

SS HiVeg™ Agar (Salmonella Shigella HiVeg™ Agar)

MV108

Intended Use:

Recommended as a differential selective media for isolation of *Salmonella* and some *Shigella* species from pathological specimens, suspected food stuffs etc.

Composition**

Ingredients	g / L
HiVeg™ peptone	11.500
HiVeg™ extract	5.000
Lactose	10.000
Synthetic detergent No. I	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

Directions

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

Principle And Interpretation

SS Agar medium is recommended as differential and selective medium for the isolation of *Salmonella* and *Shigella* species from pathological specimens (1) and suspected foodstuffs (2-5) and for microbial limit test (6). SS Agar is a moderately selective medium in which gram-positive bacteria are inhibited by bile salts, brilliant green and sodium citrate. SS HiVeg™ Agar is same as SS Agar except that the animal based peptones are completely replaced with vegetable peptones to avoid the BSE/TSE risks associated with animal peptones.

HiVeg™ peptone, HiVeg™ extract provides nitrogen and carbon source, long chain amino acids, vitamins and essential growth nutrients. Lactose is the fermentable carbohydrate. Brilliant green, synthetic detergent No. I and sodium 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 center of the colonies.

The high selectivity of SS HiVeg™ 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 centers. Growth of *Salmonella* species appears as colourless colonies with black centers resulting from H₂S production. *Shigella* species also grow as colourless colonies which do not produce H₂S.

Type of specimen

Clinical: faeces, blood, rectal swabs ; Suspected food stuffs.

Specimen Collection and Handling

For clinical samples follow appropriate techniques for handling specimens as per established guidelines (7,8).

For food and dairy samples, follow appropriate techniques for sample collection and processing as per guidelines (2-5).

After use, contaminated materials must be sterilized by autoclaving before discarding.

Warning and Precautions

In Vitro diagnostic use. For professional use only. Read the label before opening the container. Wear protective gloves/protective clothing/eye protection/face protection. Follow good microbiological lab practices while handling specimens and culture. Standard precautions as per established guidelines should be followed while handling clinical specimens. Safety guidelines may be referred in individual safety data sheets.

Limitations

1. The medium is highly selective and may be toxic to certain *Salmonella* or *Shigella* species. Hence it is recommended to use to inoculate plates of less inhibitory media parallel to SS Agar, such as Hektoen Enteric Agar (M467) or Deoxycholate Citrate Agar (M065) for easier isolation of *Shigella* species (3).

Performance and Evaluation

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

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.

Organism	Inoculum (CFU)	Growth	Recovery	Colour of colony
# <i>Klebsiella aerogenes</i> ATCC 13048 (00175*)	50-100	fair	20-30%	cream pink
<i>Escherichia coli</i> ATCC 25922 (00013*)	50-100	fair	20-30%	pink with bile precipitate
<i>Salmonella</i> Choleraesuis ATCC 12011	50-100	good-luxuriant	≥50%	colourless with black centre
<i>Salmonella</i> Typhi ATCC 6539	50-100	good-luxuriant	≥50%	colourless with black centre
<i>Enterococcus faecalis</i> ATCC 29212 (00087*)	50-100	none-poor	≤10%	colourless
<i>Proteus mirabilis</i> ATCC 25933	50-100	fair-good	30-40%	colourless, may have black centre
<i>Shigella flexneri</i> ATCC 12022 (00126*)	50-100	good	40-50%	colourless
<i>Salmonella</i> Typhimurium ATCC 14028 (00031*)	50-100	good-luxuriant	≥50%	colourless with black centre
<i>Salmonella</i> Enteritidis ATCC 13076 (00030*)	50-100	good-luxuriant	≥50%	colourless with black centre

Key : *Corresponding WDCM numbers.

Formerly known as *Enterobacter aerogenes*

Storage and Shelf Life

Store between 10-30°C in a tightly closed container and the prepared medium at 20-30°C. Use before expiry date on the label. On opening, product should be properly stored dry, after tightly capping the bottle in order to prevent lump formation due to the hygroscopic nature of the product. Improper storage of the product may lead to lump formation. Store in dry ventilated area protected from extremes of temperature and sources of ignition. Seal the container tightly after use. Product performance is best if used within stated expiry period.

Disposal

User must ensure safe disposal by autoclaving and/or incineration of used or unusable preparations of this product. Follow established laboratory procedures in disposing of infectious materials and material that comes into contact with clinical sample must be decontaminated and disposed of in accordance with current laboratory techniques (7,8).

Reference

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3. Salfinger Y., and Tortorello M.L. Fifth (Ed.), 2015, Compendium of Methods for the Microbiological Examination of Foods, 5th Ed., American Public Health Association, Washington, D.C.
4. Wehr H. M. and Frank J. H., 2004, Standard Methods for the Microbiological Examination of Dairy Products, 17th Ed., APHA Inc., Washington, D.C.
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6. The United States Pharmacopoeia-National Formulary (USP-NF), 2022.
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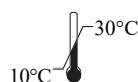
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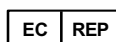
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