Instructions For Use

ENGLISH

SS Agar (Modified)

Selective medium for isolation of *Salmonella* spp. and *Shigella* spp.

INTENDED PURPOSE

Highly selective medium for the isolation of *Salmonella* spp. and some species of *Shigella* from clinical specimens, food and other types of samples. This medium is intended as an aid in the diagnosis, requiring further tests to complete the diagnostic results.

DESCRIPTION

This improved formulation of Salmonella Shigella (SS) agar, which includes an alteration to the bile salt mixture and the hydrogen sulfide (H_2S) detection components, gives a better growth of *shigellae* and better colony characteristics for salmonellae.

TYPICAL FORMULA*	(g/litre)
Peptone	5.5
Meat Extract	5.0
Lactose	10.0
Sodium Thiosulphate	8.5
Yeast Extract	5.0
Sodium Citrate	1.0
Bile Salts No.3	1.5
Ferric Ammonium Citrate	1.5
Brilliant Green	0.00033
Neutral Red	0.025
Agar	14.0
Final pH 7.0 ± 0.2 at 25°C	

*Adjusted and/or supplemented as required to meet performance specifications.

METHOD PRINCIPLE

Peptone and meat extract provide amino acids, nitrogen, carbon, vitamins and minerals for organisms growth. Lactose is the fermentable carbohydrate. Bile salts, sodium citrate and brilliant green inhibit gram-positive bacteria and several Enterobacteriaceae, while allowing species of *Salmonella* and *Shigella* to grow. Sodium thiosulfate and ferric ammonium citrate enable the detection of hydrogen sulfide production as evidenced by colonies with black center. Neutral red is the pH indicator. Agar is the solidifying agent.

PREPARATION

Dehydrated medium.

Suspend 52.0 g of the powder in 1 liter of distilled or deionized water. Mix well. Heat to boil shaking frequently until dissolved completely. DO NOT AUTOCLAVE. Cool at 45-50°C, mix well avoiding foam formation and aseptically distribute into Petri dishes.

MATERIALS REQUIRED BUT NOT PROVIDED

Standard microbiological supplies and equipment such as: Sterile Petri plates, test tubes, inoculating loops, swabs, incubator, quality control organisms.

SPECIMENS

Clinical specimens such as stool specimens or rectal swabs of patients suspected to have a bacterial enteric infection should be sampled at the acute stage, before antimicrobial therapy (where possible) and examined as soon as possible after collection.
Good laboratory practices for collection, transport and storage of the clinical specimens should be applied. Refer to specific guidelines for more information about specimen collection and preparation.

TEST PROCEDURE

Inoculate the medium heavily with the specimen as soon as possible after it is received in the laboratory. The streak plate technique is used primarily to isolate pure cultures from specimens containing mixed flora.

Alternatively, if material is being cultured directly from a swab, roll the swab over a small area of the surface at the edge of agar plate; then streak from this inoculated area.

Incubate plates at 35 ± 2°C for 18-24 hours or longer if required.

For more details, consult appropriate guidance.

NOTE: A less selective medium, such as Hektoen Enteric Agar, XLD Agar, or MacConkey Agar, should also be inoculated to increase the chance of recovery when the population of gram-negative organisms is low and to provide an indication of other organisms present in the specimen.

INTERPRETING RESULTS

Salmonella spp. produce transparent colonies with a black center.
Shigella spp. form light rose to colorless colonies.

Non-lactose fermenters (supposed pathogens) produce colorless colonies.
Some coliforms, which might not be inhibited, will form small colonies from pink to red in color.

STORAGE

The powder is very hygroscopic, store the powder at 10-30°C, in a dry environment, in its original container tightly closed. Do not use the product beyond its expiry date on the label or if product shows any evidence of contamination or any sign of deterioration.

SHELF LIFE

4 years.

QUALITY CONTROL

Appearance of Dehydrated Medium: Free-flowing, homogeneous, light pink.

Appearance of Prepared Medium: Slightly opalescent, red-orange.

Expected Cultural Response:

Control strain		Inoculum	Incubation	Criteria	Specification
Salmonella typhimurium	ATCC® 14028	50-100 CFU	18-24 h / 35 ± 2°C	Good growth ($P_R \geq 0.5$)	Transparent colonies with black center
Shigella Flexneri	ATCC® 12022				Light rose to colorless colonies
Enterococcus faecalis	ATCC® 29212	10^4-10^6 CFU	24-48 h / 35 ± 2°C	Inhibition	---
Escherichia coli	ATCC® 25922			Inhibition	---

A productivity ratio (P_R) of 0.5 is equivalent to a recovery rate of 50%.

Please refer to the actual batch related Certificate of Analysis (CoA).

PERFORMANCE CHARACTERISTICS

Performance testing of SS Agar (Modified) was carried out using the QC strains listed above. The results obtained met the established criteria.

LIMITATIONS

Invalid results can be caused by poor specimen quality, improper sample collection, improper transportation, improper laboratory processing, or a limitation of the testing technology. The operator should understand the principles of the procedures, including its performance limitations, in advance of operation to avoid potential mistakes.

Although certain diagnostic tests may be performed directly on this medium, biochemical and, if indicated, immunological testing using pure cultures is necessary for complete identification. Consult appropriate references.

The incorporation of brilliant green into this medium makes it highly selective and has been shown to inhibit the growth of some *Shigella*.

The bile salts may crystallize over time, appearing as small spider-like puff balls within the medium, which do not affect the performance of the medium.

Some strains of Shigella, such as *Sonnei* and *S. dysenteriae* serovar 1, may ferment lactose relatively slowly, and colonies change to lactose-fermenting after cultivation for 2 or more days.

A few non-pathogenic organisms may grow on *Salmonella Shigella*.

WARNING AND PRECAUTIONS

1) **For *in vitro* diagnostic use (IVD).**
2) **For laboratory professional use only.**
3) Operators must be trained and have certain experience. Please read the instructions carefully before using the product. Reliability of assay results cannot be guaranteed if there are any deviations from the instructions in this document.
4) Consult the Safety Data Sheet (SDS) for information regarding hazards and safe handling practices.
5) Do not use if the product or packaging appears to be damaged.
6) Follow standard precautions. All patient specimens should be considered potentially infectious and handled accordingly.
7) Handle all specimens as if infectious using safe laboratory procedures. Dispose of hazardous or biologically contaminated materials according to the practices of your institution.
8) Avoid cross-contamination of samples by using disposable tips and changing them after each sample.
9) Do not mix reagents of different batches. Please use the product within the validity period.
10) Do not eat, drink, smoke, apply cosmetics or handle contact lenses in areas where reagents and human specimens are handled.
11) Results should be interpreted by a trained professional in conjunction with the patient's history and clinical signs and symptoms, and epidemiological risk factors.
12) Ensure laboratory equipment is calibrated and maintained in accordance with the laboratory's procedure.
13) When test results are transmitted from the laboratory to an informatics centre, attention has to be done to avoid erroneous data transfer.

DISPOSAL OF WASTE

Disposal of waste must be carried out according to national and local regulations in force.

BIBLIOGRAPHY

See the references at the end of this document.

TABLE OF SYMBOLS

See the table of symbols at the end of this document.

See ordering info below. There may be additional product ref. numbers as well. For an updated listing of available products, visit **liofilchem.com**

Product	Format	Packaging	Ref.
SS Agar (Modified)	Dehydrated media	100 g	620042
		500 g	610042
		5 kg	6100425

Revision History

Revision	Release Date	Change Summary
0	2023-08-30	Updated layout and content in compliance with IVDR 2017/746, version reset to revision 0

In case of malfunctions or defects, contact immediately Liofilchem (*) or the local representative.

In case of incident associated with the device, notify immediately Liofilchem (*) or its local representative and the National Competent Authority.

*Please login to https://www.liofilchemstore.it/login.php (user ID and password required) and click on Complaint.

This IFU document and the SDS are available from the online Support Center:
liofilchem.com/ifu-sds