Hi-Sensitivity Agar

Intended Use

Hi-Sensitivity Agar is used for antimicrobial susceptibility tests.

Typical Composition (g/liter)

Tryptone 11.0 ; Peptone 3.0 ; Dextrose (Glucose) 2.0 ; Sodium chloride 3.0 ; Starch, soluble 1.0 ; Disodium hydrogen phosphate 2.0 ; Sodium acetate 1.0 ; Magnesium glycerophosphate 0.20 ; Calcium gluconate 0.10 ; Cobaltous sulphate 0.001; Cupric sulphate 0.001 ; Zinc sulphate 0.001 ; Ferrous 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 ; Agar 8.0

Mode of Action

Hi-Sensitivity Agar was developed specifically for antimicrobial susceptibility tests. Its formulation was carefully constructed to give a reproducible, semi-defined medium in which the undefined components were kept to a minimal level. However, it allows the growth of the great majority of microorganisms without further supplementation.

Hi-Sensitivity Test Agar has been so designed to overcome the problems occurring in Mueller-Hinton Media that are as follows:

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 sulfonamide 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. Supplemental nutrients can be added to Hi-Sensitivity Test Agar to improve the growth of these organisms. The following nutrients can be used.

Nutrient	Organisms
Laked blood (5% v/v)	Neisseria and Streptococci
Fildes Peptic Digest of Blood (5 % v/v)	Haemophilus
Menadione (0.5 mg/ml) Thiamine (2mg/ ml	Dwarf colonies of *Staphylococcus aureus* and coliform organisms
Pyridoxine hydrochloride	Symbiotic Streptococci (1mcg/ml)

Supplementation of Hi-Sensitivity Agar with 10% horse blood can be used for susceptibility testing of Helicobacter pylori.

Tryptone, Peptone provides nitrogenous and carbonaceous compounds, long chain amino acids and other essential growth nutrients. Dextrose is the energy source. Vitamins provides nitrogen, carbon compounds and other essential growth nutrients.

Preparation

Suspend 31.4 grams in 1 liter purified / distilled water. Heat to boiling to dissolve the medium completely. Sterilize by autoclaving at 15 lbs pressure (121°C) for 15 minutes. Final pH 7.4±0.2

Storage

Store the dehydrated medium at 10-30°C and the prepared medium at 2-8°C. Use before expiry date on the label.

Specimen

For clinical samples, follow appropriate techniques for handling specimens as per established guidelines

Experimental Procedure and Evaluation

Performance of the medium is expected when used as per the direction on the label within the recommended temperature.

Quality Control

Organism	Inoculum	Growth	Recovery
Bacillus subtilis ATCC 6633	50 - 100	Luxuriant	>=70%
Bacteroides vulgatus ATCC 8482	50 - 100	Luxuriant	>=70%
Enterococcus faecalis ATCC 29212	50 - 100	Luxuriant	>=70%
Salmonella Typhimurium 14028	50 - 100	Luxuriant	>=70%
Staphylococcus aureus ATCC 25923	50 - 100	Luxuriant	>=70%
Streptococcus pyogenes ATCC 19615	50 - 100	Luxuriant	>=70%
Escherichia coli ATCC 25922	50 - 100	Luxuriant	>=70%
Psudomonas aeruginosa ATCC 27853	50 - 100	Luxuriant	>=70%

Reference

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