Technical Data

SS HiCynth™ Agar (Salmonella Shigella HiCynth™ Agar) MCD108

SS HiCynth™ Agar (Salmonella Shigella HiCynth™ Agar) is a differential selective media used for the isolation of *Salmonella* and some *Shigella* species from pathological specimens, suspected foodstuffs etc.

Composition**

Ingredients	Gms / Litre
HiCynth™ Peptone No.3*	11.500
HiCynth™ Peptone No.6*	5.000
Lactose	10.000
Synthetic detergent	2.000
Sodium citrate	10.000
Sodium thiosulphate	8.500
Ferric citrate	1.000
Brilliant green	0.00033
Neutral red	0.025
Agar	15.000
Final pH (at 25°C)	7.0±0.2

**Formula adjusted, standardized to suit performance parameters

*Chemically defined peptones.

Directions

Suspend 63.02 grams in 1000 ml distilled water. Boil with frequent agitation to dissolve the medium completely. DO NOT AUTOCLAVE OR OVERHEAT. Overheating may destroy selectivity of the medium. Cool to about 45-50°C. Mix and pour into sterile Petri plates.

Principle And Interpretation

SS HiCynth™ Agar medium is prepared similar to SS agar wherein animal based peptones are completely replaced with chemically defined peptones to avoid BSE/TSE risks associated with animal peptones. It is recommended as differential and selective medium for the isolation of *Salmonella* and *Shigella* species from pathological specimens (1) and suspected foodstuffs (2,3,4,5) and for microbial limit test (6). It is a moderately selective medium in which gram-positive bacteria are inhibited by brilliant green and sodium citrate.

HiCynth™ Peptone No.3 and HiCynth™ Peptone No.6 provide nitrogen and carbon source, long chain amino acids, vitamins and other essential growth nutrients. Lactose is the fermentable carbohydrate. Brilliant green, synthetic detergent and thiosulphate selectively inhibit gram-positive and coliform organisms. Sodium thiosulphate is reduced by certain species of enteric organisms to sulphite and H2S gas and this reductive enzyme process is attributed by thiosulphate reductase. Production of H2S gas is detected as an insoluble black precipitate of ferrous sulphide, formed upon reaction of H2S with ferric ions or ferric citrate, indicated in the centre of the colonies.

The high selectivity of Salmonella Shigella HiCynth™ Agar allows the use of large inocula directly from faeces, rectal swabs or other materials suspected of containing pathogenic enteric bacilli. On fermentation of lactose by few lactose-fermenting normal intestinal flora, acid is produced which is indicated by change of colour from yellow to red by the pH indicator-neutral red. Thus these organisms grow as red pigmented colonies. Lactose non-fermenting organisms grow as translucent colourless colonies with or without black centres. Growth of *Salmonella* species is uninhibited and appears as colourless colonies with black centres resulting from H2S production. *Shigella* species also grow as colourless colonies which do not produce H2S. It is recommended to inoculate plates of less inhibitory media parallel to SS HiCynth™Agar, such as Hektoen Enteric HiCynth™ Agar or Deoxycholate Citrate HiCynth™ Agar for easier isolation of *Shigella* species (7).

Quality Control

Appearance

Light yellow to pink homogeneous free flowing powder

Gelling

Firm, comparable with 1.5% Agar gel

Colour and Clarity of prepared medium
Reddish orange coloured clear to slightly opalescent gel forms in Petri plates

Reaction
Reaction of 6.3% w/v aqueous solution at 25°C. pH : 7.0±0.2

pH
6.80-7.20

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

Cultural Response

Organism	Inoculum (CFU)	Growth	Recovery	Colour of colony
Cultural Response				
Escherichia coli ATCC 25922	50-100	fair	20-30%	pink with bile precipitate
Enterobacter aerogenes ATCC 13048	50-100	fair	20-30%	cream pink
Enterococcus faecalis ATCC 29212	50-100	none-poor	<=10%	colourless
Proteus mirabilis ATCC 25933	50-100	fair-good	30-40%	colourless, may have black centre
Salmonella Choleraesuis ATCC 12011	50-100	good-luxuriant	>=50%	colourless with black centre
Salmonella Typhi ATCC 6539	50-100	good-luxuriant	>=50%	colourless with black centre
Salmonella Typhimurium ATCC 14028	50-100	good-luxuriant	>=50%	colourless with black centre
Salmonella Enteritidis ATCC 13076	50-100	good-luxuriant	>=50%	colourless with black centre
Shigella flexneri ATCC 12022	50-100	good	40-50%	colourless

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.Lennette and others (Eds.), 1985, Manual of Clinical Microbiology, 4th ed., ASM, Washington, D.C.
2.Downes F. P. and Ito K., (Eds.), 2001, Compendium of Methods for the Microbiological Examination of Foods, 4th Ed., APHA, Washington, D.C.
3.Wehr H. M. and Frank J. H., 2004, Standard Methods for the Microbiological Examination of Dairy Products, 17th Ed., APHA Inc., Washington, D.C.
4.Eaton A. D., Clesceri L. S., Rice E. W., and Greenberg A. W., (Eds.), 2012, Standard Methods for the Examination of Water and Wastewater, 22nd Ed., APHA, Washington, D.C.
5.Williams S., (Ed.), 2005, Official Methods of Analysis of the Association of Official Analytical Chemists, 19th Ed., AOAC, Washington, D.C.
6.The United States Pharmacopoeia, 2016, USP39, The United States Pharmacopoeial Convention. Rockville, MD.
7.MacFaddin J., 1985, Media for Isolation-Cultivation-Identification-Maintenance of Medical Bacteria, Vol. I, Williams and Wilkins, Baltimore.

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