci and variable growth rates with gram-positive organisms.

Some pathogenic organisms are nutritionally dependent due to their intrinsic demands for special growth factors.

Casein enzymic hydrolysate, peptic digest of animal tissue, dextrose, and vitamins provides nitrogen, carbon compounds and other essential growth nutrients.

Quality Control

Appearance

Cream to yellow homogeneous free flowing powder

Colour and Clarity of prepared medium

Basal medium: Light yellow ; After addition of 5% v/v laked blood : Red to chocolate coloured, Basal medium : clear to slightly opalescent ; After Addition: opalescent solution in tubes

Reaction

Reaction of 2.34% w/v aqueous solution at 25°C. pH : 7.4±0.2

pH

7.20-7.60

Cultural Response

M486: Cultural characteristics observed after an incubation at 35-37°C for 18-24 hours.

| Organism | Inoculum (CFU) | Growth |
|---|-------------------|----------------|
| <i>Salmonella Typhimurium</i> ATCC 14028 | 50-100 | good-luxuriant |
| <i>Staphylococcus aureus</i> ATCC 25923 | 50-100 | good-luxuriant |
| <i>Streptococcus pyogenes</i> ATCC 19615 | 50-100 | good-luxuriant |
| <i>Enterococcus faecalis</i> ATCC 50-100 29212 | | good-luxuriant |
| <i>Bacillus subtilis</i> ATCC 6633 | 50-100 | good-luxuriant |
| <i>Bacteroides vulgatus</i> ATCC 8482 | 50-100 | good-luxuriant |

Storage and Shelf Life

Store dehydrated powder and prepared medium at 2-8°C in tightly closed container. Use before expiry period on the label.

Reference

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