

SAS™ Salmonella Test

For Research Use Only

A rapid visual assay
for the qualitative detection
of *Salmonella* in Foods
Store at 15°C to 30°C

 SA Scientific™
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INTENDED USE

SAS™ Salmonella Test is a qualitative rapid test for the detection of Salmonella in enriched media. This test is for professional use only.

INTRODUCTION

Except for a few sterile foods, all foods harbor microorganisms (1). Many pathogens (bacteria, molds and viruses) can contaminate food during various stages of their handling between production and consumption (1, 2). Salmonella species are considered the major causes of worldwide food borne and waterborne diseases, both in the number of incidents (sporadic and outbreaks) and the number of cases (1). While the average number of food borne salmonellosis outbreaks in the US was 37 per year between 1969 and 1979, the average number grew to 68 outbreaks per year between 1983 and 1987(1).

Based on the somatic, flagellar and capsular antigens, there are over 2000 salmonella serovars (given a species status). Each of these serovars is capable of causing salmonellosis in humans, however, only a small number of these serovars have been associated with food borne illnesses (1, 3). For example, *S. typhimurium* and *S. enteritidis* have been implicated in most of these outbreaks.

After ingestion of salmonella-contaminated food, symptoms appear between 8-42 hours later. The symptoms last between 2-3 days but could linger for a longer time in some individuals. Symptoms include diarrhea, vomiting, chills, fever, nausea, abdominal cramps, and prostration (1, 3). Salmonellosis can be fatal in infants, elderly and the immunocompromised. Therefore, early detection of this organism in ground meat and other foods is essential to reduce the number of infection outbreaks as well as to provide a higher quality assurance program for food safety (2).

The determination of low levels of salmonella in foods, methods involving a series of sequential culturing steps has been developed (2, 4). The methods include pre-enrichment on selective or differential media for 24-48 (2, 5) hours to increase the ratio of salmonella to competitor organisms. Biochemical or serological confirmation usually follows if presumptive positive colonies develop. These methods provide a high level of sensitivity to

detect one *Salmonella* bacterium in 25 g of food (2).

PRINCIPLE OF THE TEST

SAS™ Salmonella Test is designed to detect *Salmonella* antigens in contaminated food samples. The test is a rapid qualitative test that is based on the use of Salmonella-specific antibodies. The reaction between the enriched positive sample and the colored particle-conjugated antibody will form a complex that migrates along the membrane. An immobilized capture antibody will form a colored line at the specimen (S zone) upon reacting with the colored complex. An internal control line (C zone) is built in to assure that the test has been carried out correctly.

TEST PROCEDURE

Materials Provided:

Test device or dip sticks.

Materials Not Provided:

1. Sterile tubes or stomacher bags.
2. Enrichment broth, we recommend GN Broth (Hanja), (Difco, Detroit, MI, Cat. # 0486-05, or Accumedia, Baltimore, MD, Cat. # 7218), or Selenite Cystine Broth (Difco, Cat. # 0687-05, and Accumedia Cat. # 7283).

Protocol

Allow the dipstick or the test device, specimen and/or controls to reach room temperature (15°C to 30°C) prior to testing.

Sample Preparation/Test Running:

1. A ratio of 1:10 sample to enrichment media (EM) is recommended. For example, 10 g of ground meat in 90 ml of EM, or 25 ml of juice in 225 ml of EM.
2. Incubate the sample/EM broth mixture at 37°C for 16-24 hours.
3. Put the dipstick in the sample/broth mixture for 15-20 seconds, and then place it on a horizontal surface.
4. Alternatively, with a device test, add 3-4 drops of the sample/broth mixture in the sample well.

5. Read results within 10 minutes. Low positive results may take up to 15 minutes. Some positive results may be observed in as short as 30 seconds depending on the concentration of the antigen in the sample tested.

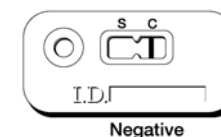
QUALITY CONTROL

Each test includes a built in procedural control. Correct procedural technique and test device performance is confirmed when a colored line appears in the C area (control) of the membrane. It is recommended that when a new shipment of product is received, negative and positive controls should be tested and the appropriate results obtained.

INTERPRETATION OF RESULTS

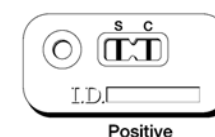
Negative results

The test is negative if only one colored line appears in the C area (control).



Positive results

The test is positive if two colored lines appear. One colored line will appear in the S area (specimen) and one in the C area (control). Any colored line in the S area should be considered positive. Colored lines may be lighter or darker than each other.



Invalid results

The test is invalid if no colored line appears in the C area (control) even if a colored line appears in the S area (specimen). If this occurs, add 1 to 2 additional drops of sample and wait for the test is invalid and should be repeated. Colored lines that appear after 15 minutes are not diagnostic and should be ignored.

STORAGE

The test kit is to be stored at room temperature (15° to 30°C) for the duration of the shelf life. The test device must remain in the sealed pouch until ready for use.

REFERENCES

1. B. Ray (1996). Foodborne Infections. In Fundamental Food Microbiology. CRC Press, Boca Raton, Florida, pp293-321.
2. C. Blackburn (1993). Rapid and alternative methods for the detection of salmonellas in foods. Annals of Applied Bacteriology, 75:199-214.
3. Garry, L. (1995). Escherichia, Salmonella, Shigella, and Yersinia. In Manual of Clinical Microbiology, 6th Edition, Murray, P. R., et al., Editors. American Society for Microbiology Press, Washington, DC.
4. R. R. Meer, and D. L. Park (1995). Immunochemical detection methods for salmonella spp., Escherichia coli 0157:H7 and Listeria monocytogenes in foods. Reviews in environmental Contamination and Toxicology, 142:1-12.
5. M. Busse (1995). Media for salmonella. International Journal of Food Microbiology, 26:117-131.

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