SS (Salmonella Shigella Agar) Agar

Intended Use
SS (Salmonella Shigella Agar) Agar is a differential and selective medium used for isolation of *Salmonella* and some *Shigella* species from clinical and non-clinical specimens.

Summary
SS Agar medium is recommended as differential and selective medium for the isolation of *Salmonella* and *Shigella* species from pathological specimens and suspected foodstuffs and for microbial limit test. SS Agar is a moderately selective medium in which Gram-positive bacteria are inhibited by bile salts, brilliant green and sodium citrate.

Principle
Peptic digest of animal tissue, beef extract provides essential growth nutrients. Brilliant green, bile salts, thiosulphate and citrates selectively inhibit Gram-positive and coliform organisms. Lactose is the fermentable carbohydrate and differentiation of enteric organisms is achieved based on lactose fermentation in the presence of neutral red. On fermentation of lactose by a few lactose fermenting normal intestinal flora, acid is produced, which is indicated by change in colour from yellow to red by the pH indicator neutral red and these organisms grow as red pigmented colonies. Non-lactose fermenters grow as translucent colourless colonies. Sodium thiosulphate and ferric citrate enable the detection of H_2S production. Sodium thiosulphate is reduced by certain species of enteric organisms to sulphite and H_2S gas and this reductive enzyme process is attributed by thiosulphate reductase. Production of H_2S gas is detected as an insoluble black precipitate of ferrous sulphide, formed upon reaction of H_2S with ferric ions or ferric citrate, indicated in the centre of the colonies.

Formula*

Ingredients	**g/L**
Lactose	10.0
Sodium Citrate	10.0
Bile Salts Mixture	8.5
Sodium Thiosulphate	8.5
Peptic Digest of Animal Tissue	5.0
Beef Extract	5.0
Ferric Citrate	1.0
Neutral Red	0.025
Brilliant Green	0.00033
Agar	15.0
Final pH (at 25°C)	7.0 ± 0.2

*Adjusted to suit performance parameters.

Storage and Stability
Store dehydrated medium below 30°C in tightly closed container and the prepared medium at 2°C-8°C. Avoid freezing and overheating. Use before expiry date on the label. Once opened keep powdered medium closed to avoid hydration.

Type of Specimen
Clinical samples; Food and Dairy samples

Specimen Collection and Handling
Ensure that all samples are properly labelled. Follow appropriate techniques for handling samples as per established guidelines. Some samples may require special handling, such as immediate refrigeration or protection from light, follow the standard procedure. The samples must be stored and tested within the permissible time duration. After use, contaminated materials must be sterilized by autoclaving before discarding.

Directions

1. Suspend 63.02 g of the powder in 1000 mL of purified / distilled water and mix thoroughly.
2. Boil with frequent agitation to dissolve the powder completely. AVOID OVER HEATING. DO NOT AUTOCLAVE.
3. Cool the medium to approximately 45°C - 50°C, pour into sterile petridishes.
4. Allow the plates to dry for about 2 hours with the cover partially removed under aseptic conditions.

Quality Control

Dehydrated Appearance: Pinkish yellow coloured homogeneous free flowing powder.
Prepared Appearance: Reddish orange coloured, opalescent gel with slight precipitate forms in petridishes.
Cultural Response: Cultural characteristics observed after an incubation of 18-24 hours at 35 ± 2°C.

Organism (ATCC)	Growth	Colour of Colony
Salmonella enterica subsp. *Enterica* serovar *Typhimurium* (14028)	Good	Colourless with black centres
Shigella flexneri serotype 2b (12022)	Good	Colourless
Enterococcus faecalis (29212)	Partial Inhibition	Colourless
Escherichia coli (25922)	Inhibited	-

Interpretation of Results

1. The high selectivity of Salmonella Shigella Agar allows the use of large inocula directly from faeces, rectal swabs or other materials suspected of containing pathogenic enteric bacilli.
2. 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.
3. Lactose non-fermenting organisms grow as translucent colourless colonies with or without black centres.
4. Growth of *Salmonella* species is uninhibited and appears as colourless colonies with black centres resulting from H_2S production.
5. *Shigella* species also grow as colourless colonies which do not produce H_2S.

Performance and Evaluation

Performance of the product is dependent on following parameters as per product label claim:

1. Directions
2. Storage
3. Expiry

Precautions / Limitations

It is recommended to inoculate plates of less inhibitory media parallel to SS Agar, such as Hektoen Enteric Agar or Deoxycholate Citrate Agar for easier isolation of *Shigella* species.

Warranty

This product is designed to perform as described on the label and package insert. The manufacturer disclaims any implied warranty of use and sale for any other purpose.

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., Washing Wastewater, 21st Ed., APHA, Washington, D.C.
4. Williams S., (Ed.), 2005, Official Methods of Analysis of the Association of Official Analytical Chemists, 19th Ed., AOAC, Washington, D.C.
5. The United States Pharmacopoeia, 2006, USP29/NF24, The United States Pharmacopoeial Convention. Rockville, MD.
6. MacFaddin J., 1985, Media for Isolation-Cultivation-Identification-Maintenance of Medical Bacteria, Vol. I, Williams and Wilkins, Baltimore.
7. Data on file: Microxpress®, A Division of Tulip Diagnostics (P) Ltd.

Product Presentation:

Cat No.	Product description	Pack Size
201190290100	Dehydrated Culture Media	100 g
201190290500	Dehydrated Culture Media	500 g
201190292500	Dehydrated Culture Media	2.5 k